

CITY OF SANTA FE



SANTA FE AIRPORT TERMINAL IMPROVEMENTS FACILITIES DIVISION PROJECT MANUAL

CIP PROJECT #611B
CITY OF SANTA FE BID NO. '16/14/B

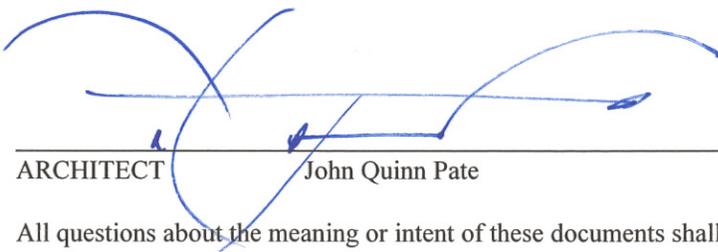
BIDS DUE:
NOVEMBER 12, 2015
PURCHASING OFFICE
CITY OF SANTA FE
2651 SIRINGO ROAD – BUILDING “H”
SANTA FE, NEW MEXICO 87505

MOLZEN CORBIN

2701 Miles Rd SE
Albuquerque, New Mexico 87106
505.242.5700

ARCHITECT: John Quinn Pate, RA/RLA
CIVIL ENGINEER: Steven K. Morrow, P.E.
STRUCTURAL ENGINEER: James Craig Hagelantz, P.E.
MECHANICAL ENGINEER: Paul M. Romero, P.E.
ELECTRICAL ENGINEER: Daniel Gonzales, P.E.

The technical material and data contained in the specifications under the supervision and direction of the undersigned, whose seal as a Professional Architect, licensed to practice in the State of New Mexico, is affixed below.



10/2/15

ARCHITECT John Quinn Pate

License No. 1784

All questions about the meaning or intent of these documents shall be submitted only to the Architect/Engineer of Record, stated above, in writing. Refer to the Instructions to Bidders as to interpretations

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PRE-BID INFORMATION
(00 0100)

(00 0101) DEBARRED OR SUSPENDED CONTRACTORS

A business (contractor, subcontractor, or supplier) that has either been debarred or suspended pursuant to the requirements of City Purchasing Manual or Section 13-1-177 through 13-1-180, and 13-4-17 NMSA 1978 as amended or City Purchasing provisions, shall not be permitted to do business with the City and shall not be considered for award of Contract during the period for which it is debarred or suspended.

(00 1100) BID INFORMATION

CITY OF SANTA FE
CAPITAL IMPROVEMENTS PROJECT

BID INFORMATION

SEALED BIDS FOR: SANTA FE AIRPORT TERMINAL IMPROVEMENTS
CIP PROJECT #611B
BID NO. '16/15/B

TO BE OPENED AT: City of Santa Fe
Purchasing Office
2651 Siringo Road
Building H
Santa Fe, New Mexico 87505
(505) 955-5711

TIME: Local Prevailing Time
2:00 PM

DATE: November 12, 2015

ADDRESSED TO: Mr. Robert Rodarte
Purchasing Director
City of Santa Fe
P.O. Box 909
Santa Fe, NM 87501

MANDATORY PRE-BID CONFERENCE: October 20, 2015 (Tuesday)
10:00 a.m. (local time)
Santa Fe Municipal Airport (SAF)
121 Aviation Drive
Santa Fe, New Mexico

Bids will be received until the above time, then opened publicly at the Purchasing Director's office or other designated place, and read aloud. BIDS RECEIVED AFTER THE ABOVE TIME WILL BE RETURNED UNOPENED.

Bidding Documents will be posted on the City of Santa Fe web site www.santafenm.gov and a link to the electronic plan sets can be obtained from City Project Manager.

BIDDING DOCUMENTS MAY BE REVIEWED AT THE FOLLOWING LOCATIONS:

Office of Molzen Corbin.
2701 Miles Road, SE
Albuquerque, New Mexico 87106

Bid Documents will also be on file at Builders News and Plan Room, Construction Reporter, and available through Dodge Data & Analytics and Reed (CMD).

Bids for the project will be presented in the form of a lump sum base bid plus alternates. Award will be made to the bidder providing the lowest total base bid. Bidder shall Bid all items listed in the Scope of Work. Bidder shall

include in the signed documents their license and classification. Contract award will be made to the responsible Bidder submitting the low Base Bid. However the Owner may award the contract to the responsible Bidder submitting the low combined Bid (Base Bid plus Additive Alternate and applicable Gross Receipts Taxes), within the amount of funds available, if applicable.

Bid security, made payable to the City of Santa Fe, the "Owner" in the amount of 5% of the proposal sum shall be submitted with the Bid. Bid security shall be in the form of a Bid Bond issued by Surety licensed to conduct business in the State of New Mexico, or by certified check. The Bidders security shall be retained by the Owner until the Contract is signed; the other Bidder's security shall be returned as soon as practicable. Failure or refusal by the successful Bidder to enter into Contract with the Owner will constitute Liquidated Damages in favor of the Owner.

The bid shall also include a signed "Non-Collusion Affidavit of Prime Bidders", signed "Certificate of Non-Segregated Facilities", a signed "Certificate of Bidder Regarding Equal Employment Opportunity", a Subcontractor's Listing and; if applicable, a Local Preference Application. The project is subject to the New Mexico Office of Labor Commission, Minimum Wage Rates for the State of New Mexico. Such wage rates are bound into the Contract Documents.

The successful Bidder shall, upon notice of award of contract, secure from each of his Subcontractors a signed "Non-Collusion Affidavit of Subcontractors".

The Bidding Documents contain a time for completion of the work by the successful Bidder, and further imposes liquidated damages for failure to comply with that time.

The Owner reserves the right to reject any and all Bids, to waive technicalities, and to accept the Bid it deems to be in the best interest of the City of Santa Fe.

The contractor shall be required comply with the most current City of Santa Fe, State of New Mexico and Federal codes.

The work designated as CIP PROJECT #611B Santa Fe Airport Terminal Improvements, includes Reconfiguration of existing spaces to provide a separate arrival gate with baggage conveyor, an enlarged area for TSA screening of departing passengers complete with restrooms, concessions and an outdoor patio, additional airline and TSA office, patio screen walls around service areas and a secondary entrance, and other minor improvements as included in the construction documents

- Contractor shall be responsible for adherence to the Contract Documents, Construction Documents, Specifications and approved directives.
- Contractor shall be responsible for verifications of existing conditions, measurements and dimensions for bidding.
- Contractor shall be responsible for permits, fees, and CID inspections associated with the construction.

The City of Santa Fe is an Equal Opportunity Employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation or national origin. The successful Bidder will be required to conform to the Equal Opportunity Employment Regulations.

ADVERTISEMENT

BID NO. '16/14/B

Bids will be received by the City of Santa Fe and will be delivered to City of Santa Fe, Purchasing Office, 2651 Siringo Road, Bldg. H Santa Fe, New Mexico 87505 until 2:00 p.m. (local prevailing time) November 12, 2015. Any bid received after this deadline will not be considered. This bid is for the purpose of

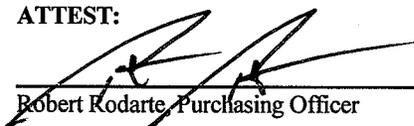
Santa Fe Airport Terminal Improvements

The bidder's attention is directed to the fact that all applicable Federal Laws, State Laws, Municipal Ordinances, and the rules and regulations of all authorities having jurisdiction over said item shall apply to the bid throughout, and they will be deemed to be included in the bid document the same as though herein written out in full.

The City of Santa Fe is an Equal Opportunity Employer and all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation or national origin. The successful bidder will be required to conform to the Equal Opportunity Employment regulations.

Bids may be held for sixty (60) days subject to action by the city. The city reserves the right to reject any or all bids in part or in whole. Bid packets are available by contacting: Mary MacDonald, Facilities Division, 2651 Siringo Road, Bldg. "E", Santa Fe, New Mexico 87505, (505) 955-5934.

ATTEST:



Robert Rodarte, Purchasing Officer

Received by the Santa Fe New Mexican on: 10/07/15

To be published on: 10/13/15

Received by the Albuquerque Journal on: 10/07/15

To be published on: 10/13/15

(00 1114) BID SCHEDULE

- | | |
|--|--|
| 1) ADVERTISEMENT: | <u>October 13, 2015</u> |
| 2) ISSUANCE OF BID PACKET: | <u>October 13, 2015</u> |
| 3) MANDATORY PRE-BID CONFERENCE: | <u>October 20, 2015</u>
10:00 a.m.
Santa Fe Municipal Airport - Terminal
121 Aviation Dr.
Santa Fe, New Mexico |
| 4) BID SUBMITTAL DEADLINE: | November 12, 2015 |
| 5) OPENINGS OF BIDS RECEIVED: | November 12, 2015 |
| PUBLIC WORKS/CIP AND LAND USE COMMITTEE: | November 23, 2015 |
| FINANCE COMMITTEE: | November 30, 2015 |
| CITY COUNCIL: | December 9, 2015 |

DATES OF CONSIDERATION BY COMMITTEES AND CITY COUNCIL ARE TENTATIVE AND SUBJECT TO CHANGE WITHOUT NOTICE. PLEASE NOTE THAT THE CONTRACTOR BEING RECOMMENDED FOR SELECTION WILL NOT BE REQUIRED TO ATTEND COMMITTEE OR CITY COUNCIL MEETINGS.

INSTRUCTIONS TO BIDDERS

(00 2100)

1.0 DEFINITIONS AND TERMS

- 1.1 Terms used in these Bidding Documents which are defined in the Conditions of the Contract for Construction (General, Supplementary, and other conditions) have the meanings assigned to them in those Conditions.

2.0 EXAMINATION OF BIDDING DOCUMENTS AND SITE

- 2.1 Before submitting a Bid, each Bidder must (a) examine the Bidding Documents thoroughly, (b) visit the site to familiarize himself with local conditions that may in any manner affect cost, progress, or performance of the work, (c) familiarize himself with Federal, State, and local laws, ordinances, rules, and regulations that may in any manner affect cost, progress, or performance of the work, and (d) study and carefully correlate the Bidder's observations with the Bidding Documents.
- 2.2 On request, the Owner will provide each Bidder access to the site to conduct such investigations and tests as each Bidder deems necessary for submission of his Bid.
- 2.3 The lands upon which the work is to be performed rights-of-way for access thereto, and other lands designated for use by the Contractor in performing the work are identified in the Bidding Documents.
- 2.4 The submission of a Bid will constitute an incontrovertible representation by the Bidder that has complied with every requirement of this Section and that the Bidding Documents are sufficient in scope and detail to indicate and convey understanding of all terms and conditions for performance of the work.

3.0 BIDDING DOCUMENTS

3.1 COPIES OF BIDDING DOCUMENTS

- 3.1.1 Complete sets of the Bidding Documents in the number and for the deposit sum, if any, stated in the Advertisement may be obtained as indicated therein. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good and complete condition within ten (10) calendar days after opening of Bids.
- 3.1.2 Complete sets of Bidding Documents shall be used in preparing Bids; the Owner does not assume responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.1.3 The Owner, in providing for copies of Bidding Documents available on the above terms, does so only for the purpose of obtaining Bids on the work and does not confer a license or grant for any other use.

3.2 INTERPRETATIONS

- 3.2.1 All questions about the meaning or intent of the Bidding Documents shall be submitted to the Architect/Engineer (A/E) in writing. Replies will be issued by Addenda mailed or delivered to all parties recorded by the A/E as having received the Bidding Documents. Questions received less than ten (10) days prior to the date for opening of Bids will not be answered. Only questions answered by formal written Addenda will be binding. Oral and other interpretations or clarifications will be without legal effect.

3.3 SUBSTITUTE MATERIAL AND EQUIPMENT

The Contract, if awarded, will be on the basis of material and equipment described in the Drawings or specified in the Specifications without consideration of possible substitute or "of-equal" items. Whenever it is indicated in the Drawings or specified in the Specifications that substitute "of-equal" item of material or equipment may be furnished or used by the Contractor if acceptable to the Owner, application of such acceptance will not be considered by the Owner until after the "effective date of the Contract." The procedure for submittal of any such application by the Contractor and consideration by the Owner is set forth in the Contract Documents.

3.4 ADDENDA

- 3.4.1 No oral interpretations of the meaning of the specifications or other pre-bid documents will be binding. Oral communications are permitted in order to make assessment for an addendum.
- 3.4.2 Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be delivered to all prospective bidders not later than three (3) days prior to the date fixed for the opening of the bids. Failure of any bidder to receive any such addendum or interpretations shall not relieve such bidder from any obligation under his bid as submitted. All addenda so issued shall become part of the contract documents.
- 3.4.3 The City reserves the right to not comply with these time frames if a critical addendum is required or if the proposal deadline needs to be extended due to a critical reason in the best interest of the City of Santa Fe.

4.0 BIDDING PROCEDURES

- 4.01 The person or persons opening the bids will adhere to the following procedure:
- 4.02 Bid – Name the Bidder and the Number of Bidder’s New Mexico Contractor’s License with a check for proper signatures.
- 4.03 Bid Bond only for the highest option bid.
- 4.04 Non-Collusion Affidavit of Prime Bidder.
- 4.05 Acknowledgement of Addenda, if any on the Bid Form.
- 4.06 Properly executed Bid Form.
- 4.07 Subcontractor Listing
- 4.08 Certificate of Bidder Regarding Equal Employment Opportunity
- 4.09 Certification of Non-segregated Facilities.
- 4.09 The state or any political subdivision of the state shall not accept a bid on a public works project subject to the Public Works Minimum Wage Act from a prime contractor that does not provide proof of required registration for itself.

If any of the other requirements have not been met, the bid shall be disqualified and considered a non-responsive bid. Any disqualified bids will not be read.

4.1 FORM AND STYLE OF BIDS

- 4.1.1 Bids shall be submitted on forms identical to the form included with the Bidding Documents.
- 4.1.2 All blanks on the Bid Form shall be filled in by typewriter or manually in ink.
- 4.1.3 Where so indicated by the makeup of the Bid Form, sums shall be expressed in both words and figures, and, in case of discrepancy between the two, the amount written in words shall govern.
- 4.1.4 Any interlineation, alteration, or erasure must be initialed by the signer of the Bid.
- 4.1.5 All requested Additive or Deductive Alternate Bids shall be Bid. If no change in the Base Bid is required, enter “No Change.”
- 4.1.6 Where there are two or more major items of work (identified as “Bid Lots”) for which separate quotations are requested, the Bidder may, at his discretion, submit quotations for any or all items, unless otherwise specified. Additionally, the Bidder may submit a lump sum price for all lots for which the Bidder has submitted separate quotations.
- 4.1.7 Each copy of the Bid shall include the complete name of the Bidder and a statement that the Bidder is a sole proprietor, a partnership, by the person or persons legally authorized to bind the Bidder to a contract. A Bid

by a corporation shall bind the Bidder to a contract. A Bid by a corporation shall further give the state of incorporation and have the applicable New Mexico Certificate of Incorporation number or Certificate of Authority number. The Bid shall include the current Contractor's license number and type, and the current Contractor's preference number. A Bid submitted by an agent shall have a current Power of Attorney attached certifying the agent's authority to bind the Bidder.

- 4.1.8 The Bid shall contain an acknowledgment of receipt of all Addenda (the numbers of which shall be filled in on the Bid Form).
- 4.1.9 The address, to which communications regarding the Bid are to be directed, must be shown.

4.2 BID SECURITY

- 4.2.1 Bid security only for the highest option bid in an amount equal to at least 5% of the amount of the Bid shall be a bond provided by a Surety company authorized to do business in this State, or the equivalent in cash, or otherwise supplied in a form satisfactory to the Owner. All Bonds shall be executed by such sureties as are named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies.
- 4.2.2 The Bid security shall be in the amount of five percent (5%) of the highest Bid amount submitted, unless otherwise stipulated, pledging that the Bidder will enter into a Contract with the Owner in the terms stated herein and will furnish bonds covering the faithful performance of the Contract and payment of all obligations arising there under. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds, the amount of the Bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- 4.2.3 The Owner will have the right to retain the Bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and bonds have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.
- 4.2.4 When the Bidding Documents require Bid security, noncompliance by the Bidder requires that the Bid be rejected.
- 4.2.5 If a Bidder is permitted to withdraw his Bid before award, no action shall take place against the Bidder or the Bid Security.

4.3 PRE-BID CONFERENCE

- 4.3.1 The Owner of Record shall conduct a mandatory Pre-Bid Conference approximately ten (10) calendar days prior to the Bid opening date stated in the Invitation for Bid.
- 4.3.2 The Owner of Record and his consultants, as applicable, shall be represented. Prospective Bidders and Prospective Subcontractors should ask questions regarding substitutions and/or request clarification of the Bidding Documents. The failure of a Bidder, Subcontractor, or Vendor to attend shall be interpreted to mean that the Bid Documents are clear and acceptable to all non participants at the Pre-Bid Conference. Such clarity and acceptability shall be presumed with respect to all Bidders.
- 4.3.3 Questions and requests for clarification are to be presented in written form. Responses will be written and issued as Addenda. No verbal response shall be binding.

4.4 RESIDENT PREFERENCE & LOCAL PREFERENCE

INTENT AND POLICY

The city recognizes that the intent of the state resident preference statute is to give New Mexico businesses and contractors an advantage over those businesses, manufacturers and contractors from outside the State of New Mexico. The underlying policy is to give a preference to those persons and companies who contribute to the economy of the State of New Mexico by maintaining businesses and other facilities within the state and giving employment to residents of the state (1969 OP. Att'y Gen. No. 69-42). The city also has adopted a policy to include a local preference to those persons and companies who contribute to the economy of the County of Santa Fe by maintaining businesses and other facilities within the county and giving employment to residents of the county.

APPLICATION-IN-STATE AND OUT OF STATE BIDDERS

With acknowledgment of this intent and policy, the preference will only be applied when bids are received from in-state and county businesses, manufacturers and contractors that are within 5% of low bids received from out-of-state businesses, manufacturers and contractors (13-1-21 (A) -1-21 (F) and 13-4-2 (C) NMSA 1978).

To be considered a resident for application of the preference, the in-state bidder must have included a valid state purchasing certification number with the submitted bid.

Thus it is recommended that in-state bidders obtain a state purchasing certification number and use it on all bids, in order to have the preference applied to their advantage, in the event an out-of-state bid is submitted. In submitting a bid, it should never be assumed that an out-of-state bid will not be submitted.

For information on obtaining a state purchasing certification number, the potential bidder should contact the State of New Mexico General Services Department-Purchasing Office (Joseph Montoya Building-1100 S. St. Francis Drive 87505, 827-0472).

All resident preferences shall be verified through the State Purchasing Office. Applications for resident preference not confirmed by the state Purchasing Office will be rejected. The certification must be under the bidder's business name submitting the bid.

NON-APPLICATION-COMPETING IN-STATE BIDDERS

If the lowest responsive bid and the next responsive bids within 5% of the lowest bid are all from the state of New Mexico, then the resident preference will not be applied and the state purchasing certification number will not be considered. To be considered an in-state bidder in this situation, the bidders must meet the definition criteria of Chapter 13-1-21 (A) (1) and Chapter 13-4-2 (A) NMSA 1978. After examining the information included in the bid submitted, the city Purchasing Director may seek additional information of proof to verify that the business is a valid New Mexico business. If it is determined by the city Purchasing Director that the information is not factual and the low responsive bid is actually an out-of-state bidder and not a New Mexico business, then the procedures in the previous section may be applied.

If the bidder has met the above criteria, the low responsive "resident" bid shall be multiplied by .95. If that amount is then lower than the low responsive bid of a "non-resident" bidder, the award will be based taking into consideration the resident preference of 5%.

APPLICATION FOR LOCAL PREFERENCE

For the purposes of this section, the terms resident business and resident manufacturer shall be defined as set out in Section 13-1-21 NMSA 1978; the term local as applied to a business or manufacturer shall mean:

Principal Office and location must be stated: To qualify for the local preference, the principal place of business of the enterprise must be physically located within the Santa Fe County Geographic Boundaries. The business location inserted on the Form must be a physical location, street address or such. DO NOT use a post office box or other postal address. Principal place of business must have been established no less than six months preceding application for certification.

The PREFERENCE FACTOR for resident and local preferences applied to bids shall be .95 for residents and .90 for local. The local preference for proposals shall be 1.10.

The PREFERENCE FACTOR for resident and local preferences applied to bids shall be .95 for residents and .90 for local. The local preference for proposals shall be 1.10.

New Mexico Resident Veteran Business Preference: New Mexico law, Section 13-1-22 NMSA 1978, provides a preference in the award of a public works contract for a "resident veteran business". Certification by the NM Department of Taxation and Revenue for the resident veteran business requires the Offeror to provide evidence of annual revenue and other evidence of veteran status.

An Offeror who wants the veteran business preference to be applied to its proposal is required to submit with its proposal the certification from the NM Department of Taxation and Revenue and the sworn affidavit attached hereto as Appendix E.

If an Offeror submits with its proposal a copy of a valid and current veteran resident business certificate, 7%, 8%, or 10% of the total weight of all the evaluation factors used in the evaluation of proposal may be awarded.

The local preference or resident business preference is not cumulative with the resident veteran business preference.

Bids for Goods and Services. When bids for the purchase of goods or services pursuant to Section 22 are received, the lowest responsive bid received from those bidders in the first category listed below shall be multiplied by the Preference Factor. If the resulting price of that bid receiving the preference is lower than or equal to the lowest bid of all bids received, the contract shall be awarded to that bidder receiving the preference. If no bids are received from bidders in the first category, or if the bid receiving the preference does not qualify for an award after multiplication by the Preference Factor, the same procedure shall be followed with respect to the next category of bidders listed to determine if the bid qualifies for award. The priority of categories of bidders is:

- (1) Local business
- (2) Resident business

Proposals for Goods and Services. When proposals for the purchase of goods or services pursuant to Section 23 are received, the evaluation score of the proposal receiving the highest score of all proposals from those proponents in the first category listed above shall be multiplied by the Preference Factor. If the resulting score of that proposal receiving the preference is higher than or equal to the highest score of all proposals received, the contract shall be recommended to that proponent receiving the preference. If no proposals are received from proponents in the first category, or if the proposal receiving the preference does not qualify for an award after multiplication by the Preference Factor, the same procedure shall be followed with respect to the next category of proposals listed to determine if a proponent qualifies for award.

Qualifications for Resident Preference. No resident business or manufacturer, as defined, shall be given any preference in the awarding of contracts for furnishing goods or services to the city, unless it shall have qualified with the State Purchasing Agent as a resident business or manufacturer and obtained a certification number as provided in Section 13-1-22 NMSA 1978. The certification number must be submitted with its bid for an offeror to qualify for this preference. The Central Purchasing Office shall determine if a resident preference is applicable to a particular offer on a case by case basis.

Qualifications for Local Preference. The Central Purchasing Office shall have available a form to be completed by all bidders/proponents who desire to apply for the local preference as a local business. The completed form with the information certified by the offeror must be submitted by the bidders/proponents with their bid or proposal to qualify for this preference.

Limitation. No offeror shall receive more than a 10% preference pursuant to this section on any one offer submitted. A bidder may not claim cumulative preferences.

Application. This section shall not apply to any purchase of goods or services when the expenditure of federal and/or state funds designated for a specific purchase is involved and the award requirements of the funding prohibit resident and/or local preference(s). This shall be determined in writing by the department with the grant requirements attached to the Purchasing Office before the bid or request for proposals is issued.

Exception. The City Council at their discretion can approve waiving the Local Preference requirements for specific projects or on a case by case basis if it is the City's best interest to do so.

4.5 SUBCONTRACTORS

4.5.1 The threshold amount for this project is \$6,000.00. The General Contractor must list all Subcontractors who will perform work in excess of this threshold. Only one Subcontractor may be listed for each category as defined on by the Contractor. The Subcontractor Fair Practice Act (13-4-31 through 13-4-43 NMSA 1978) shall apply.

The Bidder shall list the Subcontractors or material suppliers he proposes to use for all trades or items on the Subcontractor Listing Form attached to the Bidding Document. If awarded the contract, the Bidder shall use the firm listed, or himself if "General Contractor has been listed, unless a request for a change or substitution is approved by the Owner of any reason as outlined herein.

4.5.2 The Owner shall consider any request for a change in the listed forms if the Bidder can furnish evidence of being able to perform the work in a manner more satisfactory and beneficial to both the Owner and the Bidder by not using the listed form. Satisfactory reasons for a substitution may include the inability to bond or lack of evidence of being able to furnish acceptable materials on schedule. Also, if the Bidder has made a legitimate error in listing a low Subcontractor, a request for substitution, made after the Bid Opening with the Owner's approval, will be considered. The proof of error must be conclusive, based upon the approval of said evidence by the listed Subcontractor or material supplier and/or any other confirmation satisfactory to the Owner.

- 4.5.3 The Bidder shall not list himself as the supplier or as the Subcontractor for any trade unless he has previously performed work of this type or can prove to the Owner's satisfaction that he actually has or will obtain, fully adequate facilities and plans to perform the work with his own forces.
- 4.5.4 Omission or non-compliance with the intent of the Subcontractor Listing will be grounds for considering a Bid as non-responsive.
- 4.5.5 Prior to the award of the Contract, the Owner will notify the Bidder in writing if, after due investigation and written findings of fact, has reasonable and substantial objection to any person or organization on such list and refuses in writing to accept such person or organization, the Bidder may, at his option, (1) withdraw his Bid, or (2) submit an acceptable substitute Subcontractor with no increase in his Bid Price. In the event of withdrawal under this paragraph, Bid security will not be forfeited.
- 4.5.6 The successful Bidder shall, within seven (7) calendar days of notification of selection for the award of Contract for the work, submit the following information to the Owner:
 - (A) A signed list of the proprietary names and the suppliers of principal items or systems of materials and equipment proposed for the work; and
 - (B) A list signed by all Subcontractors proposed for the principal portions of the work in accordance with the Subcontractors Listing Form submitted with the Bid.
- 4.5.7 The successful Bidder will be required to establish to the satisfaction of the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the work described in the Bidding Documents.
- 4.5.8 Persons and organizations proposed by the Bidder and to whom the Owner has made no reasonable objection under the provisions of Paragraph 4.5.7 must be used on the work for which they were proposed and shall not be changed except with the written consent of the Owner.
- 4.5.9 No successful Bidder shall be required to employ any Subcontractor, other person, or organization against whom he has reasonable objection.

4.6 SUBMISSION OF BIDS

- 4.6.1 Bids shall be submitted at the time and place indicated in the Invitation for Bid and shall be submitted in a sealed envelope marked with the Project title and name and address of the Bidder, New Mexico License #, and accompanied by the Bid Security, Subcontractors Listing, and other required documents listed in the Bid Documents.
- 4.6.2 The envelope shall be addressed to:

Purchasing Agent/City of Santa Fe
2651 Siringo Road, Building 'H'
Santa Fe, NM 87505

The following information shall be provided on the front of the Bid envelope: Invitation for Bid number, date of opening, time of opening, and New Mexico License Number. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BIDS ENCLOSED" on the face thereof.
- 4.6.3 Bids received after the date and time for receipt of Bids will be returned unopened.
- 4.6.4 The Bidder shall assume full responsibility for timely delivery of Bids at the office of the City's Purchasing Division, including those Bids submitted by mail. Hand-delivered Bids shall be submitted at the front desk of the City Purchasing Division and will be clocked in at the time received, which must be prior to the time specified. Bids will then be held for public opening.
- 4.6.5 Oral telephonic, e-mailed or telegraphic Bids are invalid and will not receive consideration.

4.7 CORRECTION OR WITHDRAWAL OF BIDS

- 4.7.1 A Bid containing a mistake discovered before Bid Opening may be modified or withdrawn by a Bidder prior to the time set for Bid Opening by delivering written or telegraphic notice to the location designated in the Invitation for Bid as the place where Bids are to be received.
- 4.7.2 Bid security, if required, shall be in an amount sufficient for the Bid as modified or resubmitted in conformance with Section 4.2.
- 4.7.3 Withdrawn Bids may be resubmitted up to the time and date designated for the receipt of Bids, provided they are then fully in conformance with the Bid Documents.
- 4.7.4 After Bid Opening, no modifications in Bid Prices or other provisions of Bids shall be permitted. A low Bidder alleging a material mistake of fact which makes his Bid non-responsive may be permitted to withdraw his Bid if:
- (A) The mistake is clearly evident on the face of the Bid document; or
 - (B) The Bidder submits evidence which clearly and convincingly demonstrates that a mistake was made.

Any decision by the Owner to permit or deny the withdrawal of a Bid on the basis of a mistake contained therein shall be supported by a determination setting forth the grounds for the decision. If withdrawal is permitted, Bid security will not be forfeited.

4.8 NOTICE OF CONTRACT REQUIREMENTS BINDING ON BIDDER

- 4.8.1 In submitting this Bid, the Bidder represents that he has familiarized himself with the nature and extent of the following requirements of the Conditions of the Construction Contract (General, Supplementary, and Other Conditions).
- (A) Definitions - Sections 1.0 to 1.17;
 - (B) Bribes, Gratuities, and Kickbacks - Section 4.0;
 - (C) Contract Bond Requirements - Section 4.2;
 - (D) Equal Employment Opportunity - Labor Standards Provisions and other listed within the Contract Documents.

4.9 REJECTION OR CANCELLATION OF BIDS

- 4.9.1 An Invitation for Bid may be canceled, or any or all Bids may be rejected in whole or in part, when it is in the best interest of the Owner. A determination containing the reasons shall be made part of the Project file. Bid security for rejected Bids shall be returned to the Bidder.

4.10 PROTESTS

- 4.10.1 Any Bidder, Offeror, or Contractor who is aggrieved in connection with this procurement (Bid) may protest to the City Purchasing Agent and the Owner in accordance with the requirements. The protest should be made in writing within twenty-four (24) hours after the facts or occurrences giving rise thereto, but in no case more than within fifteen (15) calendar days after the facts or occurrences giving rise thereto.
- 4.10.2 The complete procedures and requirements regarding protest are available from the Purchasing Office upon request.

4.11 COMPETITIVE SEALED BIDS

- 4.11.1 Contracts solicited by competitive sealed Bids shall require that the base Bid amount exclude the applicable state gross receipts taxes or applicable local option taxes, but that the contracting agency shall be required to pay the applicable taxes including any increase in the applicable tax which becomes effective after the date the Contract is entered into. The applicable gross receipts taxes or local option taxes shall be shown as a separate amount on each billing or request for payment made under the contract.

5.0 CONSIDERATION OF BIDS

5.1 RECEIPT, OPENING, AND RECORDING

5.1.1 Bids received on time will be opened publicly and will be read aloud, and an abstract of the amounts of the Base Bids and Alternates or Bid items, if any, will be made available to the Bidders. Each Bid shall be open to public inspection. The Owner shall have the right to waive any informalities or irregularities in any Bid or Bids received and to accept the Bid or Bids which are in the Owner's best interest.

5.2 BID EVALUATION AND AWARD

5.2.1 It is the intent of the Owner to award a Contract to the responsible Bidder submitting the lowest option base bid provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available and is in the best interest of the City. The unreasonable failure of a Bidder to promptly supply information in connection with an inquiry with respect to responsibility is grounds for a determination that the Bidder is not a responsible Bidder.

5.2.2 Discrepancies in the Bid Form between words and figures will be resolved in favor of words. Discrepancies between the indicated sum of any column of figures and the correct sum thereof will be resolved in favor of the correct sum.

5.2.3 Acceptance of Alternates: Owner reserves the right to accept any alternate in any order.

5.3 NOTICE OF AWARD

A written Notice of Award shall be issued by the Owner after review and approval of the Bid and related documents by the Governing Authority, "as defined in the Supplementary Conditions", with reasonable promptness.

5.4 IDENTICAL BIDS

5.4.1 When two or more of the Bids submitted are identical in price and are the low Bid, the City Purchasing Agent or the Owner may:

- (A) Award pursuant to the identical low bid provisions of the City Purchasing Manual;
- (B) Award to a resident local business if the identical low Bids are submitted by a resident or local business and a non-resident business;
- (C) Award to resident or local manufacturer if the identical low Bids are submitted by a resident or local manufacturer and a resident business;
- (D) Award by lottery to one of the identical low Bidders; or
- (E) Reject all Bids and re-solicit Bids or proposals for the required services, construction, or items of tangible personal property.

5.5 CANCELLATION OF AWARD

5.5.1 When in the best interest of the public, the Owner may cancel the award of any Contract at any time before the execution of said contracts by all parties without any liability against the Owner.

6.0 POST-BID INFORMATION

6.1 RETURN OF BID SECURITY

All Bid security in the form of checks, except those of the two lowest Bidders, will be returned immediately following the opening and checking of the Bids. The retained Bid security of the unsuccessful of the two lowest Bidders, if in the form of a check, will be returned within fifteen (15) days following the award of contract. The retained Bid security of the successful Bidder, if in the form of a check, will be returned after a satisfactory Contract bond has been furnished and the Contract has been executed. Bid securities in the form of Bid bonds will be returned only upon the request of the unsuccessful Bidder, but will be released by the City Purchasing Agent after the Notice of Award is sent by the Owner.

6.2 NOTICE TO PROCEED

The Owner will issue a written Notice to Proceed to the Contractor stipulating the date from which Contract Time will be charged and the date Contract Time is to expire, subject to valid modifications of the Contract authorized by Change Order.

6.3 FAILURE TO EXECUTE CONTRACT

Failure to return the signed Contract with acceptable Contract Bonds and Certificate of Insurance within fifteen (15) calendar days after the date of the Notice of Award shall be just cause for the cancellation of the award and the forfeiture of the Bid security, which shall become damages sustained. Award may then be made to the next lowest responsible Bidder, or the work may be re-advertised and constructed under Contract or otherwise, as the Owner may decide.

6.4 CONTRACTOR'S QUALIFICATION STATEMENT

6.4.1 Bidder to whom award of a Contract is under consideration shall submit, upon request, information and data to prove that their financial resources, production or service facilities, personnel, and service reputation and experience are adequate to make satisfactory delivery of the services, construction, or items of personal property described in the Bidding Documents and form of Statement of Bidder's Qualifications.

6.5 CONTRACT BONDS REQUIREMENTS

6.5.1 The successful Bidder, where the Contract price exceeds twenty five thousand dollars (\$25,000), shall post a one hundred percent (100%) Performance Bond and one hundred percent (100%) Labor and Material Payment Bond. Bonds shall be executed on Performance Bond and Labor and Material Bond forms attached hereto, with amount payable conforming to the terms of the Contract. Surety shall be a company licensed to do business in the State of New Mexico and acceptable to the Owner.

6.6 INSURANCE REQUIREMENTS

6.6.1 The selected Bidder shall purchase and maintain, with a company or companies licensed to do business in the State of New Mexico, Liability and Property Insurance as required by law.

6.6.2 The insurance shall be in limits not less than those stated in the insurance for, enclosed in the Bid package, or greater if required by law.

6.6.3 The insurance coverage shall include worker's compensation, employers liability, comprehensive general liability (Premises Operations, independent contractual liability, explosion and collapse hazard, underground hazard, personal injury), Comprehensive automobile liability (owned and hired), excess liability (umbrella form), and all-risk builder's risk. For more specific insurance requirements refer to page 8 of the boilerplate AIA agreement included in this RFB.

6.6.4 All insurance coverage must be maintained for the entire life of the project. Products and completed operations coverage shall be maintained for a minimum period of one (1) year after final payment.

6.6.5 A valid certificate of insurance must be submitted to the Owner prior to issuance of a Notice-to-Proceed.

7.0 MINIMUM WAGE RATES

7.1 Pursuant to the requirements of any Contract entered into in excess of sixty thousand dollars (\$60,000) for construction, alteration, demolition, or repair, or any combination of these, including painting and decorating of public buildings or public works, is subject to the minimum wage rate determination issued by the Office of the Labor Commissioner for this project. This project is subject to SF-15-1373 B.

7.2 The Bidder shall ensure that, in submitting his Bid, the minimum wage rate determination, include herein, has been utilized in preparing his Bid.

7.3 A summary of the City of Santa Fe Ordinance No. 2003-8, passed by the Santa Fe City Council on February 26, 2003 is included herein. The proponent or bidder will be required to submit the proposal or bid such that it complies with the ordinance to the extent applicable. The recommended Contractor will be required to comply with the ordinance to the extent applicable, as well as any subsequent changes to the Ordinance throughout the term of this contract.

8.0 OTHER INSTRUCTIONS TO BIDDERS

- 8.1 The Owner will make copies of such reports available to any Bidder requesting them.. These reports are not guaranteed as to accuracy or completeness, nor are they part of the bidding documents. Before submitting his Bid, each Bidder shall, at his own expense, make such additional investigations and tests as the Bidder may deem necessary to determine his Bid for performance of the work in accordance with the time, price, and other terms and conditions of the Bidding Documents.
- 8.2 It shall be the responsibility of the successful Bidder to secure from the New Mexico Regulations & Licensing Department, Construction Industries Division (CID) such permits or licenses required to carry out the construction.

9.0 NEW MEXICO LABOR AND INDUSTRIAL DIVISION OF THE LABOR DEPARTMENT CONTRACTOR AND SUBCONTRACTOR REGISTRATION

- 9.1 Registration with the Labor and Industrial Division of the Labor Department. A contractor or subcontractor that submits a bid valued at more than sixty thousand dollars (\$650,000) for a city project that is subject to the Public Works Minimum Wage Act (13-4-11 NMSA 1978) shall be registered with the labor and industrial division of the labor department. The registration number shall be provided in the bid submitted for the contractor in the space provided and for subcontractors with work proposed over \$60,000 on the subcontractor form. After the bid opening, the registration number(s) will be verified by the City and the bid will be determined to be non-responsive and disqualified if the registration number(s) appear to be not valid and the contractor does not provide proof of the required registration for itself or its subcontractors with work proposed over sixty thousand dollars (\$60,000). It is the responsibility of the contractor and the subcontractors to ensure the registration is completed prior to the bid opening.

INFORMATION AVAILABLE TO BIDDERS
(00 3000)

(00 3100) EXISTING CONDITIONS

It is the Contractor's responsibility to verify existing conditions prior to bidding. A walk-through of the existing facility will be available at the end of the pre-bid meeting.

BID FORM

(00 4113) BID FORM - STIPULATED SUM (Single-Prime Contract)

Invitation No: RFB _____

Project: SANTA FE AIRPORT TERMINAL IMPROVEMENTS
CIP PROJECT #611B

Contractor:

Date: _____, 2015

This Bid is submitted to:

CITY OF SANTA FE
PURCHASING DIRECTOR
2651 SIRINGO ROAD, BUILDING H
SANTA FE, NEW MEXICO 87505

1. The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an agreement with the Owner in the form included in the Bidding Documents to perform and furnish all work as specified or indicated in the Bidding Documents for the Contract Price and within the Contract Time indicated in this Bid and in accordance with the other terms and conditions of the Contract Documents.
2. The Bidder accepts all of the terms and conditions of the Invitation for Bid and Instructions to Bidders, including, without limitation, those dealing with the disposition of Bid security and other Bidding Documents. This Bid will remain subject to acceptance for *60 days after the day of Bid opening. The Bidder shall sign and submit the Agreement between Owner and Contractor (hereinafter called Agreement) with the bonds and other documents required by the Bidding Requirements within fifteen (15) calendar days after the date of the Owner's Notice to Award.
3. In submitting this Bid, the Bidder represents, as more fully set forth in the Agreement, that:
 - A. The Bidder has examined copies of all the Bidding Documents and of the following Addenda (receipt of all of which is hereby acknowledged):

No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
No. _____	Date _____	No. _____	Date _____
 - B. The Bidder has familiarized himself with the nature and extent of the Bidding Documents, work, site, locality, and all local condition, laws, and regulations that in any manner may affect cost, progress, performance, or furnishing of the work.
 - C. The Bidder has carefully studied all reports and drawings of subsurface conditions which are identified in the Information Available to Bidders and accepts the determination set forth in the Information Available to Bidders of the extent of the technical data contained in such reports and drawings upon which the Bidder is entitled to rely.
 - D. The Bidder has correlated the results of all such observations, examinations, investigations, explorations, tests, reports, and studies with the terms and conditions of the Bidding Documents.
 - E. The Bidder has given the Architect written notice of all conflicts, errors, or discrepancies that he has discovered in the Bidding Documents, and the written resolution thereof by the Architect is acceptable to the Bidder.
 - F. This Bid is genuine and not made in the interest of or on behalf of any undisclosed person, firm, or corporation and is not submitted in conformity with any agreement or rules of any group, association, organization, or corporations, the Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid; the Bidder has not solicited or induced any person, firm or corporation to refrain from bidding; and the Bidder has not sought by collusion to obtain for himself any advantage over any

other Bidder or over the Owner. It is understood that the Owner reserves the right to reject any or all Bids and to waive any technical irregularities in the bidding.

G. It is the intent of the City to award a Contract to the responsible Bidder submitting the lowest total option, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and is in the best interest of the City.

4. The Bidder will complete the work designated as SANTA FE AIRPORT TERMINAL IMPROVEMENTS, CIP PROJECT #611B for the following price(s): (All prices listed below are for a complete installed product and includes all labor, materials, equipment, bonding, insurance, overhead & profit, etc.)

A. LUMP SUM BID

- 1. Subtotal Base Bid \$ _____
- 2. Fire Alarms Mods Allowance: \$ 5,000.00
- 3. Quantity Allowance (Unit Price Items): \$ _____

Total Base Bid plus Allowances _____

_____ (\$ _____)
(use words) (use figures)

Gross Receipts Taxes @ 8.3125% _____

_____ (\$ _____)
(use words) (use figures)

B. ALTERNATE NO. 1: Provide construction to enclose 460 sf of west porch, and to alter the area for use as interior office spaces

_____ (\$ _____)
(use words) (use figures)

Gross Receipts Taxes @ 8.3125% _____

_____ (\$ _____)
(use words) (use figures)

C. UNIT PRICE ITEMS

ITEM DESCRIPTION	UNIT QUANTITY	UNIT PRICE	ALLOWANCE AMOUNT
Temporary Barrier included in Base Bid	50 LF	\$	\$
Additional Temporary Barrier	LF	\$	

5. The Bidder agrees that:

- A. The work to be performed under the Contract shall commence not later than ten (10) consecutive calendar days after the date of written Notice to Proceed, and that completion of the Base Bid shall be achieved not later than one-hundred twenty (120) calendar days after the date of written "Notice to Proceed", except as hereafter extended by valid written "Change Order" by the Owner.
- B. Should the Contractor neglect, refuse, or otherwise fail to complete the work within the time specified, the Contractor agrees, in partial consideration for the award of this Contract, to pay the Owner the amount of one thousand dollars (\$1,000.00) per consecutive calendar days, not as a penalty, but as liquidated damages for such breach of the Contract.
- C. The above prices shall include all labor, profit, insurance, (excluding applicable taxes), etc., to cover the finished work of the many kinds called for. Changes shall be processed in accordance with the Contract Documents.

D. It is understood that the Owner reserves the right to reject any or all Bids and to waive any technical irregularities in the bidding.

6. The following documents are attached to and made a condition of this Bid:

- A. Bid Bond (Bid Security Form and Agent's Affidavit)
- B. This Bid Form, properly filled out and executed, including acknowledgement of Addenda, if any
- C. Subcontractor Listing
- D. Non-Collusion Affidavit of Prime Bidder
- E. Certification of Non-Segregated Facilities
- F. Resident contractor or Resident Veteran Contractor Certificate
- G. Certificate of Registration with New Mexico Dept. of Workforce Solutions
- H. Certification of Equal Employment Opportunity

If any of the above requirements have not been met, the bid shall not be valid.

7. The terms used in this Bid and the Bidding and Contract Documents which are defined in the Conditions of the Construction Contract (General, Supplementary, and Other Conditions)

8. If the Bidder is:

A. AN INDIVIDUAL:

By: _____
(Individual's Name)

doing business as:

Business address:

Telephone: _____

(SEAL)

B. A PARTNERSHIP:

By: _____
(Firm Name)

(General Partner)

Business Address:

Telephone: _____

(SEAL)

C. A CORPORATION

By: _____

(Corporation Name)

(State of Incorporation)

By: _____
(Name of person authorized to sign)

(Title)

If a New Mexico
Corporation: _____
Certificate of Incorporation No.

If a Foreign Corporation: _____
Certificate of Authority No.

Attest: _____
(Secretary)

Business address: _____

Telephone: _____

D. A JOINT VENTURE

By: _____
(Name)

Address: _____

By: _____
(Name)

Address: _____

Each joint venture must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated in the appropriate category.

Bidder must fill in the following: (If none, write none)

NM License No.: _____ Classification: _____

NM Department of Labor Registration No. _____

Resident Contractor or Resident Veteran Contractor Certification No. _____

City of Santa Fe Business Registration No.: _____

One Original and one copy of the Bid Submittal is required

SUPPLEMENT TO BID FORMS
(00 4300-4500)

(00 4313) BID SECURITY FORM

Review and Approval: This Bond has been executed by a Surety named in the current list of “Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies,” as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, United States Treasury Department.

Approved:

DATE:

Owner’s Representative or Governing Authority

THIS FORM MUST ACCOMPANY THE BID BOND

(00 4519) NON-COLLUSION AFFIDAVIT OF PRIME BIDDER

STATE OF _____)
)ss.
COUNTY OF _____)

_____, being first duly sworn, deposes and says that:

- 1) He is the _____ of _____, the Bidder that has submitted and attached Bid;
- 2) He is fully informed respecting the preparation and contents of the attached Bid and of all pertinent circumstances respecting such Bid;
- 3) Such Bid is genuine and is not a collusive or sham Bid;
- 4) Neither the said Bidder nor any of its officers, partners, owners, agents, representatives, employees, or parties in interest, including this affiant, has in any way colluded, conspired, connived or agreed, directly or indirectly with the Bidder, firm or person to submit a collusive or sham Bid in connection with the Contract for which the attached Bid has been submitted or to refrain from bidding in connection with such Contract or has in any manner directly or indirectly, sought by agreement or collusion or communications or conference with any other Bidder, firm or person to fix the price or prices in the attached Bid or of any other Bidder, or to fix any overhead, profit or cost element of the Bid price or the Bid price of any other Bidder, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against the City of Santa Fe, or any person interested in the proposed Contract; and
- 5) The price or prices quoted in the attached Bid are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owners, employees, or parties in interest, including this affiant.

By: _____

Title: _____

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public

My Commission expires: _____

(00 4533) CERTIFICATION OF NON-SEGREGATED FACILITIES

(Applicable to construction contracts and related subcontracts exceeding \$10,000 which are not exempt from the Equal Opportunity Clause.)

The construction contractor certifies that he does not maintain or provide for his employees any segregated facilities at any of his establishments and that he does not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The construction contractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location, under his control, where segregated facilities are maintained. The construction contractor agrees that a breach of this certification is a violation of the Equal Opportunity Clause in this contract. As used in this certification, the term "segregated facilities" means: any waiting room, work areas, rest rooms and wash rooms, restaurants and other eating areas; time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directive or are in fact segregated on the basis of race, creed, color, or national origin because of habit, local custom, or otherwise. The construction contractor agrees that (except where he has obtained identical certifications from proposed Subcontractors for specific time periods) he will obtain identical certifications from proposed SUBCONTRACTORS prior to the award of subcontracts exceeding \$10,000 which are not exempt from the provision of the Equal Opportunity Clause and that he will retain such certifications in his files.

By: _____
Title: _____

Subscribed and sworn to before me this _____ day of _____, 20__.

Notary Public

My Commission expires: _____

(00 4534) INSTRUCTIONS RELATING TO LOCAL PREFERENCE CERTIFICATION FORM

1. All information must be provided. A 10% local preference may be available for this procurement. To qualify for this preference, an offeror must complete and submit the local preference certification form with its offer. If an offer is received without the form attached, completed, notarized, and signed or if the form is received without the required information, the preference will not be applied. The local preference form or a corrected form will not be accepted after the deadline for receipt of bids or proposals.
2. Local Preference precedence over State Preference: The Local Preference takes precedence over the State Resident Preference and only one such preference will be applied to any one bid or proposal. If it is determined that the local preference applies to one or more offerors in any solicitation, the State Resident Preference will not be applied to any offers.
3. Principal Office and location must be stated: To qualify for the local preference, the principal place of business of the enterprise must be physically located within the Santa Fe County Geographic Boundaries. The business location inserted on the Form must be a physical location, street address or such. DO NOT use a post office box or other postal address. Principal place of business must have been established no less than six months preceding application for certification.
4. Subcontractors do not qualify: Only the business, or if joint venture, one of the parties of the joint venture, which will actually be performing the services or providing the goods solicited by this request and will be responsible under any resulting contract will qualify for this preference. A subcontractor may not qualify on behalf of a prime contractor.
5. Definition: The following definition applies to this preference.

A local business is an entity with its Principal office and place of business located in Santa Fe County.

A Principal office is defined as: The main or home office of the business as identified in tax returns, business licenses and other official business documents. A Principal office is the primary location where the business conducts its daily operations, for the general public, if applicable. A temporary location or movable property, or one that is established to oversee a City of Santa Fe project does not qualify as a Principal office.

Additional Documentation: If requested a business will be required to provide, within 3 working days of the request, documentation to substantiate the information provided on the form. Any business which must be registered under state law must be able to show that it is a business entity in good standing if so requested.

(00 4534.1) LOCAL PREFERENCE CERTIFICATION FORM

RFP/RFB NO: _____

Business Name: _____

Principal Office: _____
Street Address City State Zip Code

City of Santa Fe Business License # _____ (Attach Copy to this Form)

Date Principal Office was established: _____ (Established date must be six months before date of Publication of this RFP or RFB).

CERTIFICATION

I hereby certify that the business set out above is the principal Offeror submitting this offer or is one of the principal Offerors jointly submitting this offer (e.g. as a partnership, joint venture). I hereby certify that the information which I have provided on this Form is true and correct, that I am authorized to sign on behalf of the business set out above and, if requested by the City of Santa Fe, will provide within 3 working days of receipt of notice, the necessary documents to substantiate the information provided on this Form.

Signature of Authorized Individual: _____

Printed Name: _____

Title: _____ Date: _____

Subscribed and sworn before me by _____ this _____, day of _____

My commission expires _____
Notary Public

SEAL

THIS FORM MUST ACCOMPANY THE BID

(00 4535) RESIDENT VETERANS PREFERENCE CERTIFICATION

_____ (NAME OF CONTRACTOR) hereby certifies the following in regard to application of the resident veterans' preference to this procurement.

Please check one box only:

I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is less than \$1M allowing me the 10% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than \$1M but less than \$5M allowing me the 8% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

I declare under penalty of perjury that my business prior year revenue starting January 1 ending December 31 is more than \$5M allowing me the 7% preference discount on this solicitation. I understand that knowingly giving false or misleading information about this fact constitutes a crime.

I agree to submit a report or reports to the State Purchasing Division of the General Services Department declaring under penalty of perjury that during the last calendar year starting January 1 and ending on December 31, the following to be true and accurate:

In conjunction with this procurement and the requirements of this business application for a Resident Veteran Business Preference/Resident Veteran Contractor Preference under Sections 13-1-21 or 13-1-22 NMSA 1978, which awarded a contract which was on the basis of having such veterans preference, I agree to report to the State Purchasing Division of the General Services Department the awarded amount involved. I will indicate in the report the award amount as a purchase from a public body or as a public works contract from a public body as the case may be.

I understand that knowingly giving false or misleading information on this report constitutes a crime.

I declare under penalty of perjury that this statement is true to the best of my knowledge. I understand that giving false or misleading statements about material fact regarding this matter constitutes a crime.

(Signature of Business Representative)* (Date)

*Must be an authorized signatory of the Business.

The representation made by checking the above boxes constitutes a material representation by the business. If the statements are proven to be incorrect, this may result in denial of an award or un-award of the procurement.

SIGNED AND SEALED THIS _____ DAY OF _____, 20__.

NOTARY PUBLIC

My Commission Expires:

(00 4546) CERTIFICATION OF EQUAL EMPLOYMENT OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246 (30 F.R. 12319-25). The implementing rules and regulations provide that any Bidder or perspective contractor, or any of their proposed Subcontractors, shall state as an initial part of the Bid or negotiations of the Contract whether he has participated in any previous Contract or subcontract subject to the equal opportunity clause; and, if so, whether he has filed all compliance reports due under applicable instructions.

Where the certification indicates that the Bidder has not filed a compliance report due under applicable instructions, such Bidder shall be required to submit a compliance report within seven calendar days after Bid opening. No Contract shall be awarded unless such report is submitted.

CERTIFICATION BY BIDDER

Bidder's Name: _____

Address: _____

1. Bidder has participated in a previous Contract or subcontract subject to the equal Opportunity Clause.

_____ Yes _____ No

2. Compliance reports were required to be filed in connection with such Contract or subcontract.

_____ Yes _____ No

Certification - The information above is true and complete to the best of my knowledge and belief.

Name and Title of Signer (please type)

Signature

Date

AGREEMENT FORMS
(00 5200)

(00 5213) AGREEMENT (AIA A101 – 2007 Standard Form of Agreement Between Owner and Contractor (Stipulated Sum))

(00 5214) AIA GENERAL CONDITIONS (AIA A201 – 2007 General Conditions of the Contract for Construction)



AIA[®]

Document A101[™] – 2007

Standard Form of Agreement Between Owner and Contractor where the basis of payment is a Stipulated Sum

FOR RFB PURPOSES ONLY

AGREEMENT made as of the day of December in the year 2015

BETWEEN the Owner:

City of Santa Fe
200 Lincoln Ave.
Santa Fe, New Mexico 87501

and the Contractor:

(Paragraphs deleted)

for the following Project:

Airport Terminal Improvements CIP Project # 611B

The Architect:

Molzen Corbin
2701 Miles Rd SE
Albuquerque, NM 87106
office phone 505-242-5700

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

AIA Document A201[™]-2007, General Conditions of the Contract for Construction, is adopted in this document by reference. Do not use with other general conditions unless this document is modified.

Init.

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4 CONTRACT SUM
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9 ENUMERATION OF CONTRACT DOCUMENTS
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ARTICLE 1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement, all of which form the Contract, and are as fully a part of the Contract as if attached to this Agreement or repeated herein. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. An enumeration of the Contract Documents, other than a Modification, appears in Article 9.

ARTICLE 2 THE WORK OF THIS CONTRACT

§ 2.1 The Contractor shall fully execute the Work described in the Contract Documents, except (1) as specifically indicated in the Contract Documents to be the responsibility of others, and (2) the bid additive alternate 1, Office addition.

ARTICLE 3 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 3.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Paragraph deleted)

The date of commencement of the Work will be the date on the Notice To Proceed from the Owner.

If, prior to the commencement of the Work, the Owner requires time to file mortgages and other security interests, the Owner's time requirement shall be as follows:

N/A

§ 3.2 The Contract Time shall be measured from the date of commencement of the Work.

§ 3.3 The Contractor shall achieve Substantial Completion of the entire Work not later than one hundred twenty (120) calendar days from the date of commencement,

(Paragraphs deleted)

, subject to adjustments of this Contract Time as provided in the Contract Documents. Liquidated damages of one thousand dollars (\$1,000.00) per calendar day will apply for work not completed by the Substantial Completion date.

Init.

ARTICLE 4 CONTRACT SUM

§ 4.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be t (\$), plus tax at the rate of (current) in the amount of), for a total Contract Sum, subject to additions and deductions as provided in the Contract Documents.

§ 4.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:

Additive Alternate #1: Office Addition

§ 4.3

(Paragraphs deleted)

Allowances included in the Contract Sum, if any:

Item	Price
------	-------

(Table deleted)

(Paragraphs deleted)

ARTICLE 5 PAYMENTS

§ 5.1 PROGRESS PAYMENTS

§ 5.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents.

§ 5.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month.

§ 5.1.3 Provided that an Application for Payment is received by the Architect not later than the 1st day of a month, the Owner shall make payment of the certified amount to the Contractor not later than the 21st day of the month. If an Application for Payment is received by the Architect after the application date fixed above, payment shall be made by the Owner not later than twenty one (21) days after the Architect receives the Application for Payment.

§ 5.1.4 Each Application for Payment shall be based on the most recent schedule of values submitted by the Contractor in accordance with the Contract Documents. The schedule of values shall allocate the entire Contract Sum among the various portions of the Work. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 5.1.5 Applications for Payment shall show the percentage of completion of each portion of the Work as of the end of the period covered by the Application for Payment.

§ 5.1.6 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute shall be included as provided in Section 7.3.9 of AIA Document A201™-2007, General Conditions of the Contract for Construction;
- .2 Add that portion of the Contract Sum properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the completed construction (or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing);
- .3 Subtract the aggregate of previous payments made by the Owner; and
- .4 Subtract amounts, if any, for which the Architect has withheld or nullified a Certificate for Payment as provided in Section 9.5 of AIA Document A201-2007.

§ 5.1.7 The progress payment amount determined in accordance with Section 5.1.6 shall be further modified under the following circumstances:

- .1 Add, upon Substantial Completion of the Work, a sum sufficient to increase the total payments to the full amount of the Contract Sum, less such amounts as the Architect shall determine for incomplete Work, and
- .2 Add, if final completion of the Work is thereafter materially delayed through no fault of the Contractor, any additional amounts payable in accordance with Section 9.10.3 of AIA Document A201-2007.

§ 5.1.8

(Paragraphs deleted)

Except with the Owner's prior approval, the Contractor shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site.

(Paragraph deleted)

§ 5.2 FINAL PAYMENT

§ 5.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 12.2.2 of AIA Document A201-2007, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 5.2.2 The Owner's final payment to the Contractor shall be made no later than 21 days after the issuance of the Architect's final Certificate for Payment, or as follows:

Within fifteen days of the Contractor's request for final payment has been submitted to the City, provided the Owner has received the Consent of Surety and Waivers and Releases of Liens from the Contractor.

ARTICLE 6 DISPUTE RESOLUTION

§ 6.1 INITIAL DECISION MAKER

The City will serve as Initial Decision Maker pursuant to Section 15.2 of AIA Document A201-2007, unless the parties appoint below another individual, not a party to this Agreement, to serve as Initial Decision Maker.

(Paragraphs deleted)

§ 6.2 BINDING DISPUTE RESOLUTION

For any Claim subject to, but not resolved by, mediation pursuant to Section 15.3 of AIA Document A201-2007, the method of binding dispute resolution shall be as follows:

- Arbitration pursuant to Section 15.4 of AIA Document A201-2007
- Litigation in a court of competent jurisdiction
- Other *In accordance with New Mexico Public Works Mediation Act 13-4C-1 through 13-4C-11, NMSA 1978*

ARTICLE 7 TERMINATION OR SUSPENSION

§ 7.1 The Contract may be terminated by the Owner or the Contractor as provided in Article 14 of AIA Document A201-2007.

§ 7.2 The Work may be suspended by the Owner as provided in Article 14 of AIA Document A201-2007.

ARTICLE 8 MISCELLANEOUS PROVISIONS

§ 8.1 Where reference is made in this Agreement to a provision of AIA Document A201-2007 or another Contract Document, the reference refers to that provision as amended or supplemented by other provisions of the Contract Documents.

§ 8.2 The Owner's representative:

Init.

Mary MacDonald
Project Administrator
Facilities Division, Public Works Department
City of Santa Fe
2651 Siringo Rd., Bldg. "E"
Santa Fe, New Mexico 87505
Office phone (505) 955-5934

§ 8.3 The Contractor's representative:

yet to be determined

§ 8.4

(Paragraphs deleted)

Neither the Owner's nor the Contractor's representative shall be changed without ten days written notice to the other party.

§ 8.5 Other provisions:

§ 8.5.1 INDEMNIFICATION

The Contractor shall indemnify, hold harmless and defend the City from all losses, damages, claims or judgements, including payments of all attorneys' fees and costs on account of any suit, judgment, execution, claim, action or demand whatsoever arising from Contractor's performance under this Agreement as well as the performance of Contractor's employees, agents, representatives and subcontractors.

(Paragraphs deleted)

§ 8.5.2 APPROPRIATIONS

The terms of this Agreement are contingent upon sufficient appropriations and authorization being made by the City for the performance of this Agreement. If sufficient appropriations and authorization are not made by the City, this Agreement shall terminate upon written notice being given by the City to the Contractor. The City's decision as to whether sufficient appropriations are available shall be accepted by the Contractor and shall be final.

§ 8.5.3 THIRD PARTY BENEFICIARIES

By entering into this Agreement, the parties do not intend to create any right, title or interest in or for the benefit of any person other than the City and the Contractor. No person shall claim any right, title or interest under this Agreement or seek to enforce this Agreement as a third party beneficiary of this Agreement.

§ 8.5.4 STATUS OF CONTRACTOR; RESPONSIBILITY FOR PAYMENT OF EMPLOYEES AND SUBCONTRACTORS

A. The Contractor and its agents and employees are independent contractors performing professional services for the City and are not employees of the City. The Contractor, and its agents and employees, shall not accrue leave, retirement, insurance, bonding, use of City vehicles, or any other benefits afforded to employees of the City as a result of this Agreement.

B. Contractor shall be solely responsible for payment of wages, salaries and benefits to any and all employees or subcontractors retained by Contractor in the performance of the services under this Agreement.

Init.

C. The Contractor shall comply with City of Santa Fe Minimum Wage, Article 28-1-SFCC 1987, as well as any subsequent changes to such article throughout the term of this Agreement.

§ 8.5.5 CONFLICT OF INTEREST

The Contractor warrants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this Agreement. Contractor further agrees that in the performance of this Agreement no persons having any such interests shall be employed.

§ 8.5.6 ASSIGNMENT: SUBCONTRACTING

The Contractor shall not assign or transfer any rights, privileges, obligations or other interest under this Agreement, including any claims for money due, without the prior written consent of the City. The Contractor shall not subcontract any portion of the services to be performed under this Agreement without the prior written approval of the City.

§ 8.5.7 RELEASE

The Contractor, upon acceptance of final payment of the amount due under this Agreement, releases the City, its officers and employees, from all liabilities, claims and obligations whatsoever arising from or under this Agreement. The Contractor agrees not to purport to bind the City to any obligation not assumed herein by the City unless the Contractor has express written authority to do so, and then only within the strict limits of that authority.

§ 8.5.8 INSURANCE

A. The contractor, at its own cost and expense, shall carry and maintain in full force and effect during the term of this Agreement, comprehensive general liability insurance covering bodily injury and property damage liability, in a form and with an insurance company acceptable to the City, with limits of coverage in the maximum amount which the City could be held liable under the New Mexico Tort Claims Act for each person injured and for each accident resulting in damage to property. Such insurance shall provide that the City is named as an additional insured and that the City is notified no less than 30 days in advance of cancellation for any reason. The Contractor shall furnish the City with a copy of a Certificate of Insurance as a condition prior to performing services under this Agreement.

B. Contractor shall also obtain and maintain Workers' compensation insurance, required by law, to provide coverage for Contractor's employees throughout the term of this Agreement. Contractor shall provide the City with evidence of its compliance with such requirement.

§ 8.5.9 RECORDS AND AUDIT

The contractor shall maintain, throughout the term of this Agreement and for a period of three years thereafter, detailed records that indicate the date, time and nature of services rendered. These records shall be subject to inspection by the City, the Department of Finance and Administration, and the State Auditor. The City shall have the right to audit the billing both before and after payment. Payment under this Agreement shall not foreclose the right of the City to recover excessive or illegal payments.

§ 8.5.10 APPLICABLE LAW: CHOICE OF LAW: VENUE

Contractor shall abide by all applicable federal and state laws and regulations, and all ordinances, rules and

Init.

regulations of the City of Santa Fe. In any action, suit or legal dispute arising from this Agreement, the Contractor agrees that the laws of the State of New Mexico shall govern. The parties agree that any action or suit arising from this Agreement shall be commenced in a federal or state court of competent jurisdiction in New Mexico. Any action or suit commenced in the courts of the State of New Mexico shall be brought in the First Judicial District Court.

§ 8.5.11 AMENDMENT

This Agreement shall not be altered, changed or modified except by an amendment in writing executed by the parties hereto.

§ 8.5.12 NON-DISCRIMINATION

During the term of this Agreement, Contractor shall not discriminate against any employee or applicant for an employment position to be used in the performance of services by Contractor hereunder, on the basis of ethnicity, race, age, religion, creed, color, national origin, ancestry, sex, gender, sexual orientation, physical or mental disability, medical condition, or citizenship status.

§ 8.5.13 SEVERABILITY

In case any one or more of the provisions contained in this Agreement or any application thereof shall be invalid, illegal or unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions contained herein and any other application thereof shall not in any way be affected or impaired thereby.

8.5.14 NOTICES

Any and all notices provided for hereunder shall be in writing and shall be deemed delivered, given and received when (i) personally delivered, or (ii) five (5) days after the same are deposited in the United States Postal Service mail, postage prepaid, certified mail, return receipt requested, addressed to the applicable party at the address indicated below for each party, or at such other address as may be designated by either party in a written notice to the other party:

OWNER: Facilities Division, Public Works Department
City of Santa Fe
PO Box 909
Santa Fe, NM 87504-0909

CONTRACTOR:

8.5.15 NEW MEXICO TORT CLAIMS ACT

Any liability incurred by the City of Santa Fe in connection with this agreement is subject to the immunities and limitations of the New Mexico Tort Claims Act, Section 41-4-1, et. seq. NMSA 1978, as amended. The City and its "public employees" as defined in the New Mexico Tort Claims Act, do not waive any limitation of liability pursuant to law. No provision in this Agreement modifies or waives any provision of the New Mexico Tort Claims Act.

8.5.16 TERM AND EFFECTIVE DATE

This Agreement shall be effective when signed by the City and the Contractor, whichever occurs last, and terminate on August 31, 2017, unless sooner pursuant to section 7, infra.

ARTICLE 9 ENUMERATION OF CONTRACT DOCUMENTS

§ 9.1 The Contract Documents, except for Modifications issued after execution of this Agreement, are enumerated in the sections below.

§ 9.1.1 The Agreement is this executed AIA Document A101–2007, Standard Form of Agreement Between Owner and Contractor.

§ 9.1.2 The General Conditions are AIA Document A201–2007, General Conditions of the Contract for Construction.

§ 9.1.3 The Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
Request For Bid '16/ __/B	RFB/Project Manual	October, 2015	See Project Manual index

§ 9.1.4 The Specifications:

The specifications are included in the drawings and in the Request For Bid '16/ __/B Project Manual

§ 9.1.5 The Drawings:

(Paragraphs deleted) Airport Terminal Improvements as issued with the Request For Bid '16/ __/B
(Table deleted)

§ 9.1.6 The Addenda, if any:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 9.

§ 9.1.7 Additional documents, if any, forming part of the Contract Documents:

(Paragraphs deleted) None

ARTICLE 10 INSURANCE AND BONDS

The Contractor shall purchase and maintain insurance and provide bonds as set forth in Article 11 of AIA Document A201–2007.

(Paragraph deleted)

Type of insurance or bond	Limit of liability or bond amount (\$0.00)
Performance and Payment Bonds	100% of the Contract amount
Commercial General Liability	\$1,000,000 per occurrence, \$2,000,000 general aggregate
Automobile Liability	\$500,000 combined single limit
Workers Compensation	\$100,000 each accident, \$100,000 disease, each employee
Workers Compensation	\$500,000 disease, policy limit

Init.

IN WITNESS WHEREOF, the parties have executed this Agreement on the date set forth below.

CITY OF SANTA FE:

JAVIER M. GONZALES, MAYOR

DATE: _____

ATTEST:

YOLANDA Y. VIGIL
CITY CLERK

APPROVED AS TO FORM:

KAB 10/5/15

KELLEY A. BRENNAN,
CITY ATTORNEY

CONTRACTOR:

BY
NM LICENSE#
CRS #
CITY BUSINESS REGISTRATION #

APPROVED:

OSCAR S. RODRIGUEZ,
FINANCE DIRECTOR

52810.572970
Business Unit/Line Item
(Paragraphs deleted)

Init.



AIA[®]

Document A201™ – 2007

General Conditions of the Contract for Construction

for the following PROJECT:

Santa Fe Municipal Airport Improvements, CIP
Project # 611B
Santa Fe, New Mexico

THE OWNER:

City of Santa Fe
200 Lincoln Avd.
Santa Fe, New Mexico 87504

THE CONTRACTOR:

THE ARCHITECT:

Molzen Corbin
2701 Miles Rd SE
Albuquerque NM 87106
Office Phone: 505-242-5700

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding requirements.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 INSTRUMENTS OF SERVICE

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 INITIAL DECISION MAKER

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2 and certify termination of the Agreement under Section 14.2.2.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 CAPITALIZATION

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 INTERPRETATION

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 OWNERSHIP AND USE OF DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and will retain all common law, statutory and other reserved rights, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors and material or equipment suppliers are authorized to use and reproduce the Instruments of Service provided to them solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers may not use the Instruments of Service on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants.

§ 1.6 TRANSMISSION OF DATA IN DIGITAL FORM

If the parties intend to transmit Instruments of Service or any other information or documentation in digital form, they shall endeavor to establish necessary protocols governing such transmissions, unless otherwise already provided in the Agreement or the Contract Documents.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 Prior to commencement of the Work, the Contractor may request in writing that the Owner provide reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. Thereafter, the Contractor may only request such evidence if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) a change in the Work materially changes the Contract Sum; or (3) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due. The Owner shall furnish such evidence as a condition precedent to commencement or continuation of the Work or

the portion of the Work affected by a material change. After the Owner furnishes the evidence, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.2 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.2.3 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.2.4 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.2.5 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect or failure. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.2.3, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall make Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any loss or damage arising solely from those Owner-required means, methods, techniques, sequences or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other

facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work authorized by the Architect in accordance with Sections 3.12.8 or 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.6 TAXES

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 PERMITS, FEES, NOTICES AND COMPLIANCE WITH LAWS

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 **Concealed or Unknown Conditions.** If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 21 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor in writing, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may proceed as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume

the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 Allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 Whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 SUPERINTENDENT

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the name and qualifications of a proposed superintendent. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to the proposed superintendent or (2) that the Architect requires additional time to review. Failure of the Architect to reply within the 14 day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall not exceed time limits current under the Contract Documents, shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work.

§ 3.10.2 The Contractor shall prepare a submittal schedule, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, and shall submit the schedule(s) for the Architect's approval. The Architect's approval shall not unreasonably be delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the site for the Owner one copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and one copy of approved Shop Drawings, Product Data, Samples and similar required submittals. These shall be available to the Architect and shall be delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. Their purpose is to demonstrate the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such written notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be

required to provide professional services in violation of applicable law. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance and design criteria specified in the Contract Documents.

§ 3.13 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting and patching shall be restored to the condition existing prior to the cutting, fitting and patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect.

§ 3.18 INDEMNIFICATION

§ 3.18.1 To the fullest extent permitted by law the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 GENERAL

§ 4.1.1 The Owner shall retain an architect lawfully licensed to practice architecture or an entity lawfully practicing architecture in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a successor architect as to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and report to the Owner (1) known deviations from the Contract Documents and from the most recent construction schedule submitted by the Contractor, and (2) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

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§ 4.2.4 COMMUNICATIONS FACILITATING CONTRACT ADMINISTRATION

Except as otherwise provided in the Contract Documents or when direct communications have been specially authorized, the Owner and Contractor shall endeavor to communicate with each other through the Architect about matters arising out of or relating to the Contract. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.5.2 and 13.5.3, whether or not such Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect, of any construction means, methods, techniques, sequences or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more project representatives to assist in carrying out the Architect's responsibilities at the site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work. The Architect may reply within 14 days to the Contractor in writing stating (1) whether the Owner or the Architect has reasonable objection to any such proposed person or entity or (2) that the Architect requires additional time for review. Failure of the Owner or Architect to reply within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 SUBCONTRACTUAL RELATIONS

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may

be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon such assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under Conditions of the Contract identical or substantially similar to these including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Article 15.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each separate contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with other separate contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to the construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, separate contractors and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces, the Owner shall be deemed to be subject to the same obligations and to have the same rights that apply to the Contractor under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6 and Articles 10, 11 and 12.

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a separate contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that

the Owner's or separate contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a separate contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a separate contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or separate contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each separate contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor and Architect; a Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in Section 7.3.7.

§ 7.3.4 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 7.3.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.6 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.7 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the method and the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.7 shall be limited to the following:

- .1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 Additional costs of supervision and field office personnel directly attributable to the change.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 MINOR CHANGES IN THE WORK

The Architect has authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes will be effected by written order signed by the Architect and shall be binding on the Owner and Contractor.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the site or elsewhere prior to the effective date of insurance required by Article 11 to be furnished by the Contractor and Owner. The date of commencement of the Work shall not be changed by the effective date of such insurance.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner or Architect, or of an employee of either, or of a separate contractor employed by the Owner; or by changes ordered in the Work; or by labor disputes, fire, unusual delay in deliveries, unavoidable casualties or other causes beyond the Contractor's control; or by delay authorized by the Owner pending mediation and arbitration; or by other causes that the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit to the Architect, before the first Application for Payment, a schedule of values allocating the entire Contract Sum to the various portions of the Work and prepared in such form and supported by such data to substantiate its accuracy as the Architect may require. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. Such application shall be notarized, if required, and supported by such data substantiating the Contractor's right to payment as the Owner or Architect may require, such as copies of requisitions from Subcontractors and material suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or material supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data comprising the Application for Payment, that, to the best of the Architect's knowledge, information and belief, the Work has progressed to the point indicated and that the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;

- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a separate contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.3 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or material or equipment suppliers to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Architect will reflect such payment on the next Certificate for Payment.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor no later than seven days after receipt of payment from the Owner the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and material and equipment suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay or to see to the payment of money to a Subcontractor, except as may otherwise be required by law.

§ 9.6.5 Contractor payments to material and equipment suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors and suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.7 FAILURE OF PAYMENT

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents the amount certified by the Architect or awarded by binding

dispute resolution, then the Contractor may, upon seven additional days' written notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion, shall establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance, and shall fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate. Upon such acceptance and consent of surety, if any, the Owner shall make payment of retainage applying to such Work or designated portion thereof. Such payment shall be adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer as required under Section 11.3.1.5 and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of the Contractor's written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of liens, claims, security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

- 3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 INJURY OR DAMAGE TO PERSON OR PROPERTY

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing.

§ 10.3.2 Upon receipt of the Contractor's written notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of such material or substance or who are to perform the task of removal or safe containment of such material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be

extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shut-down, delay and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall indemnify the Owner for the cost and expense the Owner incurs (1) for remediation of a material or substance the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

§ 10.4 EMERGENCIES

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 CONTRACTOR'S LIABILITY INSURANCE

§ 11.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located such insurance as will protect the Contractor from claims set forth below which may arise out of or result from the Contractor's operations and completed operations under the Contract and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- .1 Claims under workers' compensation, disability benefit and other similar employee benefit acts that are applicable to the Work to be performed;
- .2 Claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
- .3 Claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
- .4 Claims for damages insured by usual personal injury liability coverage;
- .5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
- .6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;
- .7 Claims for bodily injury or property damage arising out of completed operations; and
- .8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Section 3.18.

§ 11.1.2 The insurance required by Section 11.1.1 shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from the date of commencement of the

Work until the date of final payment and termination of any coverage required to be maintained after final payment, and, with respect to the Contractor's completed operations coverage, until the expiration of the period for correction of Work or for such other period for maintenance of completed operations coverage as specified in the Contract Documents.

§ 11.1.3 Certificates of insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work and thereafter upon renewal or replacement of each required policy of insurance. These certificates and the insurance policies required by this Section 11.1 shall contain a provision that coverages afforded under the policies will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner. An additional certificate evidencing continuation of liability coverage, including coverage for completed operations, shall be submitted with the final Application for Payment as required by Section 9.10.2 and thereafter upon renewal or replacement of such coverage until the expiration of the time required by Section 11.1.2. Information concerning reduction of coverage on account of revised limits or claims paid under the General Aggregate, or both, shall be furnished by the Contractor with reasonable promptness.

§ 11.1.4 The Contractor shall cause the commercial liability coverage required by the Contract Documents to include (1) the Owner, the Architect and the Architect's consultants as additional insureds for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's operations; and (2) the Owner as an additional insured for claims caused in whole or in part by the Contractor's negligent acts or omissions during the Contractor's completed operations.

§ 11.2 OWNER'S LIABILITY INSURANCE

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

§ 11.3 PERFORMANCE BOND AND PAYMENT BOND

§ 11.3.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising thereunder as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.

(Paragraphs deleted)

§ 11.3.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

(Paragraphs deleted)

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, such costs and the cost of correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or separate contractors caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located except that, if the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 SUCCESSORS AND ASSIGNS

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns and legal representatives to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate such assignment.

§ 13.3 WRITTEN NOTICE

Written notice shall be deemed to have been duly served if delivered in person to the individual, to a member of the firm or entity, or to an officer of the corporation for which it was intended; or if delivered at, or sent by registered or certified mail or by courier service providing proof of delivery to, the last business address known to the party giving notice.

§ 13.4 RIGHTS AND REMEDIES

§ 13.4.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.4.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach there under, except as may be specifically agreed in writing.

§ 13.5 TESTS AND INSPECTIONS

§ 13.5.1 Tests, inspections and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of (1) tests, inspections or approvals that do not become requirements until after bids are received or negotiations concluded, and (2) tests, inspections or approvals where building codes or applicable laws or regulations prohibit the Owner from delegating their cost to the Contractor.

§ 13.5.2 If the Architect, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.5.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and compensation for the Architect's services and expenses shall be at the Contractor's expense.

§ 13.5.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.5.5 If the Architect is to observe tests, inspections or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.5.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.6 INTEREST

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at such rate as the parties may agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

§ 13.7 TIME LIMITS ON CLAIMS

The Owner and Contractor shall commence all claims and causes of action, whether in contract, tort, breach of warranty or otherwise, against the other arising out of or related to the Contract in accordance with the requirements of the final dispute resolution method selected in the Agreement within the time period specified by applicable law,

but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all claims and causes of action not commenced in accordance with this Section 13.7.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor promptly, upon the Contractor's request, reasonable evidence as required by Section 2.2.1.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, repeated suspensions, delays or interruptions of the entire Work by the Owner as described in Section 14.3 constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' written notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, including reasonable overhead and profit, costs incurred by reason of such termination, and damages.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor or a Subcontractor or their agents or employees or any other persons performing portions of the Work under contract with the Contractor because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner, upon certification by the Initial Decision Maker that sufficient cause exists to justify such action, may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay or interruption as described in Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with reasonable overhead and profit on the Work not executed.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 CLAIMS

§ 15.1.1 DEFINITION

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim.

§ 15.1.2 NOTICE OF CLAIMS

Claims by either the Owner or Contractor must be initiated by written notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party must be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3 CONTINUING CONTRACT PERFORMANCE

Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents. The Architect will prepare Change Orders and issue Certificates for Payment in accordance with the decisions of the Initial Decision Maker.

§ 15.1.4 CLAIMS FOR ADDITIONAL COST

If the Contractor wishes to make a Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.5 CLAIMS FOR ADDITIONAL TIME

§ 15.1.5.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.5.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the scheduled construction.

§ 15.1.6 CLAIMS FOR CONSEQUENTIAL DAMAGES

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.6 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 INITIAL DECISION

§ 15.2.1 Claims, excluding those arising under Sections 10.3, 10.4, 11.3.9, and 11.3.10, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim arising prior to the date final payment is due, unless 30 days have passed after the Claim has been referred to the Initial Decision Maker with no decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of such request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of an initial decision, demand in writing that the other party file for mediation within 60 days of the initial decision. If such a demand is made and the party receiving the demand fails to file for mediation within the time required, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 MEDIATION

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.6 shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 ARBITRATION

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 CONSOLIDATION OR JOINDER

§ 15.4.4.1 Either party, at its sole discretion, may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Either party, at its sole discretion, may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as the Owner and Contractor under this Agreement.

BONDS, CERTIFICATES AND NOTICES
(006100-6200)

(00 6101) BID BOND

(Insert AIA Document A310 with bid.)

(00 6113.13) PERFORMANCE BOND

(Insert copy of executed Performance Bond within 15 days after Notice of Award)

(00 6113.16) LABOR AND MATERIAL BOND

(Insert copy of executed Labor and Material Payment Bond within 15 days after Notice of Award)

(00 6216) CERTIFICATE OF LIABILITY INSURANCE

(Insert copy of project-specified Certificate of Liability Insurance within 15 days after Notice of Award)

(00 6217) WORKERS' COMPENSATION INSURANCE

(Insert copy of project-specified Workers' Compensation Insurance within 15 days after Notice of Award)

(00 6218) NOTICE TO PROCEED

SAMPLE

DATE
NAME
ADDRESS
CITY/STATE/ZIP

RE:

Dear:

“OFFICIAL NOTICE-TO-PROCEED”

On _____, the City Council awarded a Construction Contract to your firm for the above noted project.

This letter shall serve as official Notice-to-Proceed with the work described for this project in the Contract Documents and _____.

The award of the Contract is based on your Bid proposal dated _____, in the amount of \$_____.

Based on the date of issuance of this notice, as starting date, _____, and the () calendar day time limit, the entire work under this Contract shall be substantially completed by _____, after which time liquidated damages as outlined in the project specifications will apply.

At the Pre-Construction conference on _____, the City Contract Compliance Officer provided you with a Wage Rate Poster which you are to display on the job site. Please comply with the requirements for filing payroll statements with the State Labor Commission and the City Contract Compliance Officer.

Please acknowledge receipt of this notice and return signed copies to the Owner (City of Santa Fe, Public Works Department, Facilities Division).

Sincerely,

(City Project Manager)

(City Facilities Division Director)

xc: Project/Book File

RECEIPT ACKNOWLEDGED:

By:

Date

**GENERAL CONDITIONS OF THE CONTRACT
(00 7200)**

In the case of conflicting requirements between the AIA General Conditions and these General Conditions, the most stringent requirement will apply.

(00 7213) GENERAL CONDITIONS

NOTICE

This document has been prepared by the Capital Improvements Program (CIP) and Contract Compliance staff of the City of Santa Fe for use in construction projects.

DOCUMENT - DIVISION 00 7213

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION

(THIS DOCUMENT HAS IMPORTANT LEGAL CONSEQUENCES;
CONSULTATION WITH AN ATTORNEY IS ENCOURAGED WITH
RESPECT TO ITS COMPLETION OR MODIFICATION.)

TABLE OF ARTICLES

1. CONTRACT DOCUMENTS
2. ARCHITECT - FACILITIES DIVISION
3. OWNER
4. CONTRACTOR
5. SUBCONTRACTORS
6. WORK BY OWNER OR BY SEPARATE CONTRACTORS
7. MISCELLANEOUS PROVISIONS
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9. PAYMENTS AND COMPLETION
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ARTICLE 1

CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of the Owner-Contractor Agreement, the Conditions of the Contract (General, Supplementary, and Other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a written interpretation issued by the Architect pursuant to Subparagraph 2.2.6, or (4) a written order for a minor change in the work issued by the Architect pursuant to Paragraph 12.4. The Contract Documents do not include Bidding Documents such as the Advertisement or Invitation to Bid, the Instructions to Bidders, sample forms, the Contractor's Bid, or portions of Addenda relating to any of these, or any other documents, unless specifically enumerated in the Owner-Contractor Agreement.

1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. This Contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification as defined in Subparagraph 1.1.1. The Contract Documents shall not be construed to create any contractual relationship of any kind between the Architect and the Contractor, but the Architect shall be entitled to performance of obligations intended for his benefit, and to enforcement thereof. Nothing contained in the Contract Documents shall create any contractual relationship between the Owner or the Architect and any Subcontractor or Sub-subcontractor.

1.1.3 THE WORK

The work comprises the design and completed construction required by the Contract Documents, and includes design specifications, and all labor necessary to produce such construction, and all materials and equipment incorporated or to be incorporated in such construction.

1.1.4 THE PROJECT

The Project is the total design and construction of which the work performed under the Contract Documents may be the whole or a part.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 No fewer than two (2) copies of the Contract Documents shall be signed by the Owner and the Contractor. If either the Owner or the Contractor or both do not sign the Conditions of the Contract, Drawings, Specifications, or any of the other Contract Documents, the Architect shall identify such Documents.

1.2.2 By executing the Contract, the Contractor represents that he has visited the site, familiarized himself with the local conditions under which the work is to be performed, and correlated his observations with the requirements of the Contract Documents.

1.2.3 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work. The Contract Documents are complementary, and what is required by any one shall be as binding as if required by all work not covered in the Contract Documents will not be required unless it is consistent therewith and is reasonably inferable therefrom as being necessary to produce the intended results. Words and abbreviations which have well-known technical or trade meanings are used in the Contract Documents in accordance with such recognized meanings. In the event of a conflict between the Contract Documents, the more stringent requirements shall govern.

1.2.4 The organization of the Specifications into divisions, sections and articles, and the arrangement of Drawings shall not control the Contractor in dividing the work among Subcontractors or in establishing the extent of work to be performed by any trade.

1.3 OWNERSHIP AND USE OF DOCUMENTS

- 1.3.1 All designs, drawings, specifications, notes, and other work developed in the performance of this Contract shall be and remain the sole property of the Owner and may be used on any other work without additional compensation to the Architect. With respect thereto, the Architect agrees not to assert any rights and not to establish any claims under the design patent or copyright laws.

ARTICLE 2

ARCHITECT

2.1 DEFINITION

- 2.1.1 The Architect is the person lawfully licensed to practice Architecture, or an entity lawfully practicing Architecture identified as such in the Owner-Contractor Agreement, and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term "Architect" means the Architect or his authorized representative.

2.2 ADMINISTRATION OF THE CONTRACT – FACILITIES DIVISION

- 2.2.1 The Architect will provide administration of the Contract as hereinafter described.
- 2.2.2 The Architect will be the Owner's Agent during construction and until final payment is due. The Architect will advise and consult with the Owner. The Owner's instructions to the Contractor shall be forwarded through the Architect. The Architect shall have the authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified by written instrument in accordance with Subparagraph 2.2.17.
- 2.2.3 The Architect shall submit to the Owner, for approval, a list of critical inspection points based upon the construction schedule furnished by the Contract (Paragraph 4.11.1). The Architect and his staff (including the on-site representative, if agreed upon) shall make at least three (3) weekly visits to the site at those critical points and at other times as the Architect deems appropriate during the progress of the work. Additionally, the Architect shall familiarize himself with the progress and quality of the work and determine if the work is proceeding in accordance with the Contract Documents. On the basis of on-site observations, as the Architect, he shall guard the Owner against defects and deficiencies in the construction. Should the Architect determine that any portion of the work varies from the intent of the Contract Documents he shall immediately notify the Contractor and the Owner of the non-compliance and the nature of the work required to correct such non-compliance. The Architect shall recommend to the Owner, in writing, to issue a "stop work order" for any portion of the work that does not substantially comply with the intent of the Contract Documents, except as follows.
- 2.2.4 The Architect shall not be responsible for construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. Additionally, the Architect shall not be responsible for the Contractor's failure to carry out the work in accordance with the Contract Documents. The Architect shall reject work, which does not meet or exceed the standards established by the Contract Documents. Whenever, in his reasonable opinion, he considers it necessary or advisable to ensure the proper implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of any work in accordance with the provisions of the Contract Documents whether or not such work is then fabricated, installed or completed.
- 2.2.5 The Architect shall at all times have access to the work wherever it is in preparation and progress. The Contractor shall provide facilities for such access so the Architect may perform his functions under the Contract Documents.
- 2.2.6 Based on the Architect's observations and an evaluation of the Contractor's Application for Payment, the Architect will determine the amounts owing to the Contractor and will issue Certificates for Payment in such amounts, as provided in Paragraph 9.4.
- 2.2.7 The Architect will be the interpreter of the requirements of the Contract Documents and the judge of the performance thereunder by both the Owner and the Contractor.

- 2.2.8 The Architect will render interpretations necessary for the proper execution or progress of the work, with reasonable promptness and in accordance with any time limit agreed upon. Either party to the Contract may make written request to the Architect for such interpretations.
- 2.2.9 Claims, disputes, and other matters in question between the Contractor and the Owner relating to the execution or progress of the work or the interpretation of the Contract Documents shall be referred to the Architect for decision which he will render in writing within a reasonable time.
- 2.2.10 All interpretations and decisions of the Architect shall be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. In his capacity as interpreter and judge, he will endeavor to secure faithful performance by both the Owner and the Contractor, will not show partiality to either, and will not be liable for the result of any interpretation or decision rendered in good faith in such capacity.
- 2.2.11 The Architect's decisions in matters relating to artistic effect will be final if consistent with the intent of the Contract Documents.
- 2.2.12 The Architect will have authority to reject work which does not conform to the Contract Documents. Whenever, in his opinion, he considers it necessary or advisable for the implementation of the intent of the Contract Documents, he will have authority to require special inspection or testing of the work in accordance with Subparagraph 7.7.2 whether or not such work is then fabricated, installed or completed. However, neither the Architect's authority to act under this Subparagraph 2.2.12, nor any decision made by him in good faith either to exercise or not to exercise such authority, shall give rise to any duty or responsibility of the Architect to the Contractor, any Subcontractor, any of their agents or employees, or any other person performing any of the work.
- 2.2.13 The Architect will review and approve or take other appropriate action upon Contractor's submittals such as Shop Drawings, Product Data and samples, but only for conformance with the design concept of the work and with the information given in the Contract Documents. Such action shall be taken with reasonable promptness so as to cause no delay. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.
- 2.2.14 The Architect will prepare Change Orders in accordance with Article 12 and will have authority to order minor changes in the work as provided in Subparagraph 12.4.1.
- 2.2.15 The Architect will conduct inspections to determine the dates of Substantial Completion and Final Completion, will receive and forward to the Owner for the Owner's review of written warranties and related documents required by the Contract and assembled by the Contractor and will issue a final Certificate of payment upon compliance with the requirements of Paragraph 9.9
- 2.2.16 If the Owner and Architect agree, the Architect will provide one or more Project Representatives to assist the Architect in carrying out his responsibilities at the site. The duties, responsibilities and limitations of authority of any such Project Representative shall be as set forth in an exhibit to be incorporated in the Contract Documents.
- 2.2.17 The duties, responsibilities and limitations of authority of the Architect as the Owner's representative during construction as set for in the Contract Documents will not be modified or extended without written consent of the Owner, the Contractor and the Architect.
- 2.2.18 In case of the termination of the employment of the Architect, the Owner shall appoint an Architect whose status under the Contract Documents shall be that of the former Architect.

ARTICLE 3

OWNER

3.1 DEFINITION

- 3.1.1 The Owner is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term "Owner" means the Owner or his authorized representative.

3.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

- 3.2.1 The Owner shall, at the request of the Contractor, at the time of execution of the Owner-Contractor Agreement, furnish to the Contractor reasonable evidence that he had made financial arrangements to fulfill his obligations under the Contract. Unless such reasonable evidence is furnished, the Contractor is not required to execute the Owner-Contractor Agreement or to commence the work.
- 3.2.2 (Not used)
- 3.2.3 Except as provided in Subparagraph 4.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments, and charges required for the construction, use or occupancy of permanent structures or for permanent changes in existing facilities.
- 3.2.4 Information or services under the Owner’s control shall be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the work.
- 3.2.5 Unless otherwise provided in the Contract Documents, the Contractor will be furnished, free of charge, all copies of Drawings and Specifications reasonable necessary for the execution of the work.
- 3.2.6 The Owner shall forward all instructions to the Contractor through the Architect.
- 3.2.7 The foregoing are in addition to other duties and responsibilities of the Owner enumerated herein and especially those in respect to work by Owner or by Separate Contractors, Payments and Completion, and Insurance in Articles 6, 9 and 11 respectively.

3.3 OWNER’S RIGHT TO STOP THE WORK

- 3.3.1 If the Contractor fails to correct defective work as required by Paragraph 13.2 or persistently fails to carry out the work in accordance with the Contract Documents, the Owner, by a written order signed personally or by an agent specifically so empowered by the Owner in writing, may order the Contractor to stop the work, or any portion thereof, until the cause of such order has been eliminated; however, this right of the Owner to stop the work shall not give rise to any duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Subparagraph 6.1.3.

3.4 OWNER’S RIGHT TO CARRY OUT THE WORK

- 3.4.1 If the Contractor defaults or neglects to carry out the work in accordance with the Contract Documents and fails within seven days after receipt of written notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, after seven days following receipt by the Contractor of an additional written notice and without prejudice to any other remedy he may have, make good such deficiencies. In such case, an appropriate Change Order shall be issued deducting from the payments then or thereafter due the Contractor the cost of correcting such deficiencies, including compensation for the Architect’s additional services made necessary by such default, neglect or failure. Such action by the Owner and the amount charged to the Contractor are both subject to the prior approval of the Architect. If the payments then or thereafter due to the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.

ARTICLE 4

CONTRACTOR

4.1 DEFINITION

- 4.1.1 The Contractor is the person or entity identified as such in the Owner-Contractor Agreement and is referred to throughout the Contract Documents as if singular in number and masculine in gender. The term “Contractor” means the Contractor or his authorized representative.

1.2 REVIEW OF CONTRACT DOCUMENTS

- 4.1.2 The Contractor shall carefully study and compare the Contract Documents and shall at once report to the Architect and the Owner any error, inconsistency or omission he may discover. The Contractor shall not be

liable to the Owner or the Architect for any damage resulting from any such errors, inconsistencies or omissions in the Contract Documents. The Contractor shall perform no portion of the work at any time without Contract Documents or, where required, approved Shop Drawings, Product Data or Samples for such portion of the work.

4.3 SUPERVISION AND CONSTRUCTION PROCEDURES

- 4.3.1 The Contractor shall supervise and direct the work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures and for coordinating all portions of the work under the contract.
- 4.3.2 The Contractor shall be responsible to the Owner for the acts and omissions of his employees, Subcontractors and their agents and employees, and other persons performing any of the work under a contract with the Contractor.
- 4.3.3 The Contractor shall not be relieved from his obligations to perform the work in accordance with the Contract Documents either by the activities or duties of the Architect in his administration of the Contract, or by inspections, tests or approvals required or performed under Paragraph 7.8 by persons other than the Contractor.

4.4 LABOR AND MATERIALS

- 4.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for the proper execution and completion of the work, whether or not incorporated or to be incorporated in the work.
- 4.4.2 The Contractor shall at all times enforce strict discipline and good order among his employees and shall not employ on the work any unfit person or anyone not skilled in the task assigned to him.

4.5 WARRANTY

- 4.5.1 The Contractor warrants to the Owner and Architect that all materials and equipment furnished under this Contract will be new unless otherwise specified, and that all work will be of good quality, free from faults and conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. If required by the Architect, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment. This warranty is not limited by the provisions in Paragraph 13.2.
- 4.5.2 The Contractor shall and hereby does warrant and guarantee all workmanship, labor, and materials performed and supplied by him or his Subcontractors for a period of one (1) year from the date of completion as evidenced by the date of the Owner's Certificate of Final Completion of this Contract. This also includes all labor required for replacing materials or equipment found to be defective with the one (1) year period. All guarantees for a longer period of time required by the work sections of these Specifications shall be secured by the Contractor from Subcontractors and delivered to the Architect and are hereby warranted by the Contractor as much as if countersigned by him.

4.6 TAXES

- 4.6.1 The Contractor shall pay all sales, consumer gross receipts tax, use and other similar taxes for the work or portions thereof provided by the Contractor which are legally enacted at the time Bids are received, whether or not yet effective.

4.7 PERMITS, FEES AND NOTICES

- 4.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the construction permit and for all other permits and governmental fees, licenses and inspections necessary for the proper execution and completion of the work which are customarily secured after execution of the Contract and which are legally required at the time the Bids are received.
- 4.7.2 The Contractor shall give all notices and comply with all laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of the work.

- 4.7.3 It is not the responsibility of the Contractor to make certain that the Contract Documents are in accordance with applicable laws, statutes, building codes and regulations. If the Contractor observes that any of the Contract Documents are at variance therewith in any respect, he shall promptly notify the Architect in writing, and any necessary changes shall be accomplished by appropriate Modification.
- 4.7.4 If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to the Architect, he shall assume full responsibility therefore and shall in turn notify the Owner's Representative of such action.

4.8 ALLOWANCES

- 4.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by these allowances shall be supplied for such amounts and by these allowances shall be supplied for such amounts and by such persons as the Owner may direct, but the Contractor will not be required to employ persons against whom he makes a reasonable objection.
- 4.8.2 Unless otherwise provided in the Contract Documents:
- A. These allowances shall cover the cost to the Contractor, less any applicable trade, discount of the materials and equipment required by the allowance delivered at the site, and all applicable taxes.
 - B. The Contractor's costs for unloading and handling on the site, labor, installations costs, overhead, profit and other expenses contemplated for the original allowance shall be included in the Contract Sum and not in this allowance;
 - C. Whenever the cost is more than or less than the allowance, the Contract Sum shall be adjusted accordingly by Change Order, the amount of which will recognize changes, if any, in handling costs on the site, labor, installation costs, overhead, profit and other expenses.

4.9 SUPERINTENDENT

- 4.9.1 The Contractor shall employ a competent Superintendent and necessary assistants who shall be in attendance at the project site during the progress of the work. The Superintendent shall represent the Contractor, and all communications given to the Superintendent shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be so confirmed on written request in each case.

4.10 PROGRESS SCHEDULES

- 4.10.1 The Contractor shall, within ten (10) days after the effective date of Notice to Proceed, furnish five copies of a preliminary progress schedule covering his operations for the first thirty (30) days. The preliminary progress schedule shall be a bar graph or an arrow diagram showing the items the Contractor intends to commence and complete the various work stages, operations, and contract means planned to be started during the first thirty (30) days.
- 4.10.2 Unless otherwise specified in the Special Provisions, the Contractor shall submit for approval by the Architect, within thirty (30) days after the effective date of Notice to Proceed, five copies of a critical-path-type analysis. The critical-path-type analysis shall include as a minimum; a graphic network diagram; a computer printout or list of activities; and a brief written explanation of the proposed schedule.
- 4.10.3 The graphic network diagram shall consist of an arrow diagram or a geometric figure and connector diagram which clearly depicts the major subdivisions of the work, the order and interdependencies of activities planned by the Contractor, as well as, activities by others which affect the Contractor's planning. The intended time for starting and completing each activity, the associated float time and the quantity and kinds of major equipment to be used shall be shown for each construction operation. For those activities lasting more than 30 days, either the estimated time for 25-50 and 75 percent completion or other significant milestones in the course of the activity, shall be shown. In addition to the actual construction operations, the network diagram shall show such items as submittal of samples and Shop Drawings, delivery of materials and equipment, construction in the area by other forces, traffic detour controls, and other significant items related to the progress of construction. The graphic network diagram shall be printed or neatly and legibly drawn to a linear scale.

- 4.10.4 Activities shown shall be coordinated insofar as possible with the Contract Bid items, types of work and maximum number of activities of each type.
- 4.10.5 The computer printout or list of activities shall show for each activity the estimated duration, the earliest starting and finishing dates, the latest starting and finishing dates, and float or slack time. Activities which constitute the critical sequence shall be identified, showing a total job duration equal to the Contract Time.
- 4.10.6 The written explanation shall contain sufficient information to describe the construction methods to be used and to enable the Architect to evaluate the schedule and supporting analysis for validity and practicability. If the schedule or written explanation is not accepted by the Architect, the Contractor shall resubmit the rejected items within ten (10) days after rejection.
- 4.10.7 The analysis may employ the use of an electric computer or may consist of a non-computer analysis if the latter is suitable to analyze the number of activities required. The adequacy of the system selected shall be acceptable to the Architect.
- 4.10.8 The Contractor shall submit to the Architect monthly progress status reports on dates directed by the Architect. Such reports shall list those uncompleted activities which have less than 30 days float and which are either in progress or scheduled to be started within the next reporting period. For each of the listed activities, the following shall be shown:
- A. Starting date scheduled in last critical-path-analysis.
 - B. Actual or intended starting date.
 - C. Revised activity duration, if any.

If the noted starting dates or duration delay the scheduled project completion date, the delay shall be named. Reasons for the delay shall be given with an explanation of the Contractor's proposed corrective action. The Contract shall also note each activity completed during the report period.

- 4.10.9 A revised critical-path-type analysis shall be submitted when one or more of the following conditions occur:
- A. When an approved change Order significantly affects the contract completion date, or the sequence of activities.
 - B. When progress of any critical activity falls significantly behind the scheduled progress.
 - C. When delay on a non-critical activity is of such magnitude as to change the course of the critical path.
 - D. At any time the Contractor elects to change any sequence of activities affecting the critical path.

The revised analysis shall be made in the same form and detail as the original submittal and shall be accompanied by an explanation of the reasons for the revisions.

- 4.10.10 The Contractor shall prosecute the work in accordance with the latest critical path type analysis. Deviations therefrom shall be submitted to the Architect for review. In the event that the progress of items along the critical path is delayed, the Contractor shall revise his planning to include additional forces, equipment, shifts or hours necessary to meet the contract completion date. All additional cost resulting therefrom will not be borne by the Owner.

4.11 DOCUMENTS AND SAMPLES AT THE SITE

- 4.11.1 The Contractor shall maintain at the site, for the Owner, one record copy of all Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record all changes made during construction, and approved Shop Drawings, Product Data and Samples. These shall be available to the Architect and shall be delivered to him for the Owner upon completion of the work.

4.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- 4.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the work by the Contractor or any Subcontractor, manufacturer, supplier or distributor to illustrate some portion of the work.
- 4.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the work.
- 4.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the work will be judged.
- 4.12.4 The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the work or in the work of the Owner of any separate Contractor, all Shop Drawings, Product Data and Sample required by the Contract Documents.
- 4.12.5 By approving and submitting Shop Drawings, Product Data and Samples, the Contractor represents that he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and that he has checked and coordinated the information contained within such submittals with the requirements of the work and of the Contract Documents.
- 4.12.6 The Contractor shall not be relieved of responsibility for any deviation from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data or Samples under Subparagraph 2.2.13 unless the Contractor has specifically informed the Architect in writing of such deviation at the time of submission and the Architect has given written approval to the specific deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the Shop Drawings, Product Data or Samples by the Architect's approval thereof.
- 4.12.7 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data or Samples, to revisions other than those requested by the Architect on previous submittals.
- 4.12.8 No portion of the work requiring submission of a Shop Drawing, Product Data or Sample shall be commenced until the submittal has been approved by the Architect as provided in Subparagraph 2.2.13. All such portions of the work shall be in accordance with approved submittals.

4.13 USE OF SITE

- 4.13.1 The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not reasonably encumber the site with any materials or equipment.
- 4.13.2 The Contractor shall hold and save the Owner free and harmless from liability of any nature or kind arising from use, trespass or damage occasioned by third persons.

4.14 CUTTING AND PATCHING OF WORK

- 4.14.1 The Contractor shall be responsible for all cutting, fitting or patching that may be required to complete the work or to make its several parts fit together properly.
- 4.14.2 The Contractor shall not damage or endanger any portion of the work or the work of the Owner or any separate contracts by cutting, patching or otherwise altering any work, or by excavation. The Contractor shall not cut or otherwise alter the work of the Owner or any separate Contractor except with the written consent of the Owner and of such separate Contractor. The Contractor shall not unreasonably withhold from the Owner any separate Contractor his consent to cutting or otherwise altering the work.

4.15 CLEANING UP

- 4.15.1 The Contractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. At the completion of the work, he shall remove all his waste materials and rubbish from and about the Project as well as all his tools, construction equipment, machinery and surplus materials.
- 4.15.2 If the Contractor fails to clean up a the completion of the work, the Owner may do so as provide in Paragraph 3.4, and the cost thereof shall be charged to the Contractor.
- 4.15.3 The Contractor shall be solely responsible for performance of the following clean up:

1. Debris: Regardless of the nature of the debris, it shall be immediately cleared form the work area. Each trade shall cooperate with other trades in the removal of debris and in keeping a clean job throughout.
2. Cleaning of All Glazes: The Contractor shall remove sealant and caulking stains and paint from all glass and shall wash and polish same. Care shall be taken not to scratch glass.
3. Cleaning of All Painted, Decorated, and Stained Work: The Contractor shall remove all marks, stains, finger prints, and other soil or dirt from all painted, decorated, and stained work.
4. Removal of all Temporary Protections: The Contractor shall remove all temporary protections and shall clean all floors at completion.
5. Cleaning and Polishing of all Hardware: The Contractor shall clean and polish all hardware for all trades,. This shall include removal of all stains, dust dirt, paint, etc., upon completion, without scratching or otherwise marring the hardware.
6. Removal of all Spot, Soil, and Paint from all Tile Work: The Contractor shall remove all spots, soil and paint from all tile work and shall wash the same upon completion.
7. Cleaning of all Fixtures and Equipment: The Contractor shall clean all fixtures and equipment, removing all stains, paint, dirt, and dust.

4.16 COMMUNICATIONS

- 4.16.1 The Contractor shall communicate directly with the Architect for design clarifications. Any fabrication or installation issues that may result in a change order or may result in a delay to the project schedule shall be communicated to both the Owner and the Architect at the same time, and documented in writing within two business days. All oral directions from the Architect to the Contractor shall be documented in writing to the Contractor and the Owner within one business day.

4.17 ROYALTIES AND PATENTS

- 4.17.1 The Contractor shall pay all royalties and license fees. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner harmless from loss on account thereof, except that the Owner shall be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified; but if the Contractor has reason to believe that the design, process or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Architect.

4.18 INDEMNIFICATION

- 4.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and the Architect and their agents and employees from and against all claims, damages, losses and expenses, including but not limited to attorneys' fees arising out of or resulting from the performance of the work, provided that any such claim, damage, loss or expense (1) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the work itself), including the loss of use resulting therefrom, and (2) is caused in whole or in part by any negligent act or omission on the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them, or anyone for whose acts an of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such negligent shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnify which would otherwise exist as to any party or person described in this Paragraph 4.18.
- 4.18.2 In any and all claims against the Owner or the Architect or any of their agents or employees by an employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Paragraph 4.18 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for the Contractor or any Subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

- 4.18.3 The obligation of the Contractor under this Paragraph 4.18 shall not extend to the liability of the Architect, his agents or employees, arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications, or (2) the giving of or the failure to give directions by the Architect, his agents or employees, provided such giving or failure to give is the primary cause of the injury or damage.

ARTICLE 5

SUBCONTRACTOR

5.1 DEFINITION

- 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform any of the work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and masculine in gender and means a Subcontractor or his authorized representative. The term "Subcontractor" does not include any separate Contractor or his Subcontractors.
- 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform any of the work at the Site.

5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

- 5.2.1 Unless otherwise required by the Contract Documents of the Bidding Documents, the Contractor, as soon as practicable after the award of the Contract, shall furnish to the Owner and the Architect in writing the names of the persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the work. The Architect will promptly reply to the Contractor in writing stating whether or not the Owner or the Architect, after due investigation, has reasonable objection to any such proposed person or entity. Failure of the Owner or the Architect to reply promptly shall constitute notice of no reasonable objection.
- 5.2.2 The Contractor shall not contract with any such proposed person or entity to whom the Owner or the Architect has made reasonable objection under the provisions of Subparagraph 5.2.1. The Contractor shall not be required to contract with anyone to whom he has a reasonable objection.

5.3 SUBCONTRACTUAL RELATION

- 5.3.1 By an appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities which the Contractor, by these Documents, assumes toward the Owner and the Architect. Said agreement shall preserve and protect the rights of the Owner and the Architect under the Contract Documents with respect to the work to be performed by the Subcontractor so that the subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the Contractor-Subcontractor agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by these Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with his Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the Subcontract, copies of the Contract Documents to which the Subcontractor will be bound by this Paragraph 5.3, and identify the Subcontractor any terms and conditions of the proposed Subcontract which may be at variance with the Contract Documents. Each Subcontractor shall similarly make copies of such Documents available to his Subcontractors.

ARTICLE 6

WORK BY OWNER OR BY SEPARATE CONTRACTORS

6.1 OWNER'S RIGHT TO PERFORM WORK AND TO AWARD SEPARATE CONTRACTS

- 6.1.1 The Owner reserves the right to perform work related to the Project with his own forces, and to award separate contracts in connection with other portions of the Project or other work on the site under these or

similar Conditions of the Contract. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, he shall make such claim as provided elsewhere in the Contract Documents.

6.1.2 When separate contracts are awarded for different portions of the Project or other work on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

6.1.3 The Owner will provide for the coordination of the work of his own forces and of each separate Contractor with the work of the Contractor, who shall cooperate therewith as provided in paragraph 6.2.

6.2 MUTUAL RESPONSIBILITY

6.2.1 The Contractor shall afford the Owner and the Separate Contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work, and shall connect and coordinate his work with theirs as required by the Contract Documents.

6.2.2 If any part of the Contractor's work depends for proper execution or results upon the work of the Owner or any separate Contractor, the Contractor shall, prior to proceeding with the work, promptly report to the Architect any apparent discrepancies or defects in such other work that render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acceptance of the Owner's or the separate Contractor's work as fit and proper to receive his work, except as to defects which may subsequently become apparent in such work by others.

6.2.3 Any costs caused by defective or ill-timed work shall be borne by the party responsible thereof.

6.2.4 Should the Contractor wrongfully cause damage to the work or property of the Owner, or to other work on the promptly remedy such damage as provided in Subparagraph 10.2.5.

6.2.5 Should the Contractor wrongfully cause damage to the work or property of any separate Contractor, the Contractor shall upon due notice promptly attempt to settle with such other Contractor by agreement, or otherwise to resolve the dispute. If such separate Contractor sues or initiates an arbitration proceeding against the Owner on account of any damage alleged to have been caused by the Contractor, the Owner shall notify the Contractor, who shall defend such proceedings at the Owner's expense, and if any judgment or award against the Owner arises therefrom, the Contractor shall pay or satisfy it and shall reimburse the Owner for all attorneys' fees and court or arbitration costs which the Owner has incurred.

6.3 OWNER'S RIGHT TO CLEAN UP

6.3.1 If a dispute arises between the Contractor and separate Contractors as to their responsibility for cleaning up as required by Paragraph 4.15, the Owner may clean up and charge the cost thereof to the Contractors responsible therefor as the Architect shall determine to be just.

ARTICLE 7

MISCELLANEOUS PROVISIONS

7.1 GOVERNING LAW

7.1.1 The Contract shall be governed by the law of the State of New Mexico.

7.1.2 The Owner and the Contractor each binds himself, his partners, successors, assigns and legal representatives to the other party hereto and to the partners, successors, assigns and legal representatives of such other party in respect to all covenants, agreements, and obligations contained in the Contract Documents. Neither part to the Contract shall assign the Contract or sublet it as a whole without the written consent of the other, nor shall the Contractor assign any moneys due or to become due to him thereunder, without the previous written consent of the Owner.

7.2 WRITTEN NOTICE

7.2.1 Written notice shall be deemed to have dully served if delivered in person to the individual or member of the firm or entity or to an officer of the corporation for whom it was intended, or if delivered at or sent by registered or certified mail to the last business address known to him who gives the notice.

7.3 CLAIMS FOR DAMAGES

7.3.1 Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the other party or of any of his employees, agents or others for whose acts he is legally liable, claim shall be made in writing to such other party within a reasonable time after the first observance of such injury or damage.

7.4 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

7.4.1 The Contractor to whom the Contract is awarded shall furnish and pay for reputable and approved Performance and Labor and Material Payment Bonds, each for the full amount of the Contract Sum. Bonds shall be executed on standard AIA forms.

7.5 RIGHTS AND REMEDIES

7.5.1 The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law.

7.5.2 No action or failure to act by the Owner, the Architect, or the Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

7.6 TESTS

7.6.1 If the Contract Document, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any portion of the work to be inspected, tested or approved, the Contractor shall give the Architect timely notice of its readiness so the Architect may observe such inspection, testing or approval. The Contractor shall bear all costs of such inspections, tests or approvals. Tests specifically called for by specifications shall be made by an independent, certified, professional testing laboratory acceptable to the Architect, and the Contractor shall employ same and pay all charges in connection therewith. Records of tests shall be delivered to the Architect in duplicate on acceptable forms.

7.6.2 If the Architect determines that any work requires special inspection, testing, or approval which Subparagraph 7.6.1 does not include, he will, upon written authorization from the Owner, instruct the Contractor to order such special inspection, testing or approval, and the Contractor shall give notice as provided in Subparagraph 7.6.1. If such special inspection or testing reveals a failure of the work to comply with the requirements of the Contract Documents, the Contractor shall bear all costs thereof, including compensation for the Architect's additional services made necessary by such failure; otherwise the Owner shall bear such costs, and an appropriate Change Order shall be issued.

7.7 INTEREST

7.7.1 The Owner will not pay interest on payments due and unpaid under the Contract Document.

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Unless otherwise provided, the Contract Time is the period of time allotted in the Contract Documents for Substantial Completion of the work as defined in Subparagraph 8.1.3, including authorized adjustments thereto.

- 8.1.2 The date of commencement of the work is the date established in a Notice to Proceed. If there is no Notice to Proceed, it shall be the date of the Owner-Contractor Agreement or such other date as may be established therein.
- 8.1.3 The Date of Substantial Completion of the work or designated portion thereof is the Date certified by the Architect and approved by the Owner when construction is deficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the work or designated portion thereof for the use for which it is intended.
- 8.1.4 The term "day" as used in the Contract Document shall mean calendar day unless otherwise specifically designated.

8.2 PROGRESS AND COMPLETION

- 8.2.1 All time limits stated in the Contract Documents are the essence of the Contract.
- 8.2.2 The Contractor shall begin the work on the date of commencement as defined in Subparagraph 8.1.2. He shall carry the work forward expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

8.3 DELAYS AND EXTENSIONS OF TIME

- 8.3.1 If the Contractor is delayed at any time in the progress of the work by any act or neglect of the Owner or the Architect or by any employees of either, or by any separate Contractor employed by the Owner or by changes ordered in the work, or by labor disputes, fire, unusual delay in unavoidable casualties, or any causes beyond the Contractor's control or by delay authorized by the Owner pending arbitration, or by any other cause which the Architect determines may justify the delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine.
- 8.3.2 Any claim for extension of time shall be made in writing to the Architect not more than twenty days after the commencement of the delay; otherwise it shall be waived. In the case of a continuing delay, only one claim is necessary. The Contractor shall provide an estimate of the probable effect of such delay on the progress of the work.
- 8.3.3 If written agreement is made stating the dates upon which interpretations as provided in Subparagraph 2.28 shall be furnished, then no claim for delay shall be allowed on account of failure to furnish such interpretations until fifteen days after written request is made for them, and not then unless such claim is reasonable.
- 8.3.4 This Paragraph 8.3 does not exclude the recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9

PAYMENTS AND COMPLETION

9.1 CONTRACT SUM

- 9.1.1 The Contract Sum is stated in the Owner-Contractor Agreement and including authorized adjustments thereto, is the total amount payable by the Owner to the Contractor for the performance of the work under the Contract Documents.

9.2 SCHEDULE OF VALUES

- 9.2.1 Before the first Application for Payment, the Contractor shall submit to the Owner and Architect a schedule of values allocated to the various portion of the work, prepared in such form and supported by such data to substantiate its accuracy as the Owner or Architect may require. This schedule, unless objected to by the Owner or Architect, shall be used only as a basis for the Contractor's Applications for payment.

9.3 APPLICATIONS FOR PAYMENT

- 9.3.1 At least ten days before the date for each progress payment established in the Owner-Contractor Agreement, the Contractor shall submit to the Architect an itemized Application for Payment, notarized if required, supported by such data substantiating the Contractor's right to payment as the Owner or the Architect may require, as provided elsewhere in the Contract Documents.
- 9.3.2 Unless otherwise provided in the Contract Documents, payments will be made on account of materials or the Owner payments may similarly be made for materials or equipment suitably stored at some other location agreed upon in writing. Payments for materials or equipment stored on or off the site shall be conditioned upon submission by the Contractor of bills of sale or such other procedures satisfactory to the Owner to establish the Owner's title to such materials or equipment or otherwise protect the Owner's interest, including applicable insurance and transportation to the site for those materials and equipment stored off the site.
- 9.3.3 The Contractor warrants that title to all work, materials and equipment covered by an Application for Payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contractor, whichever occurs first, free and clear of all liens, claims, security interest or encumbrances hereinafter referred to in this Article 9 as "liens"; and that no work, materials or equipment covered by an Application for Payment will have been acquired by the Contractor, or by any other person performing work at the site or furnishing materials or equipment for the Project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

9.4 CERTIFICATES FOR PAYMENT

- 9.4.1 The Architect will within three days after the receipt of the Contractor's Application for Payment, approve the Application for Payment to the Owner with a copy to the Contractor for such amount as the Architect determines is properly due, or notify the Contractor in writing of his reasons for withholding his approval as provided in Subparagraph 9.6.1.
- 9.4.2 The issuance of an approval of the Application for Payment will constitute a representation by the Architect to the Owner, based on his observations at the site as provided in Subparagraph 2.2.3 and the data comprising the Application for Payment, that the work has progressed to the point indicated; that, to the best of his knowledge, information and belief, the quality of the work is in accordance with the Contract Documents (subject to an evaluation of the work for conformance with the Contract Documents upon Substantial Completion, to the results of any subsequent tests required by or performed under the Contract Documents correctable prior to completion, and that the Contractor is entitled to payment in the amount certified. However, by issuing an approval of the Application for Payment, the Architect shall not thereby be deemed to represent that he has made exhaustive or continuous on-site inspections to check the quality or quantity of the work or that he has reviewed the construction means, methods, techniques, sequences procedures, or that he has made any examination to ascertain how or for what purpose the Contractor has used the moneys previously paid on account of the Contract Sum.

9.5 PROGRESS PAYMENTS

- 9.5.1 After the Architect has issued an approval of the Application for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents.
- 9.5.2 The Contractor shall promptly pay each Subcontractor upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's work, the amount to which said Subcontractor is entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such Subcontractor's work. The Contractor shall, by an appropriate agreement with each Subcontractor, require each Subcontractor to make payment to his Subcontractors in similar manner.
- 9.5.3 The Architect may, on request and at his discretion, furnish to any Subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for by the Contractor and the action taken thereon by the Architect on account of work done by such Subcontractor.
- 9.5.4 Neither the Owner nor the Architect shall have any obligation to pay or to see to the payment of any moneys to any Subcontractor except as may otherwise be required by law.
- 9.5.5 No Certificate for progress payment, no progress payment, nor any partial or entire use of occupancy of the Project by the Owner shall constitute an acceptance of any work not in accordance with the Contract Documents.

9.6 PAYMENT WITHHELD

- 9.6.1 The Architect may decline to certify payment and may withhold his Certificate in whole or in part, to the extent necessary to reasonably protect the Owner, if in his opinion he is unable to make representations to the Owner as provided in Subparagraph 9.4.2.
- 9.6.2 If the Architect is unable to make representations to the Owner, as provided in Subparagraph 9.4.2 and to certify payment in the amount of the Application, he will notify the Contractor as provided in Subparagraph 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which he is able to make such representations to the Owner. The Architect may also decline to certify payment, or because of subsequently discovered evidence or subsequent observations, he may nullify the whole or any part of any Certificate for Payment previously issued, to such extent as may be necessary in his opinion to protect the Owner from loss because of:
- A) Defective work not remedied;
 - B) Third party claims filed or reasonable evidence indicating probable filing of such claims;
 - C) Failure of the Contractor or make payments properly to Subcontractors or for labor, materials or equipment;
 - D) Reasonable evidence that the work cannot be completed for the unpaid balance of the Contract Sum.
 - E) Damage to the work of another Contractor;
 - F) Reasonable evidence that the work will not be completed within the Contract Time; or,
 - G) Failure to carry out the work in accordance with the Contract Documents.
- 9.6.2 When the above grounds in Subparagraph 9.6.1 are removed, payment shall be made for amounts withheld because of them.

9.7 FAILURE OF PAYMENT

- 9.7.1 If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within three days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents any amount certified by the Architect, then the Contractor may, upon seven additional days' written notice to the Owner and the Architect, stop the work until payment of the amount owing has been received. The Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shut-down, delay and start-up, which shall be effected by appropriate Change Order in accordance with Paragraph 12.3.

9.8 SUBSTANTIAL COMPLETION

- 9.8.1 When the Contractor considers that the work, or a designated portion thereof which is acceptable to the Owner, is substantially complete as defined in Subparagraph 8.1.3, the Contractor shall prepare for submission to the Architect a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents. When the Architect, with the Owner, on the basis of an inspection determines that the work or designated portion thereof is substantially complete, he will then prepare a Certificate of Substantial Completion Form, AIA Document G704-1978, which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance within which the Contractor shall complete the items listed therein. Warranties required by the Contract Document shall commence on the date of Final Completion of the work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Contractor and the Owner for their written acceptance of the responsibilities assigned to them in such Certificate.

9.8.2 Upon Substantial Completion of the work or designated portion thereof and upon application by the Contractor and certification by the Architect, the Owner shall make payment, reflecting adjustment in retainage, if any, for such work or portion thereof, as provided in the Contract Documents.

9.9 FINAL COMPLETION AND FINAL PAYMENT

9.9.1 Upon receipt of written notice that the work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, if he finds the work acceptable under the Contract Documents and the Contract fully performed, he will promptly issue final Certificate for Payment stating that, to the best of his observations and inspections, the work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in said Final Certificate, is due and payable. The Architect's Final Certificate of payment will constitute a further representation that the conditions precedent to the Contractor's being entitled to final payment as set forth in Subparagraph 9.9.2 have been fulfilled.

9.9.2 Neither the final payment nor the remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Owner or his property might in any way be responsible have been paid or otherwise satisfied, (2) consent of surety, if any, to final payment, and (3) if required by the Owner, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the Contract, to the extent and in such form as may be designed by the Owner. If any Subcontractor refuses to furnish a release or waiver required by the Owner the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any such lien. If any such lien remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all moneys that the latter may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

9.9.3 If, after Substantial Completion of the work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect and without terminating the Contract, make payment of the balance for that portion of the work fully completed and accepted. If the remaining balance for work not fully completed or corrected is less than the retainage stipulated in the Contract Document, and if bonds have been furnished as provided in Paragraph 7.5, the written consent of the surety to the payment of the balance due for that portion of the work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

9.9.4 The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

- A) Unsettled liens;
- B) Faulty or defective work appearing after Substantial Completion;
- C) Failure of the work to comply with the requirements of the Contract Documents; and
- D) Terms of any special warranties required by the Contract Documents.

9.9.5 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 The Contractor shall be responsible in initiating, maintaining and supervising all safety precautions and programs in connection with the work.

10.2. SAFETY OF PERSONS AND PROPERTY

- 10.2.1 The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection to prevent damage, injury or loss to:
- A) All employees on the work and all other persons who may be affected thereby;
 - B) All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor or any of his Subcontractors or Sub-subcontractors; and
 - C) Other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities no designated for removal, relocation or replacement in the course of construction.
- 10.2.2 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority bearing on the safety of persons or property or their protection from damage, injury or loss.
- 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying Owners and users of adjacent utilities.
- 10.2.4 When the use of storage of explosives or other hazardous materials or equipment is necessary for the execution of the work, the Contractor shall exercise the utmost care and shall carry on such activities under the supervision of properly qualified personnel.
- 10.2.5 The Contractor shall promptly remedy all damage or loss (other than damage of loss insured under paragraph 11.3) to any property referred to in Clauses 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, any Subcontractor or anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable and for which the Contractor is responsible under clauses 10.2.1.2 and 10.2.1.3, except damage or loss attributable to the acts or omissions of the Owner or the Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and no attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to his obligations under Paragraph 4.18.
- 10.2.6 The Contractor shall designate a responsible member of his organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's Superintendent unless otherwise designated by the Contractor in writing to the Owner and the Architect.
- 10.2.7 The Contractor shall not load or permit any part of the work to be loaded so as to endanger its safety.

10.3 EMERGENCIES

- 10.3.1 In any emergency affecting the safety of persons or property, the Contractor shall act, at his reasonable discretion, to prevent threatened damage, injury or loss. Any additional compensation or extension of time claimed by the Contractor on account of emergency work shall; be determined as provided in Article 12 for Changes in the work.

ARTICLE 11

INSURANCE

11.1 CONTRACTOR'S LIABILITY INSURANCE

- 11.1.1 The Contractor shall maintain in effect, and shall require all Subcontractors and others performing any portion of this Contract to maintain in effect, insurance of the types and respective minimum limits required. Such insurance shall cover all operations under this Contract. Maintenance of such insurance in at least the specified minimum amounts shall not relieve the Contractor or liability for loss in excess of the limits of liability specified herein or otherwise not covered by the coverage's required herein. The Contractor shall bear the cost of such insurance and include its costs in the Bid. The limits of insurance to be maintained are specified in the Agreement Between Owner and Contractor.

- 11.1.2 Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the work. These Certificates shall contain a provision that coverage afforded under the policies will not be canceled until at least thirty days; prior written notice has been given to the Owner.

11.2 OWNER'S LIABILITY INSURANCE

- 11.2.1 The Owner shall be responsible for purchasing and maintaining his own liability insurance and, at his option, may purchase and maintain such insurance as will protect him against all claims which may arise from operations under the Contract.

11.3 PROPERTY INSURANCE

- 11.3.1 The Contractor shall maintain builder's risk property insurance or self-insurance, or a combination of insurance and self-insurance, upon the work at the site for at least the actual cash value thereof. The builder's risk insurance shall cover the interests of the Owner, the Contractor, Subcontractors, and Sub-subcontractors in the work. The insurance shall insure against at least the following perils: fire extended coverage, theft, vandalism, and malicious mischief. The Contractor shall bear the cost of such insurance and include its cost in the Bid.
- 11.3.2 Any loss insured or self-insured under Subparagraph 11.3.1 is to be adjusted with the Owner and made payable to the Owner as trustee for the insured, as their interests may appear subject to the requirements of any applicable mortgage clause. The Owner shall deposit the proceeds in a separate account and shall distribute them in accordance with such agreement as the parties in interest, including the Owner, may reach. The Contractor shall pay each Subcontractor a just share of any insurance proceeds which the Contractor receives and shall require by written agreement signed by the Subcontractor that the Subcontractor will make payments to his Sub-subcontractors in a similar manner. If after such loss no other special agreement is made, replacement of damaged work shall be covered by an appropriate order.
- 11.3.3 To the extent permitted under their respective property insurance policies, the Owner and the Contractor hereby waive all rights, each against the other, for damages caused by fire or other perils to the extent covered by Insurance obtained pursuant to this Article 11 or any other property insurance applicable to the work, except such rights as they may have to the proceeds of such Insurance held by the Owner as trustee. The Owner or the Contractor, as appropriate, shall require the Architect, other Contractors, Subcontractors, and Sub-subcontractors to similarly waive rights of subrogation or property insurers.
- 11.3.4 If the Owner finds it necessary to occupy use of any portion of the work prior to Substantial Completion, such occupancy or use shall not commence prior to the time mutually agreed to by the Owner and the Contractor and, if required by the applicable insurance or self-insurance coverage not prior to the time the builder's risk property insurer has consented to such occupancy or use. The Contractor's consent to such occupancy or use shall not be unreasonably withheld.

11.4 LOSS OF USE INSURANCE

- 11.4.1 The Owner, at his option, may purchase and maintain such insurance as will insure him against loss of use of his property due to fire or other hazards, however caused.

ARTICLE 12

CHANGES IN THE WORK

12.1 CHANGE ORDERS

- 12.1.1 A Change Order is a written order to the Contractor signed by the Architect and the Contractor and approved in writing by the Owner. A Change Order may be issued only after the execution of the Contract and shall be the only means used to order changes in the work for which the Contractor requires additional compensation, changes to the Contract Time, or changes to the Contract Sum. Minor changes in the work for which the Contractor requires no additional compensation or time shall be executed in accordance with the provision of Subparagraph 12.4.1.

- 12.1.2 The Owner, without invalidating the Contract, may order changes in the work within the general scope of the Contractor consisting of additions, deletions or other revisions, the Contract Sum and the Contract Time being adjusted accordingly. All such changes in the work shall be authorized by Change Order and shall be performed under the applicable conditions of the Contract Documents.
- 12.1.3 The cost or credit to the Owner resulting from a change in the work shall be determined in one or more of the following ways:
- A) By mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
 - B) By unit prices stated in the Contract Documents or subsequently agreed upon;
 - C) By cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
 - D) By the method provided in Subparagraph 12.1.4.
- 12.1.4 If none of the methods set forth in Clauses 12.1.2., 12.1.3. or 12.1.3. is agreed upon, the Contractor, provided he receives a written order signed by the Owner, shall promptly proceed with the work involved. The cost of such work shall be determined by the Architect on the basis of the reasonable expenditures and savings of those performing the work attributable to the change, including, in the case of an increase in the Contract Sum, a reasonable allowance for overhead and profit. In such case, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data for inclusion in a Change Order. Unless otherwise provided in the Contract Documents, cost shall be limited to the following: cost of materials, including sales tax and cost of delivery; cost of labor, including social security, old age and unemployment insurance, and fringe benefits, required by agreement or custom, workers' or workmen's compensation insurance; bond premiums; rental value of equipment and machinery; and the additional costs of supervision and field office personnel directly attributable to the change. Pending final determination of cost to the Owner payments on account shall be made on the Architect's Certificate for payment. The amount of credit to be allowed by the Contractor to the Owner for any deletion or change which results in a net decrease in the Contract Sum will be the amount of the actual net cost as confirmed by the Architect. When both additions and credits covering related work or substitutions are involved in any one change, the allowance for overhead and profit shall be figured on the basis of the net increase, if any, with respect to that change.
- 12.1.5 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if the quantities originally contemplated are so changed in a proposed Change Order that application of the agreed unit prices to the quantities of work proposed will cause substantial inequity to the Owner or the Contractor, the applicable unit prices shall be equitably adjusted.
- 12.1.6 By submission of a Bid, the Contractor agrees and binds himself to the following method of calculating Change Order costs. The Owner also agrees to the following method of calculating the cost of any changes to the Contract. With each proposal for a change in the amount of the Contract, the Contractor shall submit an itemized breakdown of all increases or decreases in the cost of the Contractor's and all Subcontractor's and Sub-subcontractor's work to include at least the following detail in the general order listed:
- A) Material quantities and unit costs;
 - B) Labor amounts and hourly rates (identified with specific items of material to be placed or operation to be performed);
 - C) Costs inherent in use of Contractor/Sub-subcontractor owned equipment;
 - D) Equipment rental, if any;
 - E) Workmen's compensation and public liability insurance;
 - F) General administration, overhead, supervision, project insurance and profit, based on the following schedule:

Subtotal before Applying <u>the Percentage Shown</u>	<u>\$500 & Less</u>	<u>Over \$500</u>
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Contractor for work performed by his own forces	22%	19%
Contractor for work performed by Subcontractor	10%	8%
Subcontractor for work performed by his own forces	18%	15%
Subcontractor for work performed by Sub-subcontractor	10%	8%
Sub-subcontractor for work performed by his own forces	18%	15%

- G) Employment taxes under FICA and FUTA; and
- H) State gross receipts tax (Contractor only).

12.1.7 The quotation for work under a Change Order shall be binding for sixty (60) days from the date submitted by the Contractor.

12.2.1 CONCEALED CONDITIONS

12.2.1 Should concealed conditions encountered in the performance of the work below the surface of the ground or should concealed or unknown conditions in an existing structure be at variance with the conditions indicated by the Contract Documents, or should unknown physical conditions below the surface of the ground or should concealed or unknown conditions in an existing structure of an unusual nature differing materially from those ordinarily encountered and generally recognized as inherent in work of the Character provided for in this Contract, be encountered, the Contract Sum shall be equitably adjusted by change Order upon verified claim by either party made within twenty days after the first observance of the conditions.

12.2.2 If the Contractor wishes to make a claim for an increase in the Contract Sum, he shall give the Architect and Owner written notice thereof within twenty days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property, in which case the Contractor shall proceed in accordance with Paragraph 10.3. No such claim shall be valid unless so made. If such claims are justified and the Owner authorizes an increase in the Contract Sum, the Owner and the Contractor shall proceed to negotiate the amount of the adjustment in the Contract Sum. If the Owner and the Contractor cannot agree on the amount of the adjustment in the Contract Sum, it shall be determined by the Architect. Any change in the Contract Sum resulting from such claim shall be authorized by Change Order.

12.2.3 If the Contractor claims that additional cost is involved because of, but not limited to, (1) any written interpretation pursuant to Subparagraph 2.2.8, (2) any order by the Owner to stop the work pursuant to Paragraph 3.3 where the Contractor was not at fault, (3) any written order for a minor change in the work issued pursuant to Paragraph 12.4, or (4) failure of payment by the Owner pursuant to Paragraph 9.7, the Contractor shall make such claims provided in Subparagraph 12.3.1.

12.3 MINOR CHANGES IN THE WORK

12.3.1 The Architect will have authority to order minor changes in the work not involving an adjustment in the Contract Sum or an extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and the Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 13

UNCOVERING AND CORRECTION OF WORK

13.1 UNCOVERING OF WORK

13.1.1 If any portion of the work should be covered contrary to the request of the Architect or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect, be uncovered for his observation and shall be replaced at the Contractor's expense.

13.1.2 If any portion of the work has been covered which the Architect has not specifically requested to observe prior to begin covered, the Architect may request to see such work and it shall be uncovered by the

Contractor. If such work be found in accordance with the Contract Documents, the cost of uncovering and replacement shall, by appropriate Change Order, be charged to the Owner. If such work be found not in accordance with the Contract Documents, the Contractor shall pay such costs unless it be found that this condition was caused by the Owner or a separate Contractor as provided in Article 6, in which even the Owner shall be responsible for the payment of such costs.

13.2 CORRECTION OF WORK

- 13.2.1 The Contractor shall promptly correct all work rejected by the Architect as defective or as failing to conform to the Contract Documents whether observed before or after Substantial completion and whether or not fabricated, installed or completed. The Contractor shall bear all costs of correcting such rejected work, including compensation for the Architect's additional services made necessary thereby.
- 13.2.2 If, within one year after the Date of Substantial Completion of the work or designated portion thereof or within one year after acceptance by the Owner of designated equipment or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the work is found to be defective or not in accordance with the Contract Documents, the Contractor shall correct it promptly after receipt of a written notice from the Owner to do so unless the Owner has previously given the Contractor a specific written acceptance of such condition. This obligation shall survive termination of the Contract. The Owner shall give such notice promptly after discovery of the condition.
- 13.2.3 The Contractor shall remove from the site all portions of the work which are defective or non-conforming and which have not been corrected under Subparagraphs 4.5, 13.2.1 and 13.2.2, unless removal is specifically waived in writing by the Owner.
- 13.2.4 If the Contractor fails to correct defective or non-conforming work as provided in Subparagraph 4.5.1, 13.2.1 and 13.2.2, the Owner may correct it in accordance with Paragraph 3.4.
- 13.2.5 If the Contractor does not proceed with the correction of such defective or non-conforming work within a reasonable time fixed by written notice from the Architect, the Owner may remove it and may store the materials or equipment at the expense of the Contractor. If the Contractor does not pay the cost of such removal and storage within ten days thereafter, the Owner may upon ten additional days' written notice sell such work at auction or at private sale and shall account for the net proceeds thereof, after deducting all the costs that should have been borne by the Contractor including compensation for the Architect's additional services made necessary thereby. If such proceeds of sale do not cover all costs which the Contractor should have borne, the difference shall be charged to the Contractor and an appropriate Change Order shall be issued. If the payments then or thereafter due the Contractor are not sufficient to cover such amount, the Contractor shall pay the difference to the Owner.
- 13.2.6 The Contractor shall bear the cost of making good all work of the Owner or separate Contractors destroyed or damaged by such correction or removal.
- 13.2.7 Nothing contained in this Paragraph 13.2 shall be construed to establish a period of limitation with respect to any other obligation which the Contractor might have under the Contract Documents, including Paragraph 4.5 hereof. The establishment of the time period of one year after the Date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any warranty required by the Contract Documents relates only to the Contractor to correct the work and has no relationship to the time within which his obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to his obligations other than specifically to correct the work.

13.3 ACCEPTANCE OF DEFECTIVE OR NON-CONFORMING WORK

- 13.3.1 If the Owner prefers to accept defective or non-conforming work, he may do so instead of requiring its removal and correction, in which case a Change Order will be issued to reflect a reduction in the Contract Sum where appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 14

TERMINATION OF THE CONTRACT

14.1 TERMINATION BY THE CONTRACTOR

14.1.1 If the work is stopped for a period of thirty days under an order of court or other public authority having jurisdiction, or as a result of an act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the Contractor or a Sub-contractor or their agents or employees or any other persons performing any of the work under a contract with the Contractor because the Architect has not issued a Certificate for payment as provided in Paragraph 9.7 or because the Owner has not made payment thereon as provided in paragraph 9.7, then the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for all work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment and machinery, including reasonable profit and damages.

14.2 TERMINATION BY THE OWNER

14.2.1 If the Contractor is adjudged bankrupt, or if he makes a general assignment for the benefit of his creditors, or if a receiver is appointed on account of his insolvency, or if he persistently or repeatedly refuses or fails, except in cases for which extension of time is provided, to supply enough properly skilled workmen or proper materials, or if he fails to make prompt payment to Subcontractors for material of labor, or persistently disregards laws, ordinances, rules, regulations, or orders of any public authority having jurisdiction, or otherwise is guilty of a substantial violation of a provision of the Contract Documents, then the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may without prejudice to any right or remedy and after giving the Contractor and his surety, if any, seven days written notice, terminate the employment of the Contractor and take possession of the site and of all material, tools, construction equipment and machinery thereon owned by the Contractor and may finish the work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished.

14.2.2 If the unpaid balance of the Contract Sum exceeds the costs of finishing the work, including compensation for the Architect's additional services made necessary thereby, and any damages sustained by the Owner as a result of the Contractor's breach, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or to the Owner, as the case may be, shall be certified by the Architect upon application, in the manner provided in paragraph 9.4 and this obligation or to the Owner, as the case may be, shall be certified by the Architect upon application, in the manner provided in Paragraph 9.4 and this obligation for payment shall survive the termination of the Contract.

14.2.3 In the event that the Project is abandoned by the Owner, the Owner may terminate this contract at any time by giving at least seven (7) day notice to the Contractor. In the event of termination, all work completed shall become the property of the Owner. The Contractor shall be entitled to receive compensation for actual work satisfactorily completed hereunder, including reimbursable expenses authorized by the Owner which are then due.

14.2.4 In the event the Contractor fails to perform the work in accordance with the Contract Documents, the Owner may terminate the Contract after giving the Contractor five (5) working days notice.

ARTICLE 15

EQUAL OPPORTUNITY

15.1 The Contractor shall maintain policies of employment as follows:

15.1.1 The Contractor, all Subcontractors, and all Sub-subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to ensure that applicants are employed and that employees are treated during employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous place, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

15.1.2 The Contract, all Subcontractors, and all Sub-subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf, state that all qualified applicant will receive consideration for employment without regard to race, religion, color, sex, or national origin.

ARTICLE 16

MINIMUM WAGE RATES

16.1 The Contractor warrants and agrees that he and all Subcontractors and Sub-subcontractors shall comply with all applicable provisions of the New Mexico Public Works Minimum Wage Act as outlined in the Contract Documents. Wage rates are not applicable to projects costing less than \$60,000.00. The State of New Mexico Wage Rate Decision is included in this document.

SUPPLEMENTARY CONDITIONS (00 7300)

(00 7301) CITY OF SANTA FE REQUIREMENTS

Document is intended to be used in conjunction with the General Conditions of the Contract.

ADDITIONAL CONDITIONS

- 1.0 DEFINITIONS - The following definitions shall apply through the Bidding Documents or Contract Documents unless otherwise specified.
- 1.1 ADDENDUM: Written or graphic instrument issued prior to the execution of the Contract which modifies or interprets the Bidding Documents, including Drawings and Specifications, by additions, deletions, clarifications, or corrections. Addenda will become part of the Contract Documents when the Construction Contract is executed. Plural: ADDENDA
- 1.2 ADDITIVE OR DEDUCTIVE ALTERNATE BID: Amount stated in the Bid to be added or deducted from the amount of the Base Bid if the corresponding change in project scope or alternate materials and/or methods of construction is accepted.
- 1.3 BASE BID: Amount of money stated in the Bid as the sum for which the Bidder offers to perform the work, not including that work for which Alternate Bids are also submitted.
- 1.4 BID: A complete and properly signed proposal to do the work or designated portion thereof for the sums stipulated therein, supported by data called for by the Bidding Documents.
- 1.5 BID LOT: A major item of work for which a separate quotation or proposal is requested.
- 1.6 BIDDER: One who submits a Bid for a Prime contract with the Owner, as distinct from a Subcontractor, who submits a Bid to a Bidder. Technically, a Bidder is not a Contractor on a specific project until a contract exists between him and the Owner.
- 1.7 BIDDING DOCUMENT: Documents that include the Invitation for Bid, Instructions to Bidders, the Bid Form, other sample bidding and contract forms, and the proposed Contract Documents, including any Addenda issued prior to receipt of Bids. The Contract Documents proposed for the work consist of the Owner-Contractor Agreement, the Conditions of the Construction Contract (General, Supplementary, and Other Conditions), the Drawings, the Specifications, and all Addenda issued prior to and all Modifications issued after execution of the Contract.
- 1.8 DAY: Calendar day, which is every day shown on the calendar, beginning and ending at midnight.
- 1.9 CENTRAL PURCHASING OFFICE: The Central Purchasing Office is the City of Santa Fe Purchasing Department.
- 1.10 GOVERNING AUTHORITY: The Governing Board of the City of Santa Fe for the execution of construction contracts is the Mayor and City Manager.
- 1.11 INVITATION FOR BID: The Bidding Documents utilized for soliciting sealed Bids. "Invitation to Bid" shall have the same meaning as "Invitation for Bid".
- 1.12 OWNER: The City of Santa Fe, New Mexico.
- 1.13 PROCUREMENT OFFICER: The Director of the Purchasing Division, or a designee authorized to enter into or administer contracts and make written determination with respect thereto.
- 1.14 RESPONSIBLE BIDDER: A Bidder who submits a responsive Bid and who has furnished, when required, information and data to prove that his financial resources, production or service facilities, personnel, service reputation, and experience are adequate to make satisfactory delivery of the services, construction, or items of tangible personal property described in the Bidding Documents (13-1-82, NMSA 1978).

- 1.15 **SUCCESSFUL BIDDER:** The lowest qualified and responsible Bidder to whom the Owner, on the basis of the Owner's evaluation, makes an award.
- 1.16 **UNIT PRICES:** Amounts stated in the Contract as prices per unit of measurement for materials or services as described in the Contract Documents.
- 1.17 **USER:** The City of Santa Fe or agencies or designated entity for whose use the Project is being constructed.

2.0 CONTRACT AUDIT

The Owner shall be entitled to audit the books and records of a Contractor or any Subcontractor under any negotiated contract or subcontract other than a firm fixed-price contract to the extent that such books and records relate to the performance of such contract or subcontract. Such books and records shall be maintained by the Contractor for a period of three years from the date of final payment under the prime contract and by the Subcontractor for a period of three years from the date of final payment under the subcontract unless a shorter period is otherwise authorized in writing (13-1-161, NMSA 1978).

3.0 DEBARRED OR SUSPENDED CONTRACTORS

A business (Contractor, Subcontractor, or Supplier) that has either been debarred or suspended pursuant to the requirements of Sections 13-1-177 through 13-1-180, and 13-4-11 through 13-4-17, NMSA 1978, shall not be permitted to do business with the State and shall not be considered for award of contract during the period for which it is debarred or suspended.

4.0 BRIBES, GRATUITIES, AND KICK-BACKS

- 4.1 It is illegal in the State of New Mexico for any public employee to solicit or accept anything of value in connection with award of this Bid and for any person to offer or pay anything of value to any such public employee (30-24-1 through 30-24-2, NMSA 1978).
- 4.2 Pursuant to Section 13-1-191, NMSA 1978, reference is hereby made to the Criminal Laws of New Mexico (including 30-24-1, 30-23-2, and 30-41-1 through 3-41-3, NMSA 1978), which prohibit bribes, kick-backs, and gratuities and violation of which constitutes a felon. Further, the Procurement Code (13-1-28 through 13-1-199, NMSA 1978), imposes civil and criminal penalties for its violation

5.0 PROTESTS

- 5.1 Any Contractor who is aggrieved in connection with a procurement may protest to the City Purchasing Agent and the Owner. The protest should be made in writing within twenty-four (24) hours after the facts or occurrences; giving rise thereto, but in no case, less than within fifteen (15) calendar days after the facts or occurrences giving rise thereto (13-1-173, NMSA 1978).
- 5.2 In the event of a timely protest under Section 5.1 (13-1-172 of the Procurement Code, NMSA 1978), the City Purchasing Agent and the Owner shall not proceed further with the procurement unless the State Purchasing Agent or the Owner makes a determination that the award of contract is necessary to protect substantial interests of the Owner (13-1-173, NMSA 1978).
- 5.3 The City Purchasing Agent or his designee shall have the authority to take any action reasonably necessary to resolve a protest of an aggrieved Contractor concerning a procurement.
- 5.4 This authority shall be exercised in accordance with adopted regulations, but shall not include the authority to award money damages or attorneys' fees (13-1-174, NMSA 1978).
- 5.5 The City Purchasing Agent or his designee shall promptly issue a determination relating to the protest. The determination shall:
 - A) State the reasons for the action taken; and,
 - B) Inform the protestant of the right to judicial review of the determination pursuant to Section 13-1-183, NMSA 1978 (13-1-175, NMSA 1978).
- 5.6 A copy of the determination issued under Section 13-1-175, NMSA 1978, shall be mailed immediately to the protestant (13-1-176, NMSA 1978).

6.0 CONTRACT BOND REQUIREMENTS

- 6.1 The Successful Bidder, where the Contract Price exceeds twenty five thousand dollars (\$25,000), shall post a one hundred percent (100%) Performance Bond and a one hundred percent (100%) Labor and Material Payment Bond. Bonds shall be executed on Performance Bond and Labor and Material Payment Bond forms attached hereto, with amount payable conforming to the terms of the contract. Surety shall be a company licensed to do business in the State of New Mexico and acceptable to the Owner.
- 6.2 Special attention of Bidders is called to the requirements of Section 13-4-18 through 13-4-20, NMSA 1978 regarding a Contractor who does not have his principal place of business in the State of New Mexico for all taxes due arising out of construction services rendered under the Contract.
 - 6.2.1 The right to sue on this Bond accrues only to the Owner and the parties to whom Sections 13-4-18 through 13-4-20, NMSA 1978 grant such right; and any such right shall be exercised only in accordance with the provisions and limitations of said statutes.

7.0 NON-RESIDENT CONTRACTOR'S REQUIREMENTS REGARDING GROSS RECEIPTS TAX SURETY BOND

- 7.1 Section 7-1-55A, NMSA 1978 provides that any person (as defined in Section 7-1-3, NMSA 1978) engaged in the construction business who does not have his principal place of business in New Mexico and enters into a prime construction contract to be performed in this State shall, at the time such contract is entered into, furnish the Director of the Revenue Division, Taxation and Revenue Department, or his delegate with a surety bond or other acceptable security in a sum equivalent to the gross receipts to be paid under the contract multiplied by the applicable rate of the gross receipts tax imposed by Section 7-9-4, NMSA 1978 to secure payment of the tax imposed on the gross receipts from the contract, and shall obtain a certificate from the Director of the Revenue Division, Taxation and Revenue Department, or his delegate that the requirements of this paragraph have been met.
- 7.2 If the total sum to be paid under the contract is changed by ten percent or more after the date the surety bond or other acceptable security is furnished, to the Director or his delegate, such person shall increase or decrease, as the case may be, the amount of the bond or security within fourteen days after the change (7-1-55B, NMSA 1978).
- 7.3 In addition to the above requirements, the Contractor will be subject to all the requirements of the City Procurement Code.

8.0 CONTRACTOR'S GROSS RECEIPTS TAX REGISTRATION

- 8.1 Section 7-10-4, NMSA 1978 provides that any person (as defined in Section 7-10-3, NMSA 1978) performing services for the City of Santa Fe, as those terms are used in the Gross Receipts and Compensating Tax Act (Section 7-10-1 to 7-10-5, NMSA 1978), must be registered and be issued an identification number with the Revenue Division of the Taxation and Revenue Department to pay the gross receipts tax.
- 8.2 The identification number is needed to properly complete the approval process of the contract; therefore, so as to cause no delay in the processing, the Contractor must register with the State of New Mexico, Taxation and Revenue Department. For information contact:

Revenue Division
Taxation and Revenue Department
1100 South St. Francis Drive
Santa Fe, New Mexico 87504
(505)827-0700

- 8.3 If any person who performs services for the City of Santa Fe is not registered to pay the gross receipts tax, the City shall withhold payment of the amount due until the person has presented evidence of registration with the Revenue Department to pay the gross receipts tax.

9.0 CONTRACT WITH NONRESIDENT PERSON OR PARTNERSHIPS OR UNADMITTED FOREIGN CORPORATIONS; AGENT FOR SERVICE OF PROCESS

- 9.1 Special attention of Bidders is called to requirements of Sections 13-4-21 through 13-4-24, NMSA 1978, whereby a public works contract with a nonresident person or partnership or foreign corporation not authorized to do business in the State shall contain a specific provision designating an agent resident within the State, and his address, upon whom

process and writs in any action or proceeding against such business may be served in any action arising out of such contract.

11.0 STATE ALLOWANCES

11.1 The Contractor shall purchase the "Allowed Materials" as directed by the Owner through the Landscape Architect on the basis of the lowest and the best Bid of at least three competitive Bids. If the actual price for purchasing the "Allowed materials" is more or less than the "Cash Allowance", the Contract Price shall be adjusted accordingly. The adjustment in Contract Price made on the basis of the purchase price without additional charges for overhead, profit, insurance, or any other incidental expenses. The cost of installation of the "Allowed Materials" shall be included in the applicable section of the Specifications covering the work.

12.0 MINIMUM WAGE RATES

12.1 The Minimum Wage Rate Determinations for this Project are shown in this section. This project is subject to New Mexico State Wage Rate Decision No. SF15-1373B if the amount of the base bid is equal to or greater than \$60,000.

13.0 FORM OF CHANGE ORDER, & SUBSTANTIAL COMPLETION and FINAL COMPLETION CERTIFICATES

13.1 The Change Order forms, Certificate of Substantial Completion form and the Certificate of Final Completion form issued by the Owner are to be utilized by the Contractor and the Architect, pursuant to the requirements of the General Conditions. There are two Change Order forms, one for approval by the City Manager, and one for the approval of City Council.

14.0 STATE OF NEW MEXICO STATE INDUSTRIES DIVISION

14.1 The Contractor, at his own expense, shall secure the required building permits from the State CID as required for this Project. Contractor shall adhere to the requirements established for inspections.

15.0 CITY OF SANTA FE REQUIREMENTS

15.1 The General Contractor shall include in the Bid the cost of all landfill dumping fees; additionally, the General Contractor shall be responsible that all rubble, excess materials, etc., are disposed of at an approved, legal dumping site.

(00 7343) MINIMUM WAGE RATES & CITY LIVING WAGE

New Mexico Department of Workforce Solutions
Public Works
121 Tijeras Ave. NE, Suite 3000, Albuquerque, NM 87102
Phone: (505)-841-4400 fax to: (505) 841-4424 or Email to: public.works@state.nm.us

Wage Decision # SF-15-1373 B
NOTIFICATION OF AWARD (NOA)

THIS WAGE DECISION # EXPIRES FOR BIDS ON 01/08/16

Description and Location of Work: Santa Fe Airport Terminal Improvements

The Work consists of: Selective demolition, concrete cutting and patching, cast-in-place concrete, masonry, insulation, modifications to existing SBS warranted roofing, sealants, metal doors and frames, wood doors, overhead coiling doors, aluminum storefront and entrances, automatic sliding entrance doors, glazing, finish hardware, gypsum board assemblies, stucco, tiling, acoustical ceilings, resilient accessories, tile carpeting, painting, room signage, toilet accessories, window shades, fire extinguishers cabinets, window shades, entrance mat, plumbing, hvac, electrical, special systems, expansion and reconfiguration of existing fire alarm system, site improvements – sidewalks, yard walls, fencing and windscreens; and connecting to existing utilities

City of Santa Fe

County of Santa Fe

121 Aviation Drive

REMINDER for Agency Conducting BID Process:

After the Contracting Agency awards this project the Wage Rate Poster, Sub-List and the Project Requirement Document, excluding this NOA must be delivered to the **GENERAL/PRIME CONTRACTOR**. The Contracting Agency or its agent must complete this form and submit with the sub-list listing all of the subcontractors including all tiers of subcontractors and fax or email it to the address above. ***If the project is canceled***, this form must be completed by the Contracting agency conducting the bid process and the wording "Cancelled" written on the form and send to the Labor Relations Division. Failure to submit the NOA in a timely manner is a violation of paragraph 11.1.2.9.B (3) of the Public Works Minimum Wage Act Policy Manual.

General/Prime Contractor Company Name: _____ License#: _____

Address: _____ City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Project Contact's name: _____ E-Mail: _____

Approximate Date Work to Start: _____

Estimated Completion Date: _____

Estimated Cost of Project: _____

Bid Opening Date: _____

Note: The General/Prime Contractor **MUST** mail/fax in their Statement of Intent to Pay Prevailing Wages to the Contracting Agency or its agent before beginning work on the project. Each Subcontractor (and all tiers of subcontractors) **MUST** also mail/fax their Statement of Intent to Pay Prevailing Wages to the General/Prime Contractor 3 days after award of project. After work on the project is completed **and before, final payment**, is made to subcontractors and all tiers of subcontractors, the contractor and sub-contractors must mail/fax their Affidavit of Wages paid to the Contracting Agency for final payment.

Signature for Contracting Agency (or agent) _____

Printed Name _____

Email address for Contracting Agency (not agent) _____ **Required Field**

Date _____

SUBCONTRACTOR LIST

DO NOT list suppliers or professional services (such as surveyors)
INCLUDE individual subcontractor dollar amount for project

Email to: public.works@state.nm.us or fax to: (505) 841-4424

Please include **2nd & 3rd Tier** subcontractors. Make extra copies of form if necessary.

Wage Decision. # SF-15-1373 B

General Contractor:

Company Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 E-Mail Address: _____ License No.: _____
 Phone No.: _____ Fax No.: _____ Sub _____ 2nd TIER _____ 3rd TIER _____
 (To Whom) (To Whom)
 Work to be performed: _____ Start Date: _____ Amount (\$): _____

Company Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 E-Mail Address: _____ License No.: _____
 Phone No.: _____ Fax No.: _____ Sub _____ 2nd TIER _____ 3rd TIER _____
 (To Whom) (To Whom)
 Work to be performed: _____ Start Date: _____ Amount (\$): _____

Company Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 E-Mail Address: _____ License No.: _____
 Phone No.: _____ Fax No.: _____ Sub _____ 2nd TIER _____ 3rd TIER _____
 (To Whom) (To Whom)
 Work to be performed: _____ Start Date: _____ Amount (\$): _____

Company Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 E-Mail Address: _____ License No.: _____
 Phone No.: _____ Fax No.: _____ Sub _____ 2nd TIER _____ 3rd TIER _____
 (To Whom) (To Whom)
 Work to be performed: _____ Start Date: _____ Amount (\$): _____

Company Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 E-Mail Address: _____ License No.: _____
 Phone No.: _____ Fax No.: _____ Sub _____ 2nd TIER _____ 3rd TIER _____
 (To Whom) (To Whom)
 Work to be performed: _____ Start Date: _____ Amount (\$): _____

Company Name: _____
 Address: _____ City: _____ State: _____ Zip: _____
 E-Mail Address: _____ License No.: _____
 Phone No.: _____ Fax No.: _____ Sub _____ 2nd TIER _____ 3rd TIER _____

Work to be performed:

Start Date:

(To Whom)

(To Whom)

Amount (\$):

Revised 8/23/13

Page 2 of 2

SUSANA MARTINEZ
GOVERNOR



CELINA BUSSEY
SECRETARY

JOHN SANCHEZ
LT. GOVERNOR

STATE OF NEW MEXICO
DEPARTMENT OF WORKFORCE SOLUTIONS
121 Tijeras Ave NE Suite 3000
Albuquerque, NM 87102
Telephone (505) 841-4405
Fax (505) 841-4424

PUBLIC WORKS PROJECT REQUIREMENTS

As a participant in a Public Works project valued at more than \$60,000 in the State of New Mexico, the following list addresses many of the responsibilities that are assigned by statute to each project stakeholder.

Contracting Agency

- Ensure that all contractors/prime contractors wishing to bid on a Public Works project when the project is \$60,000 or more are actively registered with the Labor Relations Division, Labor Enforcement Fund (LEF) prior to bidding.
- Provide completed Notice of Award (NOA) and Sub-Contractor list to Labor Relations Division promptly after the project is awarded.
- Provide updates to the Sub-Contractor list to the Labor Relations Division

General Contractor

- Provide to the Contracting Agency within 3 (Three) days of award a complete sub-contractor list and Statements of Intent (SOI) to pay Prevailing Wages for each contractor.
- Ensure that all sub-contractors wishing to bid on a Public Works project when their portion is over \$60,000 are actively registered with the Labor Relations Division prior to bidding.
- Submit bi-weekly certified payrolls to the owner/contracting agency.
- Make certain NM Apprenticeship and Training Fund payments are to be paid either to an approved Apprenticeship program or to the Labor Relations Division.
- Confirm the Wage Rate poster, provided by the Labor Relations Division, is displayed at the job site in an easily accessible place.
- Make sure, when a project has been completed, the Affidavits of Wages Paid (AWP) is sent to the Contracting Agency.

Sub-Contractor

- Ensure that all sub-contractors wishing to bid on a Public Works project when their portion is over \$60,000 are actively registered with the Labor Relations Division prior to bidding.
- Submit bi-weekly certified payrolls to the General Contractor(s).
- Make certain NM Apprenticeship and Training Fund payments are to be paid either to an approved Apprenticeship program or to the Labor Relations Division.

Additional Information

Reference material and forms for these requirements are available through the following New Mexico Workforce Solutions Web Link.

www.dws.state.nm.us/new/Labor_Relations/publicworks.html.

Additional Information

Additional information, requirements, and documents on these topics can be found through the Public Works web pages.

- Labor Enforcement Fund (LEF)
- Weekly Certified Payroll
- Public Works Apprenticeship and Training Fund (PWAT)
- Forms: Statement of Intent (SOI), Affidavit of Wages Paid (AWP)
- Prevailing Wage Rates (Base Rates, Fringe, and Apprenticeship Contributions)

CONTACT INFORMATION

Contact us for any questions relating to Public Works Projects.

Kim Kew Kim.Kew@state.nm.us or 505-841-4405

Otis Caddy LynnO.Caddy@state.nm.us 505-841-4406

Stacey Lowrey Stacey.Lowrey@state.nm.us 505-841-4412

Violet Miera Violet.Miera2@state.nm.us 505-841-4418

Santa Fe Airport Terminal Improvements : Wage Decision # SF-15-1373 B

The Work consists of: Selective demolition, concrete cutting and patching, cast-in-place concrete, masonry, insulation, modifications to existing SBS warranted roofing, sealants, metal doors and frames, wood doors, overhead coiling doors, aluminum storefront and entrances, automatic sliding entrance doors, glazing, finish hardware, gypsum

Type "B" - GENERAL BUILDING Effective January 1, 2015

Trade Classification	Base Rate	Fringe Rate	Apprenticeship	Subsistence & Incentive Rates
Asbestos Worker - Heat & Frost Insulator	27.35	10.23	\$0.56	
Boilermaker	18.40	3.78	\$0.56	
Bricklayer/Blocklayer/Stonemason	22.85	6.00	\$0.56	
Carpenter/Lather	20.86	6.25	\$0.56	
Cement Mason	17.72	7.45	\$0.56	
Electricians				
Outside Classifications				
Groundman	22.32	8.62	\$0.56	
Equipment Operator	25.14	8.62	\$0.56	
Lineman/Tech	25.73	8.62	\$0.56	
Cable Splicer	26.91	8.62	\$0.56	
Inside Classifications				
Wireman/Technician	27.80	8.06	\$0.56	Refer to Note 1
Cable Splicer	29.53	8.06	\$0.56	
Sound Classifications				
Installer	23.39	8.31	\$0.56	
Technician	24.94	8.31	\$0.56	
Soundman	27.01	8.31	\$0.56	
Elevator Constructor	33.61	14.99	\$0.56	
Elevator Constructor Helper	15.55	3.56	\$0.56	
Glazier	20.15	4.15	\$0.56	
Ironworker	25.00	10.00	\$0.56	Refer to Note 2
Painter (Brush/Roller/Spray)	16.60	3.88	\$0.56	
Paper Hanger	19.71	8.42	\$0.56	
Drywall Finisher/Taper	19.64	3.91	\$0.56	
Plasterer	18.65	7.15	\$0.56	
Plumber/Pipefitter	28.30	11.00	\$0.56	Refer to Note 3
Roofer	15.18	0.50	\$0.56	
Sheetmetal Worker	26.56	13.41	\$0.56	Refer to Note 4
Soft Floor Layer	20.74	4.40	\$0.56	
Sprinkler Fitter	24.41	11.27	\$0.56	
Tile Setter	14.80	1.20	\$0.56	
Tile Setter Helper	13.00	1.02	\$0.56	
Laborers				
Group I	15.04	4.25	\$0.56	
Group II	15.61	4.25	\$0.56	
Group III	15.91	4.25	\$0.56	
Group IV	16.01	4.25	\$0.56	
Group V	16.21	4.25	\$0.56	
Group VI	16.36	4.25	\$0.56	
Operators				
Group I	28.03	5.16	\$0.56	
Group II	29.07	5.16	\$0.56	
Group III	29.15	5.16	\$0.56	
Group IV	29.21	5.16	\$0.56	
Group V	29.27	5.16	\$0.56	
Group VI	29.37	5.16	\$0.56	
Group VII	29.47	5.16	\$0.56	
Group VIII	30.55	5.16	\$0.56	
Truck Drivers				
Group I	20.56	5.34	\$0.56	
Group II	20.68	5.34	\$0.56	
Group III	20.76	5.34	\$0.56	
Group IV	20.88	5.34	\$0.56	
Group V	20.93	5.34	\$0.56	
Group VI	21.03	5.34	\$0.56	
Group VII	21.13	5.34	\$0.56	
Group VIII	21.27	5.34	\$0.56	
Group IX	21.42	5.34	\$0.56	

NOTE: SUBSISTENCE AND INCENTIVE RATES BY TRADE & LOCATION

#1 - Inside Electricians working at a Los Alamos County job site get \$4.10/hr. subsistence pay plus base/fringe. Inside Electricians working at a Lea Co. job site get \$75.00/day subsistence pay plus base/fringe.

#2 - Ironworkers working on projects 50+ miles over the most direct regularly traveled route from Albuquerque, or the employee's home, whichever is closer, shall be paid \$5.00/hr. subsistence plus base/fringe. The "Big I" Interchange in Albuquerque, or the employee's home, respectively shall be used as basing points. The current State of New Mexico Official Highway Map shall be the reference for routes and distances. All of Santa Fe County shall be \$5.00/hr subsistence area.

#3 - Plumbers/Pipefitters working at a Los Alamos County job site get \$.80/hr. incentive pay plus base/fringe.

#4 - Sheet Metal Workers working at a Los Alamos County job site get \$2.00/hr. incentive pay plus base/fringe.

#4 - Sheet Metal Workers living 60+ miles from a San Juan County job site get \$3.00/hr. subsistence pay plus base/fringe. Sheet Metal Workers working 90+ miles from Contractors Homebase & employees home get \$50.00/day subsistence pay plus base/fringe regardless of county.

INSTRUCTIONS FOR COMPLETING STATEMENT OF INTENT TO PAY PREVAILING WAGES

GENERAL CONTRACTOR

1. Enter general contractor information and provide signature.
2. Enter State Wage Decision Number as listed in bid documents. (Example: BE-13-0123 B)
3. Enter project title - listed in bid documents.
4. Enter project physical address - exact location of project (job site).
5. Enter estimated start & completion dates of project.
6. Enter general contractor's contract amount.
7. All Statements must be sent to the Contracting Agency.

SUB CONTRACTOR

1. Enter general contractor information, but general contractor signature is not needed.
2. Enter sub contractor information as indicated and provide signature.
3. Enter sub contractor contract amount.

NOTE: A separate signed form is needed for each contractor.

2ND TIER SUB CONTRACTOR

1. Enter general contractor information, but general contractor signature is not needed.
2. Enter sub contractor information; subcontractor signature not needed.
3. Enter 2nd tier sub information and provide signature.
4. Enter 2nd tier contractors contract amount.

3RD TIER AND HIGHER CONTRACTOR

1. Attach a copy of this completed form & list the 3rd tier contractor information under the 2nd tier

Living Wage Ordinance

Ordinance Number §28-1 28-1.12 SFCC 1987

Purpose:

The City of Santa Fe Living Wage Ordinance was adopted to establish minimum hourly wages.

Who it affects:

- All profit and nonprofit businesses required to have a business license or business registration with the City of Santa Fe.

Compliance:

- Affected businesses are required to pay employees an hourly wage of \$10.84 effective March 1, 2015.
- Beginning January 1, 2009, and each year thereafter, the minimum wage shall be adjusted upward by an amount corresponding to the previous year's increase, if any, in the Consumer Price Index for the Western Region for Urban Wage Earners and Clerical Workers.
- For workers who customarily receive more than \$100 per month in tips or commissions, any tips or commissions received and retained by a worker shall be counted as wages and credited toward satisfaction of the minimum wage provided that, for tipped workers, all tips received by such workers are retained by the workers, except that the pooling of tips among workers shall be permitted.
- The value of health care benefits and child care shall be considered as an element of wages.
- Nonprofit organizations whose primary source of funds is from Medicaid waivers are *exempt*.

Prohibitions against retaliation and circumvention:

- It shall be unlawful for any business, employer or employer's agent or representative to take any action against an individual in retaliation for exercising or communicating rights under this ordinance. This includes retaliation against individuals who mistakenly but in good faith allege noncompliance with the ordinance.
- Taking adverse action against an individual within 60 days of the individual's assertion of or communication of information regarding rights raises a reputable presumption of retaliation for assertion of rights.
- It shall be unlawful for any business or employer to intentionally circumvent the requirements of this ordinance by contracting portions of its operations or leasing portions of its property.

Enforcement and Remedies:

- Administrative Enforcement—The city manager, or his/her designee, is authorized, as appropriate and as resources permit, to enforce this ordinance.
- Criminal Penalty—A person violating this ordinance shall be guilty of a misdemeanor and, upon conviction, for each offense may be subject to fines and imprisonment as set forth in Section 1-3 SFCC 1987. A person violating any of the requirements of this ordinance shall be guilty of a separate offense for each day or portion thereof and for each worker or person to whom any such violation occurred.
- Other Remedies—The city, any individual aggrieved by a violation of this ordinance, or any entity the members of which have been aggrieved by a violation of this ordinance, may bring a civil action in a court of competent jurisdiction to restrain, correct, abate or remedy any violation of this ordinance and, upon prevailing, shall be entitled to such legal or equitable relief as may be appropriate to remedy the violation including, without limitation, reinstatement, the payment of any wages due and an additional amount as liquidated damages equal to twice the amount of any wages due, injunctive relief, and reasonable attorney's fees and costs.

Nonexclusive Remedies and Penalties—The remedies provided in this section are not exclusive, and nothing in this ordinance shall preclude any person from seeking any other remedies, penalties, or relief provided by law.

Posting and Publication:

- Any business subject to the provisions of this ordinance shall as a condition to obtaining and holding a City of Santa Fe business license or registration, post and display in a prominent location next to its business license or registration on the business premises a notice, in English and Spanish, that the business is in compliance with the provisions of this ordinance and post the text of this notice. Failure to comply with this section shall be construed a violation of this ordinance and, in addition, shall be considered grounds for suspensions, revocation, or termination of the business license or registration.

For more information, please contact: Constituent Services at 955-6949 Email: constituentservices@santafenm.gov

Ordenanza Respecto al Sueldo Mínimo

Ordenanza Numero §28-1 28-1.12 SFCC 1987

Propósito:

La ordenanza respecto al Sueldo Mínimo fue adoptada por la Ciudad de Santa Fe con el fin de establecer un sueldo mínimo que determinadas empresas tienen que pagar.

A Quién Afecta la Ordenanza:

- A toda empresa con o sin fines de lucro se requiere que tenga una licencia comercial o estar registrada con la ciudad de Santa Fe.

Cómo Se Tiene que Cumplir lo que Dispone la Ordenanza:

- A partir del día primero de Marzo del 2017, las empresas que tienen que pagar el sueldo mínimo tienen la obligación de pagar un sueldo de \$10.: 6 la hora.
- A partir del día primero de enero del 2009, y cada año que sigue, el sueldo mínimo será ajustado de acuerdo con la inflación.
- Para trabajadores/as que regularmente reciben propinas o comisiones que sumen más de \$100 por mes, todas esas propinas o comisiones que reciban contarán como si fueran sueldo y serán acreditadas para satisfacer la ordenanza, siempre y cuando los trabajadores se queden con todas sus propinas. También se permitirá acreditar propinas que se juntan y se comparten.
- El valor de beneficios de seguro médico y de cuidado de niños se considerará como parte del sueldo mínimo.
- Las organizaciones sin fines de lucro que reciben la mayoría de sus fondos de (*Medicaid*) no tienen que pagar el sueldo mínimo de la ciudad.

”

Se Prohíben Represalias o Evasiones:

- Es en contra de la ley que una empresa o persona que emplea trabajadores o que el apoderado o persona que representa a la empresa tome represalias en contra del trabajador porque el o ella ejerce sus derechos o comunica sus derechos a otra persona. También es en contra de la ley tomar represalias contra un trabajador que erróneamente, pero de buena fe, alega que la empresa no ha cumplido con la ordenanza.
- Se presume como represalia, tomar cualquier acción dentro de los 60 días después de que un individuo quiso ejercer sus derechos.
- Es en contra de la ley que un empresario o empleador intencionalmente trate de evadir los requisitos de esta ordenanza contratando parte de su negocio a otra empresa o rentando partes de su propiedad, con el fin de no cumplir con la ordenanza.

”

Remedios Legales Para Implementar la Ley:

- Medidas Administrativas - El Administrador de la ciudad o su representante está autorizado a hacer cumplir la ordenanza hasta donde los recursos lo permitan.
- Castigo Judicial - El empleador que no cumpla con esta ordenanza será condenado por cada infracción. Pudiera estar sujeto a multas o encarcelamiento según dispone la sección 1-3 del Código Civil de Santa Fe de 1987. El empleador que no cumpla cualquiera de los requisitos en esta ordenanza será culpable de una infracción por cada trabajador afectado, por cada día o parte del día que no se cumpla la ordenanza.
- Otros Recursos Judiciales - La Ciudad de Santa Fe, cualquier individuo o cualquier grupo de individuos que han sido afectados porque no se cumplió la ordenanza, podrán presentar una queja en la corte civil que tiene jurisdicción para restringir, corregir, suprimir, o remediar toda infracción de esta ordenanza. La persona que gane el caso tiene derecho a un remedio legal o equitativo que sea adecuado para remediar la violación. Los remedios incluyen y sin limitar, que lo/la vuelvan a emplear, que le paguen el sueldo que le deben más una cantidad por daños determinados que son el igual a doble cantidad del sueldo que le deben, protección judicial y cuotas razonables que cobra el abogado más costos del caso.

Remedios Legales, Daños y Perjuicios No Exclusivos Los remedios legales en esta sección no son exclusivos. Eso quiere decir que esta ordenanza no prohíbe que el trabajador trate de plantear otros remedios en la corte, demandar por daños y perjuicios que la ley permite.

Colocación de Anuncios y Publicación de los Anuncios:

- Como condición para obtener y mantener una licencia o registro comercial toda empresa tendrá que colocar en un lugar prominente al lado de su licencia o registro en el lugar de trabajo este aviso en inglés y en español indicando que el negocio está cumpliendo con la ordenanza y con el texto de este aviso. Si la empresa no cumple lo que esta sección ordena se considerará como violación a esta ordenanza y se podrá suspender, revocar o dar por terminada la licencia o registro de la empresa.

”

SECTION 01 10 00

SUMMARY

PART 1 GENERAL

1.01 SPECIFICATION FORMATS AND CONVENTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 49-division format and CSI/CSC's "MasterFormat 2011" numbering system.
- B. DIVISION 01 GENERAL REQUIREMENTS apply to Work of all Specification Sections.
 - 1. PART 1 GENERAL of each specification section contains requirements which pertain only to that section.
- C. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions include:
 - 1. Abbreviated Language: Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - 3. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 - 4. The word "provide" means to furnish and install, complete and ready for use.

1.02 SUMMARY BY REFERENCED

- A. Work of the Contract can be summarized by references to the Contract, General Conditions, Supplementary Conditions, Specification Sections, Drawings, Addenda and Modifications to the Contract Documents issued subsequent to the initial printing of this Project Manual and including, but not necessarily limited to, printed material referenced by any of these. It is recognized that work of the Contract is also unavoidably affected or influenced by governing regulations, natural phenomenon, including weather conditions and other forces outside the Contract Documents.

1.03 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project will be constructed under a general construction contract.
- B. Project consists of: Reconfiguration of existing spaces to provide a separate arrival gate and baggage conveyor, an enlarged waiting area for TSA screened passengers complete with restrooms, concessions and an outdoor patio within a screened area, additional square footage for enlarged main entrance vestibule, additional square footage for offices, an enlarged main entrance vestibule, new screen walls around service areas and secondary entrance, and other minor improvements as included in the construction documents
- C. The Work consists of: Selective demolition, concrete cutting and patching, cast-in-place concrete, masonry, insulation, modifications to existing SBS warranted roofing, sealants, metal doors and frames, wood doors, overhead coiling doors, aluminum storefront and entrances, automatic sliding entrance doors, glazing, finish hardware, gypsum board assemblies, stucco, tiling, acoustical ceilings, resilient accessories, tile carpeting, painting, room signage, toilet accessories, window shades, fire extinguishers cabinets, window shades, entrance mat, plumbing, hvac, electrical, special systems, expansion and reconfiguration of existing fire alarm system, site improvements – sidewalks, yard walls, fencing and windscreens; and connecting to existing utilities.
- D. The Work consists of:
 - 1. Base Bid: The base Bid includes all elements of construction shown for the complete and operational construction of this project except items indicated as Alternates.
 - 2. Alternates: See Section 01 23 00 for listing of alternates to the Base Bid.

1.04 CONTRACTOR'S RESPONSIBILITIES

- A. The awarded Contractor must have a minimum of 5 years experience as the General Contractor of Commercial Building Construction projects similar in complexity and size under the present firm or trade name.
- B. Except as noted, provide and pay for all labor, materials, and equipment.
- C. Pay required sales, gross receipts, and other taxes. Owner will pay Contractor applicable New Mexico gross receipts tax including local option tax and any increase in tax becoming effective after Contract date.
- D. Secure and pay for permits, fees, and licenses necessary for execution of Work as applicable at time of receipt of bids or as otherwise required in other sections of the Specifications.

- E. Give required notices.
- F. Comply with codes, ordinances, regulations, and other legal requirements of public authorities which bear on performance of Work.
- G. Request required inspections from public authorities, correct any noted deficiencies, and obtain certifications of satisfactory inspection. Deliver certificates to Owner in accordance with the Closeout Submittals Section.

1.05 USE OF THE PREMISES

- A. Owner Occupancy: Allow for Owner occupancy of Airport site and use by the public.
 - 1. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage.
 - 2. Perform the Work so as not to interfere with Owner's operations.
 - 3. Maintain existing building in a weathertight condition throughout construction period. Repair damage caused by construction operations.
 - 4. Protect building and its occupants during construction period.
- B. Use of Site:
 - 1. Access to site and limits of delivery and storage areas shall be as designated by the Owner.
- C. Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.
 - 1. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.06 SEQUENCE OF WORK

- A. Sequence will be discussed at Mandatory Pre-Bid Conference and Determination shall be issued via Addendum.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 21 00

ALLOWANCES

PART 1 GENERAL

1.01 DESCRIPTION

- A. This Section includes administrative and procedural requirements governing the following:
 - 1. Fire Alarm Modification Allowance
 - 2. Quantity Allowance
- B. Related Work:
 - 1. Section 01 50 00 - Temporary Facilities and Controls

1.02 CONTINGENCY ALLOWANCE

- A. Stipulated sum for use upon Owner's instruction.
- B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bond, equipment, overhead and profit are included in Change Orders authorizing expenditure of funds.

1.03 SCHEDULE OF VALUES

- A. Include each item in Schedule of Values as a line item, listing amount of Allowances specified in this section.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 ALLOWANCE SCHEDULE

- A. Fire Alarm Modification Allowance:
 - 1. Include amount of \$10,000.00 for use as instructed by Owner.
- B. Quantity Allowance:
 - 1. Temporary Barrier: Allow the quantity of 50 LF.
 - 2. Allowable quantity of temporary barriers includes the cost for full compensation for material, equipment, and work required for wall installation and removal.

3. Payment shall be as specified in Section 01 50 00 – Temporary Facilities and Controls.
 - a. At Project Closeout, credit Owner for unused allowance quantity multiplied by unit cost. Overage quantities at unit cost shall be charged via Change Order.

END OF SECTION

SECTION 01 22 00

UNIT PRICES

PART 1 GENERAL

1.01 SUMMARY

- A. Unit Price Items:
 - 1. Estimated Quantities:
 - a. Estimated quantities in Bid Form are approximate and used only for:
 - 1) Basis for estimating probable cost of Work.
 - 2) Comparison of Bids submitted for Work.
 - 2. Unit Quantities: Actual measured and documented quantities provided shall determine payment.
- B. Measurement of Quantities:
 - 1. Measurement by Volume: Measured by cubic dimension using mean length, width and height or thickness.
- C. Basis of payment: Actual amount of Work as determined by multiplying the measured or documented quantity provided by the appropriate Unit Price as Bid.

1.02 PAYMENT

- A. Payment Includes: Full compensation for required labor, products, tools, equipment, plant and facilities, transportation, services and incidentals; erection, application or installation of item of the Work; overhead and profit.
- B. Format and Data Required:
 - 1. Bid or payment item (from schedule of values)
 - 2. Unit
 - 3. Contract
 - 4. Contract or scheduled unit price:
 - a. Quantity
 - b. Total price
 - 5. Previously completed:
 - a. Quantity
 - b. Total price
 - 6. Completed this period:
 - a. Quantity
 - b. Total price
 - 7. Total to date:
 - a. Quantity
 - b. Total price

- C. Contractor's standard format can be used if it meets these requirements or is approved by the A/E.
- D. Final payment for Work governed by unit prices will be made on basis of actual measurements and quantities accepted by A/E multiplied by unit sum/price for Work incorporated in or made necessary by the Work.
- E. Unit Price Schedule:
 - 1. Item: Section 01 50 00.
 - 1. Total quantity: 50 LF
 - 2. Provide cost per linear foot of temporary barriers. This cost will be treated as an allowance and total quantity of temporary barriers must be verified before payment/refund is made.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 23 00

ALTERNATES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for alternates.
- B. Spaces for Bidders listings of values of alternates are included on the bid form.

1.02 DEFINITIONS

- A. Definition: An alternate is an amount proposed by Bidders and stated on the Bid Form for certain work that may be added to or deducted from the total Base Bid amount if the Owner decides to accept a corresponding increase or decrease in either scope of work or in products, materials, equipment, systems or installation methods described in Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the alternate into the Work. No other adjustment is made to the Contract Sum.

1.03 PROCEDURES

- A. Coordination: Coordinate related work and modify or adjust adjacent work as required to ensure that work affected by each accepted alternate is complete and fully integrated into the project.
- B. Notification: Immediately following award of Contract, prepare and distribute to each party involved, notification of the status of each alternate. Indicate whether alternates have been accepted, rejected or deferred for consideration at a later date. Include a complete description of negotiated modifications to alternates, if any.
- C. Selection of Alternates: The Owner shall accept alternates in the numerical order in which they are listed in the Bid Form, as produces a net amount which is within the available funds.

1.04 ALTERNATES

- A. Include as part of each alternate, miscellaneous devices, appurtenances and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.

B. Schedule:

1. Alternate #1: Office Expansion onto the west portico includes selective demolition, aluminum storefront, doors, door hardware, glazing, finishes, HVAC and Electrical as noted on the Alternates drawings

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes general requirements applicable to substitutions of materials, products, equipment and systems.
- B. Substitution Requests:
 - 1. No product is “approved” for Substitution prior to Bid. The Contract is based on material and equipment specified in the Specifications or described in the Drawings without consideration of possible substitute or “or-equal” items.
 - 2. Where indicated that substitute or “or-equal” item of material or equipment may be furnished or used if acceptable to the A/E, application for such acceptance shall not be considered until after the effective date of the Contract.
 - 3. Submit written requests for Product Substitution along with a copy of the **SUBSTITUTION REQUEST FORM** following this Section, after award of the Contract for Construction and within 30 days after Notice to Proceed.

1.02 SUBSTITUTION OF MATERIALS AND EQUIPMENT

- A. Substitutions, General: Catalog numbers and specific brands or trade names are used in materials, products, equipment and systems required by the Specifications to establish the standards of quality, utility and appearance required. Alternative products which are of equal quality and of required characteristics for the purpose intended may be proposed for use provided the Contractor complies with provisions of Contract General Conditions subject to the following provisions:
 - 1. See Section 01 60 00: Basic Product Requirements for requirements regarding product options.
 - 2. Substitutions will only be authorized by properly executed Change Order or Field Instruction.
 - 3. Substitutions shall be considered when a product becomes unavailable through no fault of Contractor.
 - 4. Owner has no obligation to entertain substitutions.
- B. Substitution Provisions:
 - 1. Documentation: Substitutions will not be considered if they are indicated or implied on shop drawing, product data or sample submittals. All requests for substitution shall be by separate written request from Contractor. See paragraph below for documentation required in the submission of request for substitution.

2. Cost and Time Considerations: Substitutions may not be considered without justifiable cause unless a net reduction in Contract Sum or Contract Time results to Owner's benefit, including redesign costs, life cycle costs, plan check and permit fees, changes in related Work and overall performance of building systems.
 3. Design Revision: Substitutions will not be considered if acceptance will require substantial revision of the Contract Documents or will substantially change the intent of the design, in the opinion of the A/E. The intent of the design shall include functional performance and aesthetic qualities.
 4. Data: It shall be the responsibility of the Contractor to provide adequate data demonstrating the merits of the proposed substitution, including cost data and information regarding changes in related Work.
 5. Determination by A/E: A/E will determine the acceptability of proposed substitutions and will notify Contractor in writing of acceptance or rejection. The determination by the A/E regarding functional performance and aesthetic quality shall be final.
 6. Non-Acceptance: If a proposed substitution is not accepted, Contractor shall immediately provide the specified product.
 7. Substitution Limitation: Only one request for substitution will be considered for each product.
- C. Request for Substitution Procedures: Comply with provisions of Contract General Conditions and the following.
1. Contractor shall prepare a request for substitution and submit the request to A/E for review and recommendation for acceptance. Acceptance and approval of substitutions shall be by A/E.
 - a. Present the request for substitution using form provided by A/E.
 - b. Comply with other administrative requirements shall be as directed by Owner's Representative.
 2. Substitution requests shall include complete product data, including drawings and descriptions of products, fabrication details and installation procedures. Include samples where applicable or requested.
 3. Substitution requests shall include appropriate product data for the specified product(s) of the specified manufacturer, suitable for use in comparison of characteristics of products.
 - a. Include a written, point-by-point comparison of characteristics of the proposed substitute product with those of the specified product.
 - b. Include a detailed description, in written or graphic form as appropriate, indicating all necessary changes or modifications needed to other elements of the Work, which will be performed by the Contractor at no additional expense to the Owner, if the proposed substitution is accepted.
 4. Substitution requests shall include a statement indicating the substitution's effect on the Construction Schedule. Indicate the effect of the proposed substitution on overall Contract Time and, as applicable, on completion of portions of the Work for use by Owner.

5. Except as otherwise specified, substitution requests shall include detailed cost data, including a proposal for the net change, if any, in the Contract Sum.
6. Substitution requests shall include signed certification that the Contractor has reviewed the proposed substitution and has determined that the substitution, in combination with the cost or time savings, represents an equivalent or superior condition in every respect to product requirements and value indicated or specified in the Contract Documents, and that the substitution is suited for and can perform the purpose or application of the specified product indicated or specified in the Contract Documents.
7. Substitution requests shall include a signed waiver by the Contractor for change in the Contract Time or Contract Sum because of the following:
 - a. Substitution failed to perform adequately.
 - b. Substitution required changes in on other elements of the Work.
 - c. Substitution caused problems in interfacing with other elements of the Work.
 - d. Substitution was determined to be unacceptable by authorities having jurisdiction.
8. A request constitutes a representation that Contractor:
 - a. Has investigated proposed product and determined that it meets or exceeds quality level of specified product.
 - b. Will provide same warranty for Substitution as for specified product.
 - c. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
9. If, in the opinion of the A/E, the substitution request is incomplete or has insufficient data to enable a full and thorough review of the intended substitution, the substitution may be summarily refused and determined to be unacceptable.

D. Contract Document Revisions:

1. Should a Contractor-proposed substitution or alternative sequence or method of construction require revision of the Contract Drawings or Specifications, including revisions for the purposes of determining feasibility, scope or cost, or revisions for the purpose of obtaining review and approval by authorities having jurisdiction, A/E will make revisions as approved in writing in advance by Owner.
2. Contractor shall pay for services of A/E for researching and reporting on proposed substitutions or alternative sequence and method of construction when such activities are considered additional services to the design services contracts of A/E.
3. Contractor shall pay for costs of expenses incurred by A/E. These costs may include travel, reproduction, long distance telephone and shipping costs reimbursable at cost plus usual and customary mark-up for handling and billing.
4. Contractor shall pay such fees whether or not the proposed substitution or alternative sequence or method of construction is ultimately accepted by Owner and a Change Order executed.

PART 2 PRODUCTS

Not applicable to this section.

PART 3 EXECUTION

Not applicable to this section.

END OF SECTION

CHANGE ORDER PROPOSAL WORKSHEET DETAIL

Project:	From:
Date:	Re:
Change Order Request Number	Project Number:
Worksheet No	

Complete this Worksheet for each element of Work

ADDITIONS

Item	Description	Qty	Unit Prices		Subtotals		Total
			Materials	Labor	Materials	Labor	
1							
2							
3							
4							
5							
Subtotal (Enter this number on Worksheet Summary)							

DEDUCTIONS

Item	Description	Qty	Unit Prices		Subtotals		Total
			Materials	Labor	Materials	Labor	
1							
2							
3							
4							
5							
Subtotal (Enter this number on Worksheet Summary)							

Additional Time Requested: _____ days

CHANGE ORDER PROPOSAL WORKSHEET SUMMARY

Project:	From:
Date:	Re:
Change Order Request Number	Project Number:

Enter Worksheet Detail Information below

ADDITIONS

Item	Sheet	Description	Material	Labor	Equipment	Subtotal
1						
2						
3						
4						
5						
6						
7						
Subtotal						

DEDUCTIONS

Item	Sheet	Description	Material	Labor	Equipment	Subtotal
1						
2						
3						
4						
5						
6						
7						
Subtotal						

Additional Time of _____
 Days will be added to the
 projected Date of Substantial
 Completion to accommodate this
 Proposal Request.

Subcontractor's Net:	
Subcontractor's OH&P and Bond:	
Subcontractor's Total:	\$
Contractor's OH&P and Bond:	
Insurance:	
Contractor's Subtotal:	\$
NM Gross Receipts Tax:	
WORKSHEET TOTAL	\$

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Section includes:
 - 1. Change Procedures
 - 2. Proposal Requests
 - 3. Effect of Change on Schedule
 - 4. Correlation Of Contractor Submittals

1.02 CHANGE PROCEDURES

- A. Minor Changes in the Work:
 - 1. AIA Form G710
 - 2. The A/E issues Supplemental Instructions to the Contractor for minor changes in the Work not involving adjustment to Contract Sum/Price or Contract Time.
- B. Construction Change Directive:
 - 1. AIA Form G714
 - 2. A/E issues Construction Change Directive which describes changes in the Work and designates methods for determining changes in Contract Sum or Contract Time.
 - 3. Contractor proceeds with changes in the Work for subsequent inclusion in a Change Order.
 - 4. Documentation:
 - a. Document each quotation for change in cost or time with sufficient data to allow evaluation of quotation.
 - b. Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - c. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.
- C. Change Orders:
 - 1. AIA Form G701
 - 2. Execution: A/E will issue Change Orders for signatures of parties as provided in Conditions of the Contract.
 - 3. Reservation of Rights: An executed change order represents full and final settlement of all claims arising out of a modification including all claims for delays and disruptions resulting from, caused by, or incident to such modifications.

- D. Provide A/E with name of individual authorized to receive change documents, and responsible for informing others in Contractor's employ or Subcontractors of changes to the Work.

1.03 PROPOSAL REQUESTS

- A. The A/E may issue a Proposal Request including a detailed description of proposed change with supplementary or revised Drawings and specifications for executing the change.
- B. The Contractor may propose changes by submitting a request for change to A/E, describing proposed change and its full effect on the Work.
 - 1. Include a statement describing reason for the change, and effect on Contract Sum/Price and Contract Time with full documentation and a statement describing effect on Work by separate or other Contractors as described in previous paragraph.
 - 2. Document requested substitutions in accordance with Section 01 25 00 – Product Requirements.
- C. Proposal Format:
 - 1. Within 10 days, Contractor will prepare and submit a Proposal Worksheet using Work Breakdown Detail and Summary forms following this Section.
 - a. For each Element of Work, calculate additions showing:
 - 1) Description and quantity
 - 2) Material cost including delivery charges
 - 3) Labor cost directly attributable to the change
 - 4) Equipment rental cost
 - 5) Subtotal
 - b. For each Element of Work, calculate deductions showing:
 - 1) Description and quantity
 - 2) Material cost including delivery charges
 - 3) Labor cost directly attributable to the change
 - 4) Equipment rental cost
 - 5) Subtotal
 - c. Subcontractor's net change in cost
 - d. Subcontractor's OH&P at percentage stipulated in Conditions of the Contract
 - e. Subcontractor's Bond
 - f. Subcontractor's Total
 - g. Contractor's OH&P at percentage stipulated in Conditions of the Contract
 - h. Contractor's Bond
 - i. Contractor's Insurance
 - j. Applicable Tax
 - k. Contractor's Total

1.04 EFFECT OF CHANGE ON SCHEDULE

- A. With proposal, include an updated Contractor's Construction Schedule that indicates the effect of the change, including but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. No change order request may include additional time required to perform the work, or additional supervision costs unless the additional work is shown to affect the critical path of the project.

1.05 CORRELATION OF CONTRACTOR SUBMITTALS

- A. Promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as separate line item and adjust Contract Sum/Price.
- B. Promptly revise progress schedules to reflect change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.
- C. Promptly enter changes in Project Record Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 29 00

PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Schedule of values.
- B. Applications for payment.
- C. Defect Assessment.

1.02 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule:
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including Submittals Schedule and Application for Payment forms with Continuation Sheets.
 - 2. Submit the Schedule of Values to A/E at earliest possible date but no later than seven (7) days before the date scheduled for submittal of initial Applications for Payment.
- B. Submit printed schedule on AIA Form G703 - Continuation Sheet for G702.
- C. Format: Utilize Table of Contents of this Project Manual. Identify each line item with number and title of major specification Section. Identify site mobilization, bonds, and insurance.
 - 1. Include in each line item, amount of Allowances specified in this section.
 - 2. Include in each line item, amount of Alternates specified in this section.
 - 3. Include separately from each line item, direct proportional amount of Close-out.
 - 4. Revise schedule to list approved Change Orders with each Application for Payment.

1.03 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by A/E and paid for by Owner.
 - 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.

- B. Submit three (3) signed and notarized copies of each application on AIA Form G702 - Application and Certificate for Payment and AIA G703 - Continuation Sheet for G702.
 - 1. One (1) copy shall include waivers of lien and similar attachments if required.
- C. Content and Format:
 - 1. Utilize Schedule of Values for listing items in Application for Payment.
 - 2. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor.
 - 3. A/E will return incomplete applications without action.
- D. Submit updated construction schedule with each Application for Payment.
- E. Payment Period: Submit at intervals stipulated in the Agreement
- F. Substantiating Data: When A/E requires substantiating information, submit data justifying dollar amounts in question. Include the following with Application for Payment:
 - 1. Current construction photographs.
 - 2. Record documents for review by Owner which will be returned to Contractor.
 - 3. Affidavits attesting to off-site stored products.
 - 4. Construction progress schedules, revised and current.
- G. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
 - 1. List of subcontractors.
 - 2. Schedule of Values.
 - 3. Contractor's Construction Schedule (preliminary if not final).
 - 4. Submittals Schedule (preliminary if not final).
 - 5. List of Contractor's staff assignments.
 - 6. Certificates of insurance and insurance policies.
 - 7. Performance and payment bonds.
- I. Application for Payment at Substantial Completion:
 - 1. Submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
 - 2. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - 3. Reflect Certificates of Partial Substantial Completion issued in Application for Payment.

- J. Final Payment Application:
1. Submit final Application for Payment with releases and remainder of supporting documentation , including, but not limited, to the following:
 - a. Proof that taxes, fees, and similar obligations were paid.
 - b. Updated final statement, accounting for final changes to the Contract Sum.
 - c. Final waivers from every entity involved with performance of the Work who is lawfully entitled to a lien. Evidence that claims have been settled.
 - d. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims", 2 copies.
 - e. AIA Document G706A, "Contractor's Affidavit of Release of Liens", 2 copies.
 - f. AIA Document G707, "Consent of Surety to Final Payment", 2 copies
 2. Refer to Section 01 77 00 Closeout Procedures, for final completion requirements.

1.04 DEFECT ASSESSMENT

- A. Replace the Work, or portions of the Work, not conforming to specified requirements.
- B. If, in the opinion of the A/E it is not practical to remove and replace the Work, the A/E will direct appropriate remedy or adjust payment.
- C. At the discretion of the A/E:
 1. The defective Work may remain, but unit sum/price will be adjusted to new sum/price or
 2. Defective Work will be partially repaired to instructions of A/E and unit sum/price will be adjusted to new sum/price.
- D. Authority of A/E to assess defects and identify payment adjustments is final.
- E. Non-Payment For Rejected Products: Payment will not be made for rejected products for any of the following:
 1. Products wasted or disposed of in a manner that is not acceptable.
 2. Products determined as unacceptable before or after placement.
 3. Loading, hauling, and disposing of rejected products.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Project Coordination
- B. Preconstruction meeting
- C. Progress meetings
- D. Pre-installation meetings
- E. Requests for Interpretation (RFIs)

1.02 PROJECT COORDINATION

- A. Coordinate scheduling, submittals, and Work of various sections of Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later where indicated on the Drawings.
- B. Verify utility requirements and characteristics of operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, operating equipment.
- C. Coordinate space requirements, supports, and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
- D. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within construction. Consider finish elements when locating fixtures and outlets to minimize disruption to finish elements. Verify locations with Architect before installation.
- E. Coordinate completion and clean-up of Work of separate sections in preparation for Substantial Completion and for portions of Work designated for Owner's partial and full occupancy.

- F. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.03 PRECONSTRUCTION MEETING

- A. A/E will schedule meeting after Notice of Award.
- B. Attendance Required: Owner, A/E, Contractor, and major subcontractors.
- C. Agenda:
 - 1. Execution of Owner-Contractor Agreement.
 - 2. Submission of executed bonds and insurance certificates.
 - 3. Distribution of Contract Documents.
 - 4. Submission of Schedule of Values and Submittals Schedule.
 - 5. Designation of personnel representing parties in Contract and A/E.
 - 6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
 - 7. Scheduling.
 - 8. Testing, Inspecting and Laboratory Services.
 - 9. Use of premises by Owner and Contractor.
 - 10. Owner's requirements and partial occupancy.
 - 11. Construction facilities and controls.
 - 12. Temporary utilities.
 - 13. Security and housekeeping procedures.
 - 14. Procedures for maintaining record documents.
- D. Minutes shall be distributed within one week after meeting to participants.

1.04 PROGRESS MEETINGS

- A. Schedule and administer meetings throughout progress of the Work at maximum bi-monthly intervals.
- B. Make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Job superintendent, major subcontractors and suppliers, A/E, and others as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review of Work progress.
 - 2. Field observations, problems, and decisions.
 - 3. Identification of problems and Requests for information impeding planned progress.
 - 4. Review of submittals schedule and status of submittals.

5. Review of off-site fabrication and delivery schedules.
 6. Maintenance of progress schedule.
 7. Corrective measures to regain projected schedules.
 8. Planned progress this week and two weeks ahead.
 9. Coordination of projected progress.
 10. Maintenance of quality and work standards.
 11. Effect of proposed changes on progress schedule and coordination.
 12. Other business relating to Work.
- E. Record minutes and distribute copies within three business days after meeting to participants, with copies to A/E, Owner, and those affected by decisions made.

1.05 PRE-INSTALLATION MEETINGS

- A. Coordination meeting required for complex items requiring coordination and understanding among several participants.
1. Meetings shall focus on specific concerns and do not relieve the Contractor of the responsibility to coordinate the Work when a pre-installation meeting is not required by a Section.
 2. When required in individual specification sections, or the Contractor deems necessary, convene pre-installation meetings at Project site prior to commencing work of specific section.
- B. Require attendance of parties directly affecting, or affected by, Work of specific section.
- C. Notify A/E in advance of meeting date.
- D. Prepare agenda and preside at meeting:
1. Review conditions of installation, preparation and installation procedures.
 2. Review coordination with related work.
- E. Record minutes and distribute copies within one week after meeting to participants, with copies to A/E, Owner, and those affected by decisions made.

1.06 REQUESTS FOR INTERPRETATIONS

- A. Definition: Request from Contractor seeking interpretation or clarification of the contract Documents.
- B. Procedure: Immediately on discovery of the need for interpretation of the contract Documents, and if not possible to request interpretation at the Progress meeting. Prepare and submit an RFI in the form specified.
1. RFIs shall originate with the Contractor. RFIs submitted by entities other than the Contractor will be returned to the Contractor with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

- C. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.
 2. Date.
 3. Name and trade of entity seeking interpretation.
 4. RFI number, numbered sequentially.
 5. Specification Section number and title and related paragraphs as appropriate.
 6. Drawing number and detail references, as appropriate.
 7. Field dimensions and conditions, as appropriate.
 8. Contractor's suggested solution(s). If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI
 9. Attachments: include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by the Contractor shall include dimensions, thicknesses, and details of affected materials, assemblies and attachments.
- D. RFI Form: Software generated form provided by the A/E or Contractor's approved form.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. A/E's action may include a request for additional information.
- F. A/E's action which may result in a change to the Contact Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Contract Modifications Procedures Section.
1. If so, notify A/E in writing within 10 days of receipt of RFI response.
- G. On receipt of A/E's action, update RFI log and immediately distribute the RFI response to affected parties. Review response and notify A/E within 7 days if Contractor disagrees with response.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Construction Progress Schedule
 - 2. Submittals Schedule
 - 3. Construction Progress Reporting
- B. Contractor's Progress Schedule must show Critical Path in order for Submittal review schedule to be established and in order to claim time extension for additional work.
- C. Reference: The Use of CPM in Construction - A Manual for General Contractors and the Construction Industry, Washington, D.C., The Associated General Contractors of America (AGC).

1.02 CONSTRUCTION PROGRESS SCHEDULE

- A. Submit a detailed CPM schedule using specialized software, Primavera Project Planner (P3), Suretrak, or similar which shows the interrelationships and interdependencies of the activities comprising the Project. Tabulate each critical path activity using calendar dates, and identify for each activity:
 - 1. Activity description.
 - 2. Estimated duration of activity, in maximum day intervals.
 - 3. Earliest start date.
 - 4. Earliest finish date.
 - 5. Actual start date.
 - 6. Actual finish date.
 - 7. Latest start date.
 - 8. Latest finish date.
 - 9. Total and free float.
- B. Prepare Three-Week Progress Schedules in bar graph format that show the work performed in the previous week and the work over the next two weeks. Each bar on the schedule should include the related activity identification from the Project's baseline CPM schedule.

- C. Procedures:
1. Submit for review by A/E and Owner three (3) copies of preliminary Progress Schedule within 20 days of date of Agreement between Owner and Contractor.
 2. Revise to address review comments and resubmit.
 3. Update Progress Schedule and submit three (3) copies with each Application for Payment.
 - a. Identify progress of each activity to date of submittal and projected completion date.
 - b. Show activities modified since last submittal and other identifiable changes.
 - c. Provide narrative report as needed to define problem areas, anticipated delays, and impact on Schedule. Report corrective action taken or proposed and its effect.
- D. Use: The Contractor shall endeavor to manage the work in accordance with the scheduling indicated by the first approved Progress Schedule. The intent is to promote good job management, not rigidly bind the Contractor to a planned procedure. For this reason, finish activities such as painting or laying of carpet must not be scheduled concurrently with finish plastering or door installation. The Contractor shall use special care to coordinate efforts of various subcontractors, especially mechanical and electrical, to assure proper completion of their work ahead of general finish operations.
- E. Coordinate Contractor's Progress Schedule with the Schedule of Values, Submittals Schedule, payment requests, and other required schedules and reports.
- F. No contract work shall be done without an A/E approved progress schedule. The items in the activities for the denoted critical path will determine the controlling operations of the work.
- G. During the life of the project, the Contractor shall review the progress schedule with the A/E at the regularly scheduled Progress Meetings unless otherwise specified. The Contractor shall submit a revised progress schedule within 5 working days of the review meeting if the Contractor is behind schedule or if the schedule has been modified. Revised progress schedules must be submitted to and approved by the A/E.
- H. If the Contractor deviates from the currently approved progress schedule by not following the logical sequence of the critical path, payment will be withheld for the pay items for the affected activities until the Contractor submits a revised progress schedule and this schedule is approved by the A/E.
- I. Reporting: Each month with the Request of Payment, submit a copy of the current Progress Schedule marked to show actual percentage of completion for each category of work, as well as the aggregate percentage of completion.

- J. Behind Schedule Progress: If the actual progress curve at any time falls more than 10% behind the proposed curve, the Contractor shall promptly take the steps necessary to get the work back on schedule. It is emphasized that the purpose of this scheduling is to assure orderly management of the project and the pushing of finish activities into areas where rough activities are not completed shall not be tolerated. Neither shall last minute rush scheduling be permitted to enable the Contractor to finish on time if it involves poor construction procedures.

1.03 SUBMITTALS SCHEDULE

- A. The Contractor shall prepare and keep current, for the A/E's review, a schedule of submittals which is coordinated with the Contractor's construction schedule and allows the A/E reasonable time to review submittals.
- B. Submit three (3) copies of schedule arranged in chronological order by dates required to maintain progress schedule. List the following information in a tabular format and include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates:
 - 1. Scheduled date for first submittal.
 - 2. Specification Section number and title.
 - 3. Name of subcontractor.
 - 4. Description of the Work covered.

1.04 CONSTRUCTION PROGRESS REPORTING

- A. Submit three (3) copies at time of discovery of Conditions affecting Construction Progress.
 - 1. Immediately on discovery of a difference between field conditions and the Contract Documents, prepare a detailed report.
 - 2. Submit report with a request for information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Construction Submittals.

- B. Related Sections requiring submittals:
 - 1. Section 01 25 00: Substitution Procedures
 - 2. Section 01 29 00: Payment Procedures
 - 3. Section 01 32 00: Construction Progress Documentation
 - 4. Section 01 43 00: Quality Assurance
 - 5. Section 01 45 00: Quality Control.
 - 6. Section 01 60 00: Product Requirements
 - 7. Section 01 70 00: Execution Requirements
 - 8. Section 01 77 00: Closeout Procedures
 - 9. Section 01 78 00: Closeout Submittals

1.02 SUBMITTAL TYPES NOT INCLUDED IN THIS SECTION

- A. Preconstruction Submittals:
 - 1. Certificates of insurance
 - 2. Payment and performance bonds
 - 3. Proposed subcontractor and product lists
 - 4. Preliminary construction progress schedule
 - 5. Proposed use of the site and site logistics, including signage

- B. Closeout Submittals:
 - 1. Written notices of substantial and final completion
 - 2. Final application for payment
 - 3. Record documents: Record drawings and specifications, addenda, change orders, field orders.
 - 4. O&M data
 - 5. Spare parts and maintenance materials
 - 6. Certificates of payment
 - 7. Release of liens and waiver of debts and claims
 - 8. Consent of surety to final payment
 - 9. Executed Warranties
 - 10. Keying
 - 11. Materials, Extra Stock and Tools

1.03 CONSTRUCTION SUBMITTALS

- A. Work-related Action and Informational submittals of this section are categorized as follows:
1. Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects.
 2. Product data include standard printed information on materials, products and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed therein.
 3. Samples include both fabricated and unfabricated physical examples of materials, products and units of work; both as complete units and as smaller portions of units of work; either from limited visual inspection or (where indicated) for more detailed testing and analysis.
 - a. Samples shall be supplied for use by the A/E, and unless specifically requested on the Contractor's cover sheet, will not be returned to the Contractor.
 - b. Mock-ups are a special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.
 4. Design Data Design calculations, mix designs, analyses or other data pertaining to a part of work.
 5. Certificates and Letters of Certification:
 - a. Statements printed on the manufacturer's letterhead and signed by responsible officials of manufacturer of product, system or material attesting that product, system or material meets specification requirements. Must be dated after award of project contract and clearly name the project.
 - b. Document required of Contractor, or of a manufacturer, supplier, installer or Subcontractor through Contractor, the purpose of which is to further quality of orderly progression of a portion of the work by documenting procedures, acceptability of methods or personnel qualifications.
 6. Sample Warranties
 7. Manufacturer's Installation Instructions include preprinted material describing installation of a product, system or material, including special notices and concerning impedances, hazards and safety precautions.
- B. QA/ QC and Informational Submittals are categorized as follows and may be delivered in electronic format if desired.
1. Test reports
 2. Manufacturer's field reports:
 - a. Documentation of the testing and verification actions taken by manufacturer's representative at the job site, in the vicinity of the job site, or on a sample taken from the job site, on a portion of the work, during or

after installation, to confirm compliance with manufacturer's standards or instructions.

- b. The documentation must be signed by an authorized official of a testing laboratory or agency and must state the test results; and indicate whether the material, product, or system has passed or failed the test.
 3. Construction photographs
 4. Draft Applications for Payment
 5. Schedule of values
 6. Construction progress schedules
- C. Individual submittal requirements are specified in applicable sections for each unit of work.

1.04 SUBMITTAL GENERAL REQUIREMENTS

- A. Submittals Schedule: Comply with requirements of Division 1 Section "Progress Schedule" for list of submittals and time requirements for scheduled performance of related construction activities.
- B. Coordination and Sequencing: Coordinate preparation and processing of submittals with performance of the work so that work will not be delayed by submittals. Coordinate and sequence different categories of submittals for same work, and for interfacing units of work, so that one will not be delayed for coordination of A/E's review with another.
- C. Processing Time: Allow enough time for submittal review including time for resubmittals. Time for review shall commence on A/E's receipt of submittal.
- D. Submittal Log: The Contractor shall generate and maintain a submittal log which shall include:
1. Every section requiring submittals
 2. Category of submittal required for each section
 3. Status of each category.

1.05 PREPARATION OF SUBMITTALS

- A. Shop Drawings:
1. Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name).
 2. Show dimensions and note which are based on field measurement.
 3. Identify materials and products in the work shown.
 4. Indicate compliance with standards, and special coordination requirements.
 5. Do not allow shop drawing copies without appropriate final "Action" markings by A/E to be used in connection with the work.

6. Submit six copies to the A/E of which three will be returned to the Contractor.

B. Product Data:

1. Collect required data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to project.
2. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements.
3. Maintain one set of product data (for each submittal) at project site, available for reference by A/E and others.
4. Do not submit product data, or allow its use on the project, until submittal has been returned with the A/E's final review.
5. Submit six copies to the A/E of which three will be returned to the Contractor.
6. Installer's Copy: Do not proceed with installation of materials, products or systems until final copy of applicable product data is in possession of Installer.

C. Samples:

1. Provide samples for A/E's use. Submit samples where required by a section, for selection or review and confirmation of color, pattern, texture, and "kind". Samples requested for color boards will not be returned to the Contractor.
2. Provide units identical with final condition of proposed materials or products for the work. Include "range" samples (not less than 3 units) where unavoidable variations must be expected, and describe or identify variations between units of each set.
3. Provide full set of optional samples where A/E's selection is required. Prepare samples to match A/E's sample where so indicated. Include information with each sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards.
4. A/E will not "test" samples (except as otherwise indicated) for compliance with other requirements, which are therefore the exclusive responsibility of Contractor.

D. Mock-Ups: Mock-ups and similar samples specified in individual work sections are recognized as a special type of sample. Comply with requirements for "samples" to greatest extent possible, and process transmittal forms to provide a record of activity.

1.06 CONTRACTOR'S REVIEW

A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to A/E.

- B. At time of submission, note in writing, highlight, circle or otherwise identify any deviations in submittal from Contract Documents. The Contractor must submit in writing, any request for modification to the plans and specifications.
 - 1. Shop drawings and submittals that are submitted to the A/E for review do not constitute “in writing” unless proposed modification has been described on the submittal form, brought to the attention of the A/E, and reason for modification is stated.
 - 2. In any event, the responsibility for proposing changes to the plans and specifications by means of shop drawings or submittals, and receiving approval for such changes, resides with the Contractor. No additional costs for replacement of unapproved modifications with the original specified materials will be paid to the Contractor.
- C. Do not combine items from different specification sections in submittal, unless called for in specifications.
- D. Approval Stamp: Stamp each submittal with a uniform, approval stamp.
- E. Execute and attach to each submittal, “CONTRACTOR SUBMITTAL FORM” (sample follows this Section), to identify project, date, Contractor, subcontractor, submittal name and number.
- F. General Distribution: Provide additional distribution of submittals to subcontractors, suppliers, fabricators, installers, governing authorities and others as necessary for proper performance of the work. Include such additional copies in transmittal to A/E where required to receive “Action” marking before final distribution. Record distributions on transmittal forms.
- G. Begin no fabrication or work that requires submittals until return of submittals with A/E’s final review.
- H. Submittals which are received from sources other than through Contractor’s office will be returned by A/E “without action.”

1.07 A/E’S REVIEW

- A. General: A/E will not review submittals that do not bear Contractor’s approval stamp and will return them without action.
- B. A/E will review submittals and where possible return within 2 weeks of receipt. Where submittal must be held for coordination, Contractor will be so advised by A/E.

- C. Submittals requiring a color selection will be held until all Color samples and charts for the project have been received.
 - 1. At that time, Color Boards will be prepared and submitted to the Owner for approval.
 - 2. After final selections have been made by the Owner, those submittals will be processed by the A/E and returned to the Contractor.

- D. A/E will affix stamp and initials or signature, and indicate requirements for resubmittal or review of submittal.

- E. A/E will return submittals to Contractor for distribution or for resubmission.

- F. Submittal Review Stamps:
 - 1. “No Exception Taken”: Reviewed for general conformity to the requirements of Drawings and Specifications. Quantities shown not verified. Contractor’s full responsibility is in no way relieved by this action.
 - 2. “Make Corrections Noted”: Reviewed and noted for general conformity to requirements of Drawings and Specifications. Quantities shown not verified. Contractor’s full responsibility is in no way relieved by this action.
 - 3. “Revise & Resubmit”: Reviewed and noted for general conformity to requirements of Drawings and Specifications. Provide missing information, make corrections, and resubmit as noted.
 - 4. “Rejected/Resubmit”: Reviewed and not accepted. Provide product data, shop drawings, certifications, warranties, etc which meet or exceed the requirements of the Drawings and Specifications and resubmit.
 - 5. “Receipt Acknowledged”: Submittal for Section is not required or submittal is being held by A/E for coordination of work with that of another Section.

- G. A/E review does not constitute acceptance or responsibility for accuracy or dimensions, nor shall it relieve the Contractor from meeting any requirements of the Contract Documents, nor shall it constitute approval for any modification from the Contract Documents unless such modifications are specifically stated as such on the submittal and specifically allowed by the Engineer.

- H. A/E to return submittals with only cursory review when it becomes apparent the submittals are not acceptable, and/or incomplete.

- I. Payment and Time for Review of Excessive Submittals After First Resubmittal:
 - 1. Include Contractor’s statement to A/E that all costs shall be paid by the Contractor and executed by Change Order for all A/E’s review time and costs at A/E’s standard billing rates.
 - 2. Submittals will be reviewed by A/E at convenience of the A/E.
 - 3. Delays caused by the need for resubmittal shall not constitute basis for claim.

1.08 NOT ACCEPTED AND REJECTED SUBMITTALS

- A. Contractor shall make corrections required by the A/E. If the Contractor considers any correction or notation on the returned submittals to constitute a change to the contract drawings or specifications; notice as required under the clause entitled, "Changes," is to be given to the A/E.
- B. Contractor is responsible for the dimensions and design of connection details and construction of work. Failure to point out deviations may result in the Owner requiring rejection and removal of such work at the Contractor's expense.
- C. If changes are necessary to submittals, the Contractor shall make such revisions and submission of the submittals in accordance with the procedures above. No item of work requiring a submittal change is to be accomplished until the changed submittals are approved.

1.09 REVIEWED AND REVIEWED AND NOTED SUBMITTALS

- A. The A/E's review or acceptance of submittals is not to be construed as a complete check, and indicates only that the general method of construction, materials, detailing and other information are satisfactory.
- B. Review will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the General Conditions of the Contract is responsible for dimensions, and the satisfactory construction of all work.
- C. After submittals have been reviewed by the A/E, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

CONTRACTOR SUBMITTAL FORM

Specification No.:	Project:	Contractor's Submittal No.:
	CONTRACTOR:	Date: Product Description:
	Subcontractor/Supplier:	Dates of any previous submissions:
	Specification No.:	Manufacturer:
	Drawing Nos.:	
Are there any deviations to the Contract Documents? <input type="checkbox"/> No <input type="checkbox"/> Yes (Explain and Identify:)		
<i>Undisclosed deviations/modifications do not relieve the Contractor from the obligation to provide the specified product and detail of installation, and may be cause for rejection of the Work. Deviations and modifications must be listed here or in a separate Request for Substitution.</i>		

CONTRACTOR'S CERTIFICATION: This submittal has been reviewed by the Contractor in compliance with Section 01 33 00 of the CONTRACT DOCUMENTS' SPECIFICATIONS. Any deviations to the CONTRACT DOCUMENTS have been identified above and submitted in compliance with Section 01 25 00.

If this is a re-submittal, changes other than those specifically requested by the A/E on previous submittals shall be identified on a sheet(s) attached to this form.

Signed _____ Date: _____

MOLZEN CORBIN'S ACTION

Date Received:	No. Copies Received:
<input type="checkbox"/> NO EXCEPTION TAKEN: Reviewed for general conformity to the requirements of Drawings and Specifications. Quantities shown not verified. Contractor's full responsibility is in no way relieved by this action.	
<input type="checkbox"/> MAKE CORRECTIONS NOTED: Reviewed and noted for general conformity to requirements of Drawings and Specifications. Quantities shown not verified. Contractor's full responsibility is in no way relieved by this action.	
<input type="checkbox"/> REVISE & RESUBMIT: Reviewed and noted for general conformity to requirements of Drawings and Specifications. Provide missing information, make corrections, resubmit as noted.	
<input type="checkbox"/> REJECTED/RESUBMIT: Reviewed and not accepted. Provide product data, shop drawings, certifications, warranties, etc which meets or exceeds the requirements of the Drawings and Specifications and resubmit.	
<input type="checkbox"/> RECEIPT ACKNOWLEDGED: Submittal for Section is not required or submittal is being held by A/E for coordination of work with that of another Section.	

By: _____ Date: _____

Date Returned: _____ No. Copies Returned: _____

A/E'S COMMENTS, IF ANY:

A/E'S ATTACHMENTS, IF ANY:

Note: DO NOT combine items from different specification sections into one submittal unless called for in the Section. If provisions in the "General Conditions of the Contract for Construction" conflict with this form, the provisions as stated in the "General Conditions" shall prevail.

SECTION 01 42 00

REFERENCE STANDARDS

PART 1 GENERAL

1.01 SUMMARY

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. Back-Up: “Back-up” as relating to any item, product, or documents within the scope of this Contract, shall mean the total supporting and substantiating data which forms the basis of the summary as it relates to products, means, methods, costs, certificates, and similar items. Back-up shall include pertinent data required to support the summary including, but not necessarily limited to, the following:
 - 1. Technical data, reports, and certifications.
 - 2. Costs, both materials and labor, direct and indirect.
 - 3. Manufacturer’s recommendations.
 - 4. Means and methods.
 - 5. History.
 - 6. Samples.
 - 7. Comparative analysis.
 - 8. Testing laboratory reports, tests, and recommendations.
 - 9. Code authority approvals and authorizations.
 - 10. Justification.

1.02 DEFINITIONS

- A. “Indicated”: Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including “shown,” “noted,” “scheduled,” and “specified” have the same meaning as “indicated.”
- B. “Furnish”: Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- C. “Install”: Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.
- D. “Provide”: Furnish and install, complete and ready for the intended use.

- E. “Regulations”: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.

1.03 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents, unless otherwise indicated.
- C. Conflicting Requirements: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer uncertainties and requirements that are different, but apparently equal, to A/E for a decision before proceeding.
- D. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to A/E for a decision before proceeding.
- E. Copies of Standards: Each entity engaged in construction on Project must be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.

1.04 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list:

AA	Aluminum Association
AAMA	American Architectural Manufacturing Association
AASHTO	American Association of State Highway and Transportation Officials
ACI	American Concrete Institute

ADAAG	Americans with Disabilities Accessibility Act Guidelines
ADC	Air Diffusion Council
AHA	American Hardboard Association
AHC	Architectural Hardware Consultant
AHJ	Authority Having Jurisdiction
AI	Asphalt Institute
AISC	American Institute of Steel Construction
AISI	American Iron and Steel Institute
ANSI	American National Standards Institute
AOC	Architectural Openings Consultants
APA	American Plywood Association
APWA	American Public Works Association
ASAE	American Society of Agricultural Engineers
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWI	Architectural Woodwork Institute
AWWA	American Water Works Association
AWS	American Welding Society
CBM	Certified Ballast Manufacturers
CDC	Certified Door Consultants

CFR	Code of Federal Regulations
CID	Construction Industries Division
CPSC	Consumer products Safety Commission
CRSI	Concrete Reinforcing Steel Institute
CSA	Canadian Standards Association
DHI	Door and Hardware Institute
EI	Edison Electric Institute
EHC	Electrified Hardware Consultant
ETL	Electrical Testing Laboratories
FM	Factory Mutual
FS	Federal Specification General Services Administration Specifications and Consumer Information Distribution Section (WFSIS)
GA	Gypsum Association
GANA	Glass Association of North America
HMMA	Hollow Metal Manufacturers Association
HPVA	Hardwood Plywood and Veneer Association
IBC	International Building Code
ICEA	Insulated Cable Engineers Association
IEBC	International Existing Building Code
IECC	International Energy Conservation Code
IEEE	Institute of Electrical and Electronics Engineers
IFC	International Fire Code

ISA	Instrument Society of America
LEED	Leadership in Energy and Environmental Design
MIL	Military Specification Naval Publications and Forms Center
MPI	Master Painters Institute
NAAMM	National Association of Architectural Metal Manufacturers
NACE	National Association of Corrosion Engineers
NEC	National Electric Code
NEMA	National Electrical Manufacturers' Association
NESC	National Electric Safety Code
NFPA	National Fire Protection Association
NFPA	National Forest Products Association
NMCBC	New Mexico Commercial Building Code Code Regulations Licensing Department Construction Industries Divisions
NMDWS	New Mexico Department of Workforce Solutions
NRCA	National Roofing Contractors Association
NWWDA	National Wood Window and Door Association
OSHA	Occupational Safety & Health Administration
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
PS	Product Standard US Department of Commerce
SDI	Steel Door Institute
SEFA	Scientific Equipment and Furniture Association

SIGMA	Sealed Insulating Glass Manufacturer's Association
SJI	Steel Joist Institute
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association, Inc.
SSPC	Steel Structure Painting Council
TMS	The Masonry Society
UL	Underwriters' Laboratories, Inc.
UMC	Uniform Mechanical Code
UPC	Uniform Plumbing Code International Association of Plumbing/Mechanical Officials
WWPA	Western Wood Products Association
PART 2	PRODUCTS (NOT USED)
PART 3	EXECUTION (NOT USED)

END OF SECTION

SECTION 01 43 00

QUALITY ASSURANCE

PART 1 GENERAL

1.01 SUMMARY

- A. Provisions for quality assurance apply to workmanship and craftsmanship applied to work executed in the performance of the Contract.
1. Perform work with suitable qualified personnel to produce work of specified quality.
 2. Refer to applicable Standards and Codes.
 3. Refer to Workmanship requirements of trade associations.
 4. Test materials in accordance with applicable standards.
 5. Provide field samples and mock-ups to establish acceptable level of quality and a basis for judging work.
 6. Follow inspection requirements.
- B. Related Work Described Elsewhere: Provisions of trade associations, manufacturer's printed instructions, recommendations, methods, and criteria for application and installation of systems and assemblies, various technical sections of these specifications, the Drawings, and References Section.
1. Provisions of work furnished under this Contract and installed under this Contract.
 2. Provisions of work installed under this Contract furnished by others.

1.02 QUALIFICATIONS

- A. Project Superintendent:
1. The superintendence of the General Contractor for the total overall Work shall be administered by one qualified person who is thoroughly trained and experienced in the duties of a Project Superintendent.
 2. Project Superintendent shall have a minimum of 10 years of construction experience, with a minimum of 5 years being in commercial construction.
 3. Project Superintendent shall demonstrate successful completion of a minimum of 5 projects of similar scope and budget through a resume and letters of recommendation.
 4. The Project Superintendent shall exercise general supervision over the Work, have the decision-making authority of the Contractor, and be familiar with the specified requirements and methods to be used in the scheduling, supervision, performance, and execution of the Work.

5. Project Superintendent's qualifications are subject to review and approval by the Owner and A/E and shall not be reassigned until final acceptance of the Work, unless permitted in writing by the Owner.
- B. Subcontractors: The superintendence of trades involved in work of this project shall be administered, supervised, and directed by at least one qualified journeyman foreman who is thoroughly trained and skilled in the arts generic to his trade and such qualifications may be subject to review and approval by the A/E.
- C. Workmen: Workmen engaged in the performance of work comprising a part of the total Work of this Contract shall be adequate in number, thoroughly trained and experienced in the installation of the specified and selected products and who are completely familiar with the requirements of their respective work and this Work.
- D. Apprentice: Apprentice personnel shall, in the performance of their respective Work, be supervised and directed in their duties under the competent supervision and direction of experienced journeymen experienced and skilled in their trade.
- E. Manufacturers: Products used in the work of this project shall be produced by recognized manufacturers regularly engaged in the manufacturing of such and similar products with a history of successful production of products specified in the various sections of these specifications and as otherwise approved by the A/E.
 1. In the use of equal or similar manufactured products proposed for inclusion into the Work, comply with the provisions of Submittal Section.
- F. Fabricators, Suppliers, and Personnel: Fabricators, erectors, suppliers, installers, and applicators shall have not less than five years continuous experience in the execution of their respective duties and their qualifications may be subject for review and approval by the A/E.
- G. Licensed Applicators: Applicators of specific systems, licensed by a manufacturer or company of such products, shall be qualified in every respect required by the manufacturer or company to the extent permitting the issuance of all required guarantees, warranties, and certificates of compliance to the approval of the A/E.

1.03 SUBMITTALS

- A. Within ten (10) days following the execution of the Contract, submit the personal work history of the Project Superintendent proposed to be assigned to the project to its final conclusion.
- B. Submittal may be in the form of a letter or standard employment "Job Application" covering the person's last five (5) years work history and contact source, names, and telephone numbers for use in verification of qualifications and recommendations.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 GENERAL

- A. General: Prior to any work being performed in the execution of the Contract, personnel who supervise, or otherwise direct the scope of their respective work, shall become thoroughly familiar with surface conditions affecting their work, the interface requirements of all other trades whose work affects their work, and become completely knowledgeable with the specified materials and methods needed for the proper coordination and execution of the work.

END OF SECTION

SECTION 01 45 00

QUALITY CONTROL

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Quality Control and Control of Installation
- B. Tolerances
- C. Testing and Laboratory Services:
 - 1. Provisions of cooperation with the selected testing laboratory and all others responsible for testing and inspection of the Work.
 - 2. Requirements for testing may be described in various other sections of these specifications.
 - 3. Where no testing requirements are described, but the Owner decides that testing is required, the Owner may direct that such testing be performed under current standards for testing. Payment for such testing will be made as described in this section.
 - 4. Contractor shall select a testing laboratory subject to the approval of the Owner.
- D. Manufacturers' Field Services: Requirements for manufacturers' field services may be described in various other sections of these specifications.

1.02 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. When manufacturers' instructions conflict with Contract Documents, request clarification from A/E before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify field measurements are as indicated on Shop Drawings or as instructed by manufacturer.

- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.

1.03 TOLERANCES

- A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.
- B. Comply with manufacturers' tolerances. When manufacturers' tolerances conflict with Contract Documents, request clarification from A/E before proceeding.
- C. Adjust products to appropriate dimensions; position before securing products in place.

1.04 TESTING AND INSPECTION SERVICES

- A. Codes and Standards:
 - 1. Testing, when required, will be in accordance with pertinent codes and regulations and with selected standards of the American Society for Testing and Materials.
 - 2. Inspections will be conducted at intervals required by current building codes and regulations and include:
 - a. Regulatory Inspections
 - b. Special Inspections
 - 1) In addition to the inspections provided by the Code Authority having Jurisdiction, the New Mexico Building Code mandates that the Owner or the Engineer or Architect acting on behalf of the Owner employ one or more Special Inspectors who shall provide inspections during construction on elements that are critical to the safety of the structure. It is important to note that these Special Inspectors are not on the project in lieu of the regular AHJ building inspector, but rather they are on the project in addition to the regular building inspector.
 - c. Seismic Inspections
 - d. Structural Observations
- B. Qualifications of testing agency or laboratory: The testing agency or laboratory will be qualified to the Owner's approval in accordance with ASTM E-329.
- C. Agency Responsibilities:
 - 1. Cooperate with A/E and Contractor in performance of duties.
 - 2. Provide qualified personnel to perform required tests and inspections.
 - 3. Notify A/E and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 4. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 5. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

6. Do not release, revoke, alter, or increase requirements of the Contract Documents or approve or accept any portion of the Work.
7. Do not perform any duties of Contractor.

D. Agency Reports:

1. Prepare and submit certified written reports that include the following:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address, and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making tests and inspections.
 - f. Description of the Work and test and inspection method.
 - g. Identification of product and Specification Section.
 - h. Complete test or inspection data.
 - i. Test and inspection results and an interpretation of test results.
 - j. Ambient conditions at time of sample taking and testing and inspecting.
 - k. Name and signature of laboratory inspector.
 - l. Recommendations on retesting and reinspecting.
2. Promptly process and distribute required copies of reports and related instructions to ensure necessary retesting and replacement of materials with the least possible delay in progress of the Work.

E. Special Inspection Reports:

1. Provide Special Inspection Reports listing all construction special inspections or reviews of testing performed during that month, noting all uncorrected deficiencies, and describing the corrections made both to these deficiencies and to previously reported deficiencies.
2. Each report shall be signed by the special inspector who performed the special inspection or reviewed the testing, regardless of whether they reported any deficiencies.
3. Each report shall be signed by the Contractor and submitted to the Engineer of Record.

F. Limits on Testing Authority:

1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
2. Agency or laboratory may not approve or accept any portion of the Work.
3. Agency or laboratory may not assume duties of Contractor.
4. Agency or laboratory has no authority to stop the Work.

G. Contractor Responsibilities: Cooperate with agencies performing required tests, inspections, and similar quality-control services. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1. Access to the Work.
2. Incidental labor necessary to facilitate tests and inspections.

3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Preliminary design mix proposed for use for material mixes that require control by testing agency.

1.05 PAYMENT FOR TESTING

- A. The Contractor will pay for initial testing and inspections services required by these specifications, the Quality Assurance Plans shown on the drawings and building code or regulatory agencies. Where the New Mexico Building Code mandates that the Owner employ Special Inspectors, Special Inspectors shall be selected by the Owner and paid by the Contractor.
- B. When there is work which the Owner requires tested and inspected in addition to specified and required tests, the Contractor will pay for the tests if the work does not comply with required standard and specifications. The Owner will pay for the tests if the work does comply with the required standards and specifications.
- C. Retesting and Re-inspecting: When initial reports indicate non-compliance with the Contract Documents, all subsequent retesting and re-inspecting occasioned by the non-compliance shall be performed by the same agency and costs thereof will be paid by the Contractor at no additional cost to the Owner.

1.06 CODE COMPLIANCE TESTING AND INSPECTING

- A. Inspections and tests required by codes, ordinances, or by a plan approval authority, and which are made by a legally constituted authority, shall be the responsibility of and shall be paid for by the Contractor, unless otherwise provided in the Contract Documents.

1.07 CONTRACTOR'S CONVENIENCE TESTING AND INSPECTING

- A. Inspecting and testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

1.08 INSPECTION BY OWNER'S PERSONNEL

- A. From time to time, personnel in the employ of the Owner may inspect the Work where the work is in progress, but shall have no authority to direct the Contractor or request changes in the Work except through the A/E.

1.09 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site

conditions, conditions of surfaces and installation, quality of workmanship, warranty inspections, start-up of equipment, and test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 TAKING SPECIMENS

- A. Specimens for testing and samples, unless otherwise provided in the Contract documents, will be taken by the testing personnel. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples to the testing laboratory will be performed by the testing laboratory.

3.02 SCHEDULES FOR TESTING AND INSPECTING

- A. By advance discussion with the selected agency, determine the time required for the agency to perform its tests and inspection and to issue each of its findings.
- B. Provide required time within the construction schedule.
- C. When changes of construction schedule are necessary during construction, coordinate such changes of schedule with the agency as required.
- D. When the agency is ready to test or inspect according to the established schedule, but is prevented from performing its duties due to incompleteness of the Work, all extra charges attributable to the delay shall be back-charged to the Contractor and shall not be borne by the Owner.

3.03 ALTERNATIVE INSPECTION PROCEDURE

- A. The A/E shall have the right to require alternative inspection procedures other than as specified when, in the A/E's judgment, other inspections are required to demonstrate compliance with the contract requirements. Costs of such alternative inspections will be borne by the Owner if products are found to comply; otherwise, costs shall be borne by the Contractor.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

- A. Types of temporary facilities and controls may include, but not be limited to:
1. Temporary Utilities
 2. Construction Facilities
 3. Temporary Construction
 4. Construction Aids
 5. Vehicular Access
 6. Temporary Barriers
 7. Temporary Controls
 8. Project Identification
 9. Removal of Utilities, Facilities, and Controls

1.02 CONDITIONS OF USE

- A. The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
1. Keep temporary services and facilities clean and neat.
 2. Minimize waste and abuse; limit availability of temporary facilities to essential and intended uses.
 3. Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
 4. Relocate temporary services and facilities as required by progress of the Work.
- B. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- C. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

1.03 TEMPORARY UTILITIES

- A. Types of temporary services required may include, but not be limited to water service, sewer and drainage, sanitary facilities, heating and cooling, ventilation and humidity control, electrical power, electrical distribution, lighting, surface drainage, and telephones.
1. Standards: Comply with ANSI A10.6, NEC's "Temporary Electrical Facilities," and NFPA 241.

- B. Water Service:
1. Provide rubber hoses as necessary to serve Project site. Where non-potable water is used, mark each outlet with adequate health-hazard warning signs.
- C. Sewers and Drainage:
1. If sewers are available, provide temporary connections to remove effluent that can be discharged lawfully. Connect temporary sewers to system as directed by sewer department officials.
 2. If sewers are not available or cannot be used, provide drainage ditches, dry wells, stabilization ponds, and similar facilities.
 3. If neither sewers nor drainage facilities can be lawfully used for discharge of effluent, provide containers to remove and dispose of effluent off-site in a lawful manner.
 4. Maintain temporary sewers and drainage facilities in a clean, sanitary condition. After heavy use, restore normal conditions promptly.
 5. Filter out excessive soil, construction debris, chemicals, oils, and similar contaminants that might clog sewers or pollute waterways before discharge.
 6. Provide temporary filter beds, settlement tanks, separators, and similar devices to purify effluent to levels acceptable to authorities having jurisdiction.
- D. Dewatering Equipment and Drains: Comply with requirements in applicable Division 32 Sections for temporary drainage and dewatering facilities, and operations not directly associated with construction activities included in individual Sections. Where feasible, use same facilities. Maintain Project site, excavations, and construction free of water.
- E. Temporary Fire Protection: Until fire-protection needs are supplied by permanent facilities, install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
1. Provide portable, UL rated-fire extinguishers, installed on walls on mounting brackets, visible and accessible from space being served, with sign mounted above.
 2. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
 3. Store combustible materials in containers in fire-safe locations.
 4. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting.
 5. Prohibit smoking in occupied buildings and hazardous fire-exposure areas.
 6. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
- F. Heating and Cooling:
1. Heating Units: Listed and labeled, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use for type of fuel being consumed.

2. Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity.
3. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.

G. Ventilation and Humidity Control:

1. Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity.
2. Select equipment from that specified that will not have a harmful effect on completed installations or elements being installed.
3. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

H. Electrical Power and Distribution System:

1. General: Where possible, engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services. Obtain easements to bring temporary utilities to Project site where Owner's easements cannot be used for that purpose.
2. Electric Power and Distribution Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear.
 - a. Where permitted and overhead and exposed for surveillance, wiring circuits, not exceeding 125-V ac, 20-A rating, and lighting circuits may be nonmetallic sheathed cable.
 - b. Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
 - c. Receptacles: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light and adequate for connection of power tools and equipment.
 - d. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
3. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations and traffic conditions.
 - a. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

- b. Provide one 100-W incandescent lamp per 500 sq. ft., uniformly distributed, for general lighting, or equivalent illumination.
- c. Provide one 100-W incandescent lamp every 50 feet in traffic areas.
- d. Provide one 100-W incandescent lamp per story in stairways and ladder runs, located to illuminate each landing and flight.
- e. Install exterior-yard site lighting that will provide adequate illumination for construction operations, traffic conditions, and signage visibility when the Work is being performed.

I. Use Charges:

- 1. Water Service: Use water from Owner's existing water system without metering and without payment of use charges.
- 2. Electric Power Service: Use electric power from Owner's existing system without metering and without payment of use charges.

1.04 CONSTRUCTION FACILITIES

- A. Locate field offices, storage sheds, and sanitary facilities for easy access. Coordinate locations with Owner
- B. Maintain support facilities until Substantial Completion. Remove immediately after Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Single-occupant self-contained toilet units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material, including hand-sanitizing capability.
 - 2. Shield toilets to ensure privacy.
 - 3. Disposable Supplies: Provide toilet tissue, paper towels and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
- D. Drinking Water: Provide drinking-water fountains or containerized bottled drinking water, or tap supply including paper cups.
- E. Field Offices: With lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading. Provide space for Project meetings, with table and chairs.
- F. Storage Areas and Sheds: Size to storage requirements for products of individual Sections, allowing for access and orderly provision for maintenance and for inspection of products to requirements of Section.

1.05 TEMPORARY CONSTRUCTION

- A. Provide access, ramps, ladders and similar temporary access elements as required to perform the work and facilitate its inspection during installation.
- B. Comply with inspection requests from Authorities having Jurisdiction.
- C. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
 - 1. Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved in writing by A/E and Owner. Provide materials suitable for use intended.
 - 2. Provide temporary weathertight enclosure for building exterior to accommodate acceptable working conditions and protection for products, to allow for temporary heating and maintenance of required ambient temperatures identified in individual specification sections, and to prevent entry of unauthorized persons.
 - a. Provide access doors with self-closing hardware and locks.
 - b. Gypsum Board: 5/8" thick Type X for fire-rated areas
 - 3. Provide temporary exitways as required by the Fire Marshall or Authority having jurisdiction.
 - 4. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures.
 - 5. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
 - 6. Close vertical openings of 25 sq.ft. or less with plywood or similar materials. Close horizontal openings in floor or roof decks and horizontal surfaces with load-bearing, wood-framed construction. Lumber and Plywood: Comply with requirements in Division 06 Section.

1.06 CONSTRUCTION AIDS

- A. Lifts and Hoists: Provide facilities for hoisting materials and personnel. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

1.07 VEHICULAR ACCESS

- A. Temporary Roads: Construct and maintain temporary trafficways adequate to support loads and to withstand exposure to traffic during construction period.
 - 1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.

1.08 TEMPORARY BARRIERS

- A. Furnish, install, and maintain suitable plywood (or similar) barriers as required to prevent public entry, and to protect the public, Work, and existing facilities; remove when no longer needed or at completion of Work. Walls must be self supporting and installed not to damage existing finishes. See note on plan set cover sheet.
- B. Site Enclosure Fence: Before construction operations begin install enclosure fence with lockable entrance gates. Locate where indicated, or enclose entire Project site or portion determined sufficient to accommodate construction operations. Install in a manner that will prevent people, dogs, and other animals from easily entering site except by entrance gates.
 - 1. Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch OD line posts and 2-7/8-inch OD corner and pull posts.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction.
- D. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
- E. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard.
 - 1. Provide barriers to protect the public from excavations and hazardous conditions and operations.
 - 2. If a trench or excavation, where accessible to the public, is left open at night or weekends, it must be barricaded with flashing lights.
- F. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
 - 1. Dust Control:
 - a. Execute Work by methods to minimize raising dust from construction operations.
 - b. Provide positive means to prevent air-borne dust from dispersing into atmosphere.
 - 2. Noise Control:
 - a. Provide methods, means, and facilities to minimize noise produced by construction operations.
 - b. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

1.09 TEMPORARY CONTROLS

- A. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with Division 1 Section “Execution Requirements” for progress cleaning requirements.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- C. Erosion and Sediment Control: Plan and execute construction by methods to control surface drainage from cuts and fills, from borrow and waste disposal areas. Prevent erosion and sedimentation. Minimize surface area of bare soil exposed at one time.
 - 1. Provide temporary measures including berms, dikes, and drains, and other devices to prevent water flow. Construct fill and waste areas by selective placement to avoid erosive surface silts or clays. Periodically inspect earthwork to detect evidence of erosion and sedimentation; promptly apply corrective measures.
- D. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction, sufficient to prevent flooding by runoff of stormwater from heavy rains.
- E. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with pollution and environmental control requirements of authorities having jurisdiction
- F. Pest and Rodent Control: Before deep foundation work has been completed, retain a local exterminator or pest-control company to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests. Engage this pest-control service to perform extermination and control procedures at regular intervals so Project will be free of pests and their residues at Substantial Completion. Obtain extended warranty for Owner. Perform control operations lawfully, using environmentally safe materials.
- G. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from construction damage. Protect tree root systems from damage, flooding, and erosion.

1.10 PROJECT IDENTIFICATION

- A. Project Identification and Temporary Signs:
 - 1. Project identification sign:
 - a. Engage an experienced sign painter to apply graphics.
 - b. Sign size: 4’ x 8”

- c. Sign material: 0.75 inch thick exterior grade plywood.
 - d. Supports: Two, 4" x 4" x 8' supports, sign bolted to supports.
 - e. Color: Yellow background, red lettering.
 - f. Lettering: Minimum 2" height.
2. Prepare temporary signs to provide directional information to construction personnel and visitors.
 3. Install where directed to inform public and persons seeking entrance to Project.
 4. Do not permit installation of unauthorized signs.
 5. Maintain signs and supports in a neat, clean condition; repair damages to structure, framing, or sign

1.11 BULLETIN BOARD

- A. Furnish and maintain bulletin board adjacent to field office. Display the following throughout construction period:
 1. Wage rates.
 2. Safety requirements.
 3. Official notices and announcements.

1.12 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. At earliest feasible time, when acceptable to Owner, change over from use of temporary utility to use of permanent service.
- B. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."
- C. Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 51 00

TEMPORARY UTILITIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Construction Drawings, Technical Specifications, Addenda, and general provisions of the Contract, including Contract General Conditions and Supplementary General Conditions and other Division 1 Specification Sections, apply to this Section.

1.02 SECTION INCLUDES

- A. Temporary utilities and services, including:
 1. Heating and cooling during construction.
 2. Ventilation during construction.
 3. Temporary water service.
 4. Temporary sanitary facilities.
 5. Temporary power and lighting.
 6. Construction telephone service.

- B. Removal of temporary utilities.

1.03 RELATED SECTIONS

- A. Section 01 10 00: Summary of the Work: Contractor's use of site and premises.

1.04 SUBMITTALS

- A. Temporary Utilities: Submit reports of tests, inspections, applicable meter readings and similar procedures performed on temporary utilities.

1.05 TEMPORARY UTILITIES AND SERVICES

- A. Temporary Utilities and Services, General: All utilities and other services necessary for proper performance of the Work shall be provided by Contractor, unless specifically noted otherwise. Temporary utilities and services shall conform to all applicable requirements of authorities having jurisdiction and serving utility companies and agencies, including the following:
 1. Requirements of authorities having jurisdiction, including:
 - a. OSHA
 - b. Health and safety regulations.
 - c. Utility agency and company regulations.
 - d. Police, Fire Department and Rescue Squad rules.

- e. Environmental protection regulations.
- 2. Standards:
 - a. NFPA Document 241 - Building Construction and Demolition Activities.
 - b. ANSI A10 Series - Safety Requirements for Construction and Demolition.
 - c. NECA Electrical Design Library - Temporary Electrical Facilities.
 - d. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service in compliance with California Electrical Code (CEC).
- B. Inspections: Arrange for authorities having jurisdiction to inspect and test each temporary utility before use. Obtain required certifications and permits.
- C. Temporary Connections and Fees: Contractor shall arrange for services and pay all fees and service charges for temporary power, water, sewer, gas and other utility services necessary for the Work.
 - 1. Contractor shall apply for and obtain permits for temporary utilities, including permits for temporary generators, from authorities having jurisdiction.
 - 2. All costs for temporary connections, including fees charged by serving utilities, shall be included in Contract Sum.
- D. Permanent Connections and Fees: Contractor shall arrange for utility agencies and companies to make permanent connections. Owner will arrange for permanent utility account and pay permanent connection fees. After Contract Completion review and determination that Work is acceptable, Owner will pay utility service charges for services delivered through permanent connections, for normal quantities.
- E. Use of Temporary Utilities: Enforce strict discipline in use of temporary utilities to conserve on consumption. Limit use of temporary utilities to essential and intended uses to minimize waste and abuse.

1.06 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Take necessary fire prevention measures. Do not overload facilities, or permit them to interfere with progress. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on the site.

1.07 HEATING AND COOLING

- A. Temporary Heating and Cooling: Provide and pay for temporary heating and cooling devices, fuel and related service charges to provide ambient temperatures as required to maintain conditions necessary for proper performance of construction activities.

- B. Use of Permanent Heating and Cooling Systems: Permanent heating and cooling equipment may be used after completion, testing and inspection of systems and approval of code authorities having jurisdiction.
 - 1. Prior to operation of permanent heating equipment for temporary heating purposes, verify that installation is approved for operation, equipment is lubricated and filters are in place.
 - 2. Contractor shall provide and pay for operation, maintenance and regular replacement of filters and worn or consumed parts.
 - 3. Immediately prior to Contract Completion review, change disposable filters and clean permanent filters of equipment used during construction.

- C. Temperature Criteria: Maintain interior ambient temperature of minimum 50 degrees F and maximum 80 degrees F, unless otherwise specified or approved by Owner's Representative.

1.08 VENTILATION DURING CONSTRUCTION

- A. Ventilation During Construction: Provide and pay for temporary ventilation devices, energy and related service charges.

- B. Use of Permanent Ventilation Systems: Permanent ventilation equipment may be used after completion, testing and inspection of systems and approval authorities having jurisdiction.
 - 1. Prior to operation of permanent ventilation equipment for ventilation purposes during construction, Contractor shall verify that equipment is lubricated and filters are in place.
 - 2. Contractor shall provide and pay for maintenance and regular replacement of filters and worn or consumed parts of permanent ventilation system using for ventilation during construction.
 - 3. Immediately prior to Contract Completion review, Contractor shall change disposable filters and clean permanent filters of equipment used during construction.

- C. Ventilation Criteria: Ventilate enclosed areas to assist cure of materials, to dissipate humidity and to prevent accumulation of dust, fumes, vapors and gases, as necessary for proper performance of the Work.

1.09 TEMPORARY WATER SERVICE

- A. Temporary Water Service: Contractor shall locate and connect to existing water source for temporary construction water service. Contractor shall comply with the following:
 - 1. Locate and connect to existing water source for temporary construction water service, as acceptable to Owner.
 - 2. Extend branch piping with outlets located, so that water is available by use of hoses.

3. Temporary water service piping, valves, fittings and meters shall comply with requirements of the serving water utility and AHJ.
 4. All costs to establish temporary construction water system shall be included in the Contract Sum, of if so specified, costs shall be paid from Allowance specified in Section 01 21 00: Allowances.
- B. Use of Permanent Water System: Permanent water system may be used for construction water after completion, sterilization, testing and inspection of system and approval by Owner's Representative and authorities having jurisdiction.

1.10 TEMPORARY SANITARY FACILITIES

- A. Temporary Sanitary Facilities: Provide and maintain adequate temporary sanitary facilities and enclosures for use by construction personnel.
1. Number of temporary toilets shall be suitable for number of workers.
 2. Provide wash-up sink with soap, towels and waste disposal.
- B. Use of Permanent Sanitary Facilities: Do not use permanent sanitary facilities unless approved by Owner's Representative. Immediately prior to Contract Completion review, thoroughly clean and sanitize permanent sanitary facilities used during construction.

1.11 TEMPORARY POWER AND LIGHTING

- A. Temporary Power and Lighting, General: Comply with NECA Electrical Design Library - Temporary Electrical Facilities.
- B. Temporary Power: Provide electric service as required for construction operations, with branch wiring and distribution boxes located to provide electrical service for performance of the Work.
1. Provide temporary electric feeder connected to electric utility service at location determined by Contractor and as approved by serving electric utility.
 2. Temporary power conduit, raceways, fittings, conductors, panels, connections, disconnects, overcurrent protection, outlets and meters shall comply with requirements of the serving electric utility, NEC and requirements of authorities having jurisdiction.
 3. Contractor shall pay all costs to establish temporary electric service, or if so specified, costs of temporary power shall be paid from Allowance specified in Section 01 21 00: Allowances.
 4. As necessary in order to maintain construction progress, Contractor shall provide and pay all costs associated with generators used for temporary power.
- C. Temporary Lighting: Provide temporary lighting as necessary for proper performance of construction activities and for inspection of the Work.
1. Provide branch wiring from power source to distribution boxes with lighting conductors, pigtails, and lamps as required.

2. Maintain lighting and provide routine repairs.
- D. Protection: Provide weatherproof enclosures for power and lighting components as necessary. Provide overcurrent and ground-fault circuit protection, branch wiring and distribution boxes located to allow convenient and safe service about site of the Work. Provide flexible power cords as required.
 - E. Use of Permanent Power and Lighting Systems: Permanent power and lighting systems may be used after completion, testing and inspection of systems and approval by Owner's Representative and authorities having jurisdiction.
 1. Contractor shall maintain lighting and make routine repairs and replacements as necessary.
 2. Owner will pay for reasonable amounts of electricity consumed after permanent power system is operational and approved by authorities having jurisdiction. Owner shall not pay for the cost of wasted electricity, for example, lighting beyond hours of construction.
 - F. Service Disruptions: When necessary for energizing and de-energizing temporary electric power systems, minimize disruption of service to those served by public mains. Schedule transfers at times convenient to Owner and to occupants.
 - G. Relamping: For permanent lighting used during construction, relamp all fixtures immediately prior to Contract Completion (punch list) review.

1.12 CONSTRUCTION TELEPHONE SERVICE

- A. Construction Telephone Service: Provide telephone service to Contractor's field staff by means of cellular telephones and pagers.
 1. Include voice message service and paging services.
 2. All costs of construction telephone, paging and radio services shall be included in Contract Sum.

PART 2 PRODUCTS

2.01 MATERIALS AND EQUIPMENT

- A. Materials: Contractor shall provide new materials. If acceptable to the A/E, undamaged previously used materials in serviceable condition may be used. Provide materials that are suitable for the use intended. Their use and methods of installation shall not create unsafe conditions or violate requirements of applicable codes and standards.
- B. Equipment: Contractor shall provide new equipment; or, if acceptable to the Trustees, Contractor may provide undamaged, previously used equipment in serviceable condition. Provide equipment that is suitable for use intended.

PART 3 EXECUTION

3.01 TEMPORARY UTILITIES INSTALLATION

- A. Temporary Utilities Installation, General: Contractor shall engage the appropriate local utility company or personnel to install temporary service or connect to existing service.
1. Use Charges: Cost or use charges for temporary facilities are the Contractor's responsibility.
 2. Allowance for Utilities Charges: When Contract includes an allowance for metering of utility services, whether through temporary or permanent facilities, unused amount shall be returned to the Trustees by deductive change order.
- B. Water Service: Contractor may take water from the Owner's systems in such quantities and at such times as they are available. If this is done, Contractor shall provide all temporary materials necessary to extending the utility to where they will be used. Contractor shall install a meter and reimburse the Owner for any water used.
- C. Temporary Electric Power Service: Contractor may take electricity from the Owner's system if available. If this is done, Contractor shall provide all equipment, including connections, and other materials necessary for extending the utility lines to where they will be used. Contractor shall coordinate the installation with the Owner's Representative. Contractor shall install a meter and reimburse the Owner for any power used. Where sub-metering is not possible or practical, a flat fee may be established and paid to the Owner.
1. When not available from the Owner, the Contractor must arrange and pay for electric service through the local utility or furnish his own portable power.
 2. All permanent power used by the Contractor prior to Occupancy shall be metered and paid for by the Contractor.
- D. Temporary Telephones: Contractor shall have telephone facility available at its business office for the duration of contract where the Contractor and its superintendent may be contacted. A pay phone for use of subcontractors is recommended.
- E. Temporary Fire Protection: Until fire protection needs are supplied by permanent facilities, Contractor shall install and maintain temporary fire protection facilities of the types needed to protect against reasonably predictable and controllable fire losses. Contractor shall comply with NFPA 10 "Standard for Portable Fire Extinguishers," and NFPA 241 "Standard for Safeguarding Construction, Alterations and Demolition Operations." Contractor shall:
1. Locate fire extinguishers where convenient and effective for their intended purpose, but not less than one extinguisher on each floor at or near each usable stairwell.

2. Store combustible materials in containers in fire safe locations.
 - a. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways and other access routes for fighting fires. Prohibit smoking in hazardous fire exposure areas.
 - b. Provide supervision of welding operations, combustion type temporary heating units, and similar sources of fire ignition.

- F. Maintenance of Temporary Utilities and Services: Contractor shall maintain temporary utilities and services in good operating condition until removal. Contractor shall protect from utilities and services from environmental and physical damage.

3.02 TERMINATION AND REMOVAL OF TEMPORARY UTILITIES AND SERVICES

- A. Termination and Removal of Temporary Utilities and Services: Unless the Trustees require that it be maintained longer, Contractor shall remove each temporary facility when the need has ended, or when replaced by authorized use of a permanent facility, or no later than Completion. Contractor shall complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. At Completion, Contractor shall clean and renovate permanent facilities that have been used during the construction period.

- B. Removal of Temporary Underground Utilities and Restoration: Remove temporary underground utility installations to a minimum depth of two-feet below utility services. Contractor shall:
 1. Backfill, compact and regrade site as necessary to restore areas or to prepare for indicated paving and landscaping.
 2. Restore paving damaged by temporary utilities. Refer to requirements specified in Section 01732: Cutting and Patching Requirements.

- C. Cleaning and Repairs: Contractor shall clean exposed surfaces and repair damage caused by installation and use of temporary utilities and services. Where determined by Owner's Representative that repair of damage is unsatisfactory, Contractor shall replace construction with matching finishes. Refer to requirements specified in Cutting and Patching Requirements.

END OF SECTION

SECTION 01 56 26

TEMPORARY FENCING

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes: Erection, maintenance, and dismantling of temporary fencing around construction site and materials storage areas. This section does not apply where security fencing is required.
- B. Refer to Drawings for temporary fence type, layout, and location of gates.

1.02 SUBMITTALS

- A. Shop drawing indicating layout of temporary fencing, location and size of gates, existing pavement and roads, access to fire hydrants and hose connections, and other site specific conditions. Prepare drawing after site observation and verification of existing conditions.

PART 2 PRODUCTS

2.01 TEMPORARY CHAIN LINK FENCING

- A. Unless otherwise indicated, type of temporary chain link fencing shall be Contractor's option. Following types are acceptable:
 - 1. New materials or previously used salvaged chain link fencing in good condition.
 - 2. Posts: Galvanized steel pipe of diameter to provide rigidity. Post shall be suitable for setting in concrete footings, driving into ground, anchoring with base plates, or inserting in precast concrete blocks.
 - 3. Fabric: Woven galvanized steel wire mesh. Provide in continuous lengths to be wire tied to fence posts or prefabricated into modular pipe-framed fence panels.
- B. Gates: Provide personnel and vehicle gates of the quantity and size indicated on the Drawings or required for functional access to site.
 - 1. Fabricate of same material as used for fencing.
 - 2. Vehicle gates:
 - a. Minimum width: 20 feet to allow access for emergency vehicles.
 - b. Capable of manual operation by one person.

2.02 PLASTIC MESH FENCING

- A. Where indicated on Drawings or as required to provide visual warning and control, provide plastic mesh fencing supported by steel posts driven into ground or set in precast concrete blocks.
- B. Height: 36 inches minimum.
- C. Color: Safety orange.

PART 3 EXECUTION

3.01 LAYOUT

- A. Installation of temporary fencing shall not deter or hinder access to existing and new hose connections and fire hydrants.
 - 1. Maintain 3 feet diameter clear space around fire hydrants.
 - 2. Where fire hydrant or hose connection is blocked by fencing, provide access gate.
- B. Access: Provide gates for personnel, delivery of materials, and access by emergency vehicles.
- C. Field verify location with A/E and Owner.

3.02 INSTALLATION

- A. Chain Link Posts:
 - 1. Space as 10 maximum.
 - 2. Drive posts, set in holes and backfill, or anchor in precast concrete blocks.
 - 3. For soft and unstable ground conditions, cast concrete plug around post.
 - 4. Posts over pavement: Use steel post plates or precast concrete blocks.
 - 5. Gate posts: Use bracing or concrete footings to provide rigidity for accommodating size of gate.
- B. Fabric: Securely attach to posts.
- C. Gates: Install with required hardware.
- D. Plastic mesh fencing: Space steel support posts to ensure mesh remains vertical and at proper height. Securely tie mesh to posts.

3.03 MAINTENANCE AND REMOVAL

- A. Maintain fencing in good condition. If damaged, immediately repair.

- B. Remove temporary fencing upon completion of Work or when no longer required for security or control. Backfill holes and compact. Holes in pavement shall be surfaced to match existing paving. Repair damage caused by installation of temporary fencing.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. Section includes administrative and procedural requirements for selecting products for use in Project
 - 1. Product Delivery, Storage, and Handling
 - 2. Product Warranties
 - 3. Product Options
 - 4. Reuse of Existing Materials
- B. See individual specification sections for specific requirements

1.02 DEFINITIONS

- A. For the purposes of this Specification Section, the terms “material and equipment” and “products” have the same meaning and are used interchangeably.
 - 1. Named Products: Items identified by manufacturer’s product name, including make or model number or other designation, shown or listed in manufacturer’s published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Manufacturer’s Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.

1.03 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on project, product selected shall be compatible with other products incorporated into the Project, even if other products were also options.

- B. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract Documents.

1.04 PRODUCT DELIVERY REQUIREMENTS

- A. Transport and handle products in accordance with manufacturer's instructions.
- B. Promptly inspect shipments to ensure products comply with requirements, quantities are correct, and products are undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

1.05 PRODUCT STORAGE AND HANDLING REQUIREMENTS

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground

1.06 PROTECTION AFTER INSTALLATION

- A. Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove coverings when no longer needed.

1.07 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
- B. Submittal Time: Comply with requirements in Division 1.

1.08 PRODUCT OPTIONS

- A. General Product Requirements:
 - 1. Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.

2. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 3. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 4. Limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 5. Where products are accompanied by the term “as selected,” A/E will make selection.
 - a. Standard Range: Where Specifications include the phrase “standard range of colors, patterns, textures” or similar phrase, A/E will select color, pattern, or texture from manufacturer’s product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase “full range of colors, patterns, textures” or similar phrase, A/E will select color, pattern, or texture from manufacturer’s product line that includes both standard and premium items.
 6. Where products are accompanied by the term “match sample,” sample to be matched is sample provided by A/E.
 7. Descriptive, performance, and reference standard requirements in the Specifications establish “salient characteristics” of products.
 8. Comply with size, make, type and quality specified, or as specifically approved in writing by the A/E.
- B. Manufactured and Fabricated Products:
1. Design, fabricate and assemble in accordance with the referenced engineering and shop practices.
 2. Manufacture like parts of duplicate units to standard sizes and gages, to be interchangeable.
 3. Two or more items of the same kind shall be identical, by the same manufacturer.
 4. Products shall be suitable for service conditions.
 5. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically requested by the Contractor and favorably reviewed by the A/E.
 6. Do not use material or equipment for any purpose other than that for which it is designed or is specified.
- C. Selection Criteria:
1. Products Specified Only By Reference Standard: select any product meeting that standard.
 2. Products Specified By Naming Several Products Or Manufacturers: select any one of the products or manufacturers named, which complies with the specifications; no options or substitutions.

3. Products Specified by Naming One or More Manufacturers with Provision for Substitutions: Submit request for substitution for any manufacturer not named in accordance with the following article.
 - a. Other manufacturers' products may be accepted, provided sufficient information is submitted to allow the A/E to determine that products proposed as substitutions are equivalent to those named.
 - b. Contractor must submit written request for substitutions for any product or manufacturer not specifically named.
 - c. Proof of product equivalency is the Contractor's responsibility.
 - d. A/E and the named manufacturer (when manufacturer desires) shall be the judge of the acceptability of the proposed product substitution
4. Products specified by naming only one product and manufacturer: provide specified product
5. "Basis of Design" provides the performance and operational requirements of the system
 - a. Term indicates specific product or system used as basis for design
 - b. Manufactures listed as "Optional Manufactures" may submit their equivalent products, but only if product complies with specified requirements, including salient qualities of "Basis of Design Product."
 - c. Products proposed by "Optional" manufactures must also comply with descriptive requirements listed in technical specification.
 - d. Optional Products that obviously differ in appearance and quality of "Basis of Design Product" will be rejected.

1.09 REUSE OF EXISTING MATERIAL

- A. Except as specifically indicated or specified, materials and equipment removed from an existing structure shall not be used in the completed Work.
- B. For material and equipment specifically indicated or specified to be reused in the Work:
 1. Use special care in removal, handling, storage, and reinstallation to assure proper function in the completed Work.
 2. Arrange for transportation, storage, and handling of products which require off-site storage, restoration or renovation. Include all costs for such work in the Bid.

1.10 MANUFACTURER'S INSTRUCTIONS

- A. When Contract Documents require installation of work to comply with manufacturer's instructions, such instructions must be included with:
 1. Shop drawing and/or product data submitted if an operation and maintenance manual is not required.
 2. Operation and maintenance data if required.

- B. Handle, install, connect, clean, condition, and adjust products in strict accordance with such instructions and in conformity with specified requirements.
 - 1. Should job conditions or specified requirements conflict with manufacturer's instructions, consult with A/E for further instructions.
 - 2. Do not proceed with work without clear instructions.

- C. Perform work in accordance with manufacturer's instructions. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for Execution of the Work, including, but not limited to, the following:
1. Installation
 2. Field Engineering
 3. Cutting and Patching
 4. Protecting Installed Construction
 5. Progress Cleaning

1.02 INSTALLATION

- A. Utility Requirements:
1. The Contractor shall arrange for all spotting of lines by utility companies in advance of any excavation work.
 2. Verify utility requirements and characteristics of equipment are compatible with facility utilities. Coordinate work of various specification sections having interdependent requirements for installing, connecting to, and placing in service such equipment.
- B. Space Requirements:
1. Coordinate space requirements and installation of mechanical, electrical, and other work shown diagrammatically on Drawings. Follow routing shown for pipes, ducts, and wireways as closely as practicable. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and repairs.
 2. Where space is limited, coordinate installation of components to ensure maximum access for maintenance. Ensure space provided around equipment and fixtures complies with applicable codes.
- C. Concealment: In finished areas, conceal pipes, ducts, and wire ways within construction except as otherwise indicated. Where practical, conceal supports, fasteners, and other attachment devices.
- D. Arrangement:
1. Unless otherwise indicated, installations shall be aligned vertically and horizontally. Place piping, conduit, wire ways, and other linear items parallel with lines of building.

2. Coordinate mounting heights and spacing of components so that finished work is neat and orderly with organized appearance.
 3. Repetitive items such as hangers and fasteners shall be equally spaced unless indicated otherwise.
- E. Blocking, anchors, and supports: Determine and coordinate requirements for blocking, anchors, and supports needed for proper installation of products. Provide necessary components whether or not indicated on Drawings or specified.
- F. Finished surfaces: Coordinate locations of fixtures, boxes, and other recessed or surface mounted items with finish elements and grades to ensure proper installation and neat appearance.
- G. Openings made in installed exterior surfaces shall be closed to protect construction from weather and extremes of temperature and humidity.

1.03 FIELD ENGINEERING

- A. Employ Registered Land Surveyor acceptable to Owner.
- B. Locate and protect survey control and reference points. Promptly notify A/E of discrepancies discovered.
- C. Control datum for survey is that shown on Drawings.
- D. Verify set-backs and easements; confirm drawing dimensions and elevations.
- E. Provide field engineering services. Establish elevations, lines, and levels, utilizing recognized engineering survey practices.
- F. Maintain complete and accurate log of control and survey work as Work progresses.

1.04 CUTTING AND PATCHING

- A. Employ skilled and experienced installer to perform cutting and patching.
- B. Submit written request in advance of cutting or altering elements affecting:
 1. Structural integrity of element.
 2. Integrity of weather-exposed or moisture-resistant elements.
 3. Efficiency, maintenance, or safety of element.
 4. Visual qualities of sight exposed elements.
- C. Execute cutting, fitting, and patching including excavation and fill, to complete Work, and to:
 1. Fit the several parts together, to integrate with other Work.

2. Uncover Work to install or correct ill-timed Work.
 3. Remove and replace defective and non-conforming Work.
 4. Remove samples of installed Work for testing.
 5. Provide openings in elements of Work for penetrations of mechanical and electrical Work.
- D. Execute work by methods to avoid damage to other Work, and to provide proper surfaces to receive patching and finishing.
- E. Identify hazardous substances or conditions exposed during the Work to A/E for decision or remedy.
- F. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.
- G. Remove unsuitable material not marked for salvage, including rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work. Remove debris and abandoned items from area and from concealed spaces.
- H. Cut masonry and concrete materials using masonry saw or core drill.
- I. Fit Work tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.
- J. Close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Maintain integrity of wall, ceiling, or floor construction; completely seal voids.
- K. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 84 00, to full thickness of penetrated element.
- L. Remove, cut, and patch Work in manner to minimize damage and to permit restoring products and finishes to original or specified condition. Restore Work with new products in accordance with requirements of Contract Documents.
1. Materials: As specified in product sections; match existing with new products and salvaged products for patching and extending work.
 2. Refinish existing visible surfaces to remain in renovated rooms and spaces, to specified condition for each material, with neat transition to adjacent finishes.
 3. Patch or replace portions of existing surfaces which are damaged, lifted, discolored, or showing other imperfections.
 4. Prepare surface and remove surface finishes to permit installation of new work and finishes.

5. Refinish surfaces to match adjacent finishes. For continuous surfaces, refinish to nearest intersection; for assembly, refinish entire unit.
6. Where new Work abuts or aligns with existing, provide smooth and even transition.
 - a. When finished surfaces are cut so that smooth transition with new Work is not possible, terminate existing surface along straight line at natural line of division and submit recommendation to A/E for review.
 - b. Where change of plane of 1/4-inch or more occurs, submit recommendation for providing smooth transition; to A/E for review.
7. Patch Work to match existing adjacent Work in texture and appearance.
8. Trim existing doors to clear new floor finish. Refinish trim to specified condition.

M. Asphalt Pavement:

1. Where existing or new pavement is damaged from construction operations, cut to install new underground utilities and where existing items are removed from paved areas:
 - a. Cut pavement with saw or other means to provide neat, straight joints.
 - b. Where existing pavement is damaged by removals, remove additional pavement to allow clean cuts.
 - c. Backfill and sufficiently compact removal area prior to placement of pavement.
 - d. Place pavement to match existing materials and thickness.
 - e. Immediately after placement.

N. Special Roof Penetrations:

1. New roofing:
 - a. Coordinate, locate and schedule roof penetrations prior to installation of new roof system.
 - b. Coordinate roof penetrations such that installation does not void roof warranty.
2. Existing roofing:
 - a. Prior to penetrating, cutting, and patching existing roofing, verify with Owner if roof is under warranty. If warranted, employ roof contractor certified by manufacturer of roof system, make required inspections and notifications, and perform cutting and patching as required to ensure warranty is not violated.
 - b. Protect building interior during operations and return roof to weather tight condition after the work is performed.

1.05 PROTECTING INSTALLED CONSTRUCTION

- A. Protect installed Work and provide special protection where specified in individual specification sections.

- B. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic or storage upon waterproofed or roofed surfaces. When traffic or activity is necessary, obtain recommendations for protection from waterproofing or roofing material manufacturer.
- F. Prohibit traffic from landscaped areas.

1.06 PROGRESS CLEANING

- A. Conduct cleaning and disposal operations to comply with codes, ordinances, regulations, and anti-pollution laws.
- B. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- C. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- D. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.
- E. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- F. Remove waste materials, debris, and rubbish from site weekly and legally dispose of off-site.
- G. Remove debris and rubbish from pipe chases, plenums, crawl spaces, above suspended ceilings, and other closed and remote spaces prior to enclosing space.
- H. Prior to surface finishing, broom and vacuum clean interior areas to eliminate dust.
- I. Washing of concrete trucks and dumping of excess cementitious material on site is not allowed. All such materials and contaminated soil shall be removed.
- J. Soils and other site material contaminated by paint residues, oils, fuels, and other construction products shall be removed and replaced with equivalent soil or material.

K. Existing lawns, landscaped areas, and areas for future landscaping affected by construction operations shall be raked to remove stones, mortars, aggregates, and other construction debris in excess of 3/4 inch diameter.

L. Clean mud and sediment resulting from Contractor's operations or traffic from all sidewalks, public streets and parking areas.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 75 00

STARTING AND ADJUSTING

PART 1 GENERAL

1.01 SUMMARY

A. This Section includes administrative and procedural requirements for:

1. Starting of Systems
2. Testing, Adjusting and Balancing

1.02 STARTING OF SYSTEMS

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Owner seven days prior to start-up of each item.

C. Prior to startup, inspect items of equipment and systems to ensure that:

1. Installation is in accordance with manufacturer's instructions.
2. No defective items have been installed and there are no loose connections.
3. Power supplies are correct voltage, phasing, and frequency.
4. Grounding and transient protection systems are properly installed.
5. Items have been properly lubricated, belts tensioned, and control sequence and other conditions which may cause damage have been addressed.
6. Verify tests, meter readings, and specified electrical characteristics agree with those required by equipment or system manufacturer.
7. Verify wiring and support components for equipment are complete and tested.
8. Verify that provisions have been made for safety of personnel.

D. Execute start-up under supervision in accordance with manufacturers' instructions.

1. When specified in individual sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment and system installation prior to startup and to supervise placing equipment and system in operation.
2. Adjustment: Monitor systems and verify performance. Correct deficiencies. Replace defective components and equipment. Adjust equipment and systems for smooth and proper installation.
3. Submit written report in accordance with Submittal Procedures that equipment and systems have been properly installed and are functioning correctly

1.03 TESTING, ADJUSTING AND BALANCING

A. Independent firm will perform testing, balancing and adjusting services specified in other sections.

- B. Reports will be submitted by independent firm to A/E indicating observations and results of tests and indicating compliance or non-compliance with requirements of Contract Documents.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
1. Closeout Procedures
 2. Final Cleaning
 3. Final Completion and Inspection
 4. Maintenance service
 5. Correction Period Inspection

1.02 CLOSEOUT PROCEDURES

- A. Substantial Completion:
1. Preliminary Procedures: Prior to requesting A/E's inspection for certification of substantial completion (for either entire work or portions thereof), complete the following and list known exceptions in request:
 - a. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - b. Advise Owner of pending insurance change-over requirements.
 - c. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.
 - d. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including occupancy permits, operating certificates, and similar releases.
 - e. Prepare and submit Project Record Documents, operation and maintenance manuals, and similar final record information.
 - f. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - g. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - h. Complete startup testing of systems.
 - i. Submit test/adjust/balance records.
 - j. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - k. Advise Owner of changeover in heat and other utilities.
 - l. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

- m. Complete final cleaning requirements, including touchup painting.
 - n. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
2. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, A/E will either proceed with inspection or notify Contractor of unfulfilled requirements. A/E will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor' list or additional items identified by A/E, that must be completed or corrected before certificate will be issued.
 - a. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 - b. Results of completed inspection will form the basis of requirements for Final Completion.
- B. List of Incomplete Items (Punch List):
1. Preparation: Submit three copies of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction:
 - a. Organize list of spaces in sequential order, starting with exterior areas first then proceeding from lowest to highest room number.
 - b. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

1.03 FINAL CLEANING

- A. Employ experienced workers or professional cleaners for final cleaning.
 1. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program.
 2. Comply with manufacturer's written instructions.
- B. Clean equipment and fixtures to sanitary condition with cleaning materials appropriate to surface and material being cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
- C. Replace filters of operating equipment.
- D. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 1. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
4. Remove tools, construction equipment, machinery, and surplus material from Project site.
5. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
6. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
7. Sweep concrete floors broom-clean in unoccupied spaces.
8. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
9. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
10. Remove labels that are not permanent.
11. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - b. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - c. Replace parts subject to unusual operating conditions.
 - d. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - e. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - f. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - g. Leave Project clean and ready for occupancy.

E. Comply with Safety Standards for Cleaning:

1. Do not burn waste materials.
2. Do not bury debris or excess materials on Owner's property.
3. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
4. Remove waste materials from Project site and dispose of lawfully.

- F. Removal of Protection: Except as otherwise indicated or requested by A/E/Engineer, remove temporary protection devices and facilities which were installed during course of the work.
- G. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems. Remove waste materials from site and dispose of in a lawful manner.
- H. Where extra materials of value remaining after completion of associated work have become Owner's property, dispose of these to Owner's best advantage as directed.

1.04 FINAL COMPLETION

- A. Preliminary Procedures:
 1. Submit a final Application for Payment according to Section 01 29 00 Payment Procedures. Submit with final releases, waivers and consents.
 2. Submit certified copy of A/E's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by A/E. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Submit final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
 4. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 5. Notify Owner and request change over in insurance, utilities, and security; send copy of notice to A/E.
 6. Submit insurance certificates for products and completed operations as required by Specification Sections.
 7. Submit complete close-out package per Section 01 78 00 Closeout Submittals.
 8. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems per Section 01 79 00 Demonstration and Training.

1.05 FINAL INSPECTION

- A. Submit a written request for final inspection for acceptance. On receipt of request, A/E will either proceed with inspection or notify Contractor of unfulfilled requirements. A/E will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.

- B. Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.06 MAINTENANCE SERVICE

- A. Furnish service and maintenance of components indicated in specification sections for specified period from date of Substantial Completion.
- B. Examine system components at frequency consistent with reliable operation. Clean, adjust, and lubricate as required.
- C. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by manufacturer of original component.
- D. Do not assign or transfer maintenance service to agent or Subcontractor without prior written consent of Owner.

1.07 CORRECTION PERIOD INSPECTION

- A. 30 days prior to end of one year correction period, schedule and attend a one year correction period inspection. Appropriate subcontractors shall attend.
- B. Coordinate time of inspection with A/E.
- C. Representatives of Owner, A/E, and appropriate consultants will attend.
- D. Correct deficiencies shall be noted and addressed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 78 00

CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following Closeout Submittals:
1. Project Record Documents
 2. Operation and Maintenance Manuals
 3. Tools, Spare Parts, Maintenance and Extra Stock Products
 4. Warranties
 5. Certificates of Inspection and Compliance

1.02 PROJECT RECORD DOCUMENTS

- A. General:
1. Do not use Project Record Documents for construction purposes. Store Record Documents and Samples in the field office apart from the Contract Documents used for construction.
 2. Protect Project Record Documents from deterioration and loss.
 3. Provide access to Project Record Documents for A/E reference during normal working hours.
 4. Maintain one (1) copy of each document type during construction period for Project Record Document purposes.
 5. Post changes and modifications to Project Record Documents on a weekly basis.
- B. Record Drawings: Maintain and submit one (1) set of blue- or black-line white prints of Contract Drawings and Shop Drawings.
1. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Give particular attention to information on concealed elements that cannot be readily identified and recorded later.
 - b. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - c. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 - 1) Clearly describe the change by note and by graphic line, as required.
 - 2) Date all entries.

- 3) Call attention to the entry by a “cloud” around the area or areas affected.
 - 4) In the event of overlapping changes, different colors may be used for each of the changes.
 - d. Where changes are caused by Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification, clearly indicate the change by note in ink, colored pencil, or rubber stamp.
 - e. Where changes are caused by Contractor-originated proposals approved by the A/E, including inadvertent errors by the Contractor which have been accepted by the A/E, clearly indicate the change by note in erasable colored pencil.
 - f. Because design of future modifications to the facility may require accurate information as to the final physical arrangement of items which were originally drawn schematically on the Drawings convert schematic layouts to show its final physical arrangement.
 - g. Show on the job set of Record Drawings, by dimension accurate to within 1 inch, the centerline of each run of items described in the preceding paragraph. Clearly identify the item by accurate note such as “3” cast iron water main”, etc. Show, by symbol or note, the vertical control elevation of the item. Make all identification sufficiently descriptive that it may be related reliably to the specifications.
 - h. The A/E may waive the requirements for conversion of schematic data where, in the A/E’s judgment, such conversion serves no beneficial purpose. A/E will issue a written waiver when this applies.
 - i. Identify and date each Record Drawing; include the designation “PROJECT RECORD DRAWING” in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.
 - j. Submit documents to A/E prior to or in conjunction with submission of Contractor’s request for Substantial Completion and in accordance with Owner’s procedures.
- C. Record Specifications: Submit one (1) copy of Project’s Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
- 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Note related Change Orders and Record Drawings, where applicable.
- D. Miscellaneous Record Submittals: Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection

with actual performance of the Work Bind or file miscellaneous records and identify each, ready for continued use and reference. Include the following:

1. Addenda.
2. Change Orders and other modifications to the Contract.
3. Reviewed Shop Drawings, Product Data, and Samples.
4. Manufacturer's instruction for assembly, installation, and adjusting.
5. Test and Inspection Reports.
6. Design Mix Records.
7. Inspections by Authority having Jurisdiction.

1.03 OPERATION AND MAINTENANCE MANUALS

A. General:

1. Submit two (2) copies of each manual in final form at least 10 days before final inspection. A/E will return copy with comments.
2. Correct or modify each manual to comply with comments. Submit two (2) copies of each corrected manual within 10 days of receipt of A/E's comments.

B. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.

1. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.

C. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain a title page, table of contents, and manual contents.

1. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
2. Subject matter included in manual.
3. Name and address of Project.
4. Name and address of Owner.
5. Date of submittal.
6. Name, address, and telephone number of Contractor.
7. Name and address of A/E.

8. Table of Contents: List each product included in manual, identified by product name, indexed to content of volume, and cross-referenced to Specification Section number in Project Manual.
 9. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 10. Include information needed for daily operations and management of systems and equipment. In addition to requirements in this Section, include operation data required in individual Specification Sections and equipment descriptions, operating standards, operating procedures, operating logs, wiring and control diagrams, and license requirements.
 11. Include the following:
 - a. Product name and model number.
 - b. Manufacturer's name.
 - c. Equipment identification with serial number of each component.
 - d. Equipment function.
 - e. Operating characteristics.
 - f. Limiting conditions.
 - g. Performance curves.
 - h. Engineering data and tests.
 - i. Complete nomenclature and number of replacement parts.
 12. Operating Procedures: Include startup, break-in, and control procedures; stopping and normal shutdown instructions; routine, normal, seasonal, and weekend operating instructions; and required sequences for electric or electronic systems.
 13. Systems and Equipment Controls: Describe sequence of operation, and diagram controls as installed.
 14. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.
- D. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
1. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 2. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.
- E. Include the following in combined or separate manuals:
1. Manual for materials and finishes:
 2. Building Products, Applied Materials, and Finishes: Include product data, with catalog number, size, composition, and color and texture designations.
 3. Instructions for Care and Maintenance: Include manufacturer's recommendations for cleaning agents and methods, precautions against

detrimental agents and methods, and recommended schedule for cleaning and maintenance.

4. Moisture Protection and Weather Exposed Products: Include product data listing applicable reference standards, chemical composition, and details of installation. Include recommendations for inspections, maintenance, and repair.
5. Manual for equipment and systems.
6. Each Item of Equipment and Each System: Include description of unit or system, and component parts. Identify function, normal operating characteristics, and limiting conditions. Include performance curves, with engineering data and tests, and complete nomenclature and model number of replaceable parts.
7. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications.
8. Include color coded wiring diagrams as installed.
9. Include original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
10. Include control diagrams by controls manufacturer as installed.
11. Include Contractor's coordination drawings, with color coded piping diagrams as installed.
12. Include charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
13. Include list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

1.04 TOOLS, SPARE PARTS, MAINTENANCE AND extra stock PRODUCTS

- A. Furnish tools, spare parts, maintenance, extra products and computer programming materials in quantities specified in individual specification sections and deliver to Owner.
 1. Provide list of tools, spare parts, maintenance materials, extra stock and computer programming, materials for review by A/E.
- B. Deliver to Project site and place in location as directed by Owner, extra stock as specified in sections.
 1. Owner's Representative will log in materials as delivered.
 2. Obtain receipt for delivered materials.

1.05 WARRANTIES

- A. Submittal Time: Submit written warranties on request of A/E or designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

1.06 CERTIFICATES OF INSPECTION AND COMPLIANCE

- A. For inspections throughout the construction period required by regulatory agencies, obtain and maintain certificates issued to show compliance.

- B. Assemble certificates and any formal written evidence of regulatory compliance in three ring binder with table of contents and submit to A/E prior to or in conjunction with submission of Notice of Substantial Completion.
 - 1. Include Contractor's Certification that all work has been performed in compliance with the New Mexico Building Code, current edition and all of its referenced codes including, but limited to IBC, UPC, UMC, NEC.

- C. Certificate of Occupancy: Prior to Substantial Completion, obtain Certificate of Occupancy from authorities having jurisdiction. Submit with Notice for Substantial Completion.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 01 79 00

DEMONSTRATION AND TRAINING

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for Demonstration of Equipment and Systems and Training of Owner's Personnel.

1.02 DEMONSTRATION AND TRAINING SCHEDULING

- A. Schedule demonstration and training sessions after equipment and systems have been completely installed, startup completed, and adjustments made prior to date of Substantial Completion.
 - 1. Submit list of names, resumes, and qualifications of personnel conducting training sessions. Provide instructors experienced in operation and maintenance procedures.
 - 2. Submit preliminary schedule listing times, dates, and outline showing organization and proposed contents of training sessions for approval by A/E and Owner.
 - 3. Provide instruction at mutually agreed-on times.
 - 4. Required instruction time for each item of equipment and system is specified in individual sections.
- B. Owner shall be responsible for designating and notifying personnel to attend and ensuring attendance at scheduled sessions.

1.03 TRAINING MATERIALS

- A. Training manuals: Loose leaf notebook format with agenda and objectives of each lesson.
 - 1. Manuals shall describe function, operation, and maintenance of various items of equipment and be suitable for personnel with high school education.
 - 2. Manuals shall be suitable for future training of Owner personnel by Owner staff.
 - 3. Manuals shall useful reference for staff maintaining facility.
 - 4. Provide 3 copies.
- B. Visual aids: Provide charts, handouts, overhead projector slides, electronic presentations, and other visual aids required to make effective presentation and facilitate training.

1. Equipment needed for showing visual training aids shall be provided by Contractor.
 2. Visual aids shall be suitable for use by Owner's staff to train additional personnel in the future.
- C. Submit report within 1 week after completion of training that sessions have been satisfactorily completed. Give times, dates, list of persons trained, and summary of instructions.
- D. For equipment or systems requiring seasonal operation, perform demonstration for all seasons.
- E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.
- F. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment.
- G. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction

1.04 DEMONSTRATION AND TRAINING SESSIONS

- A. Provide demonstration and training session to emphasize operation, use, and maintenance of installed items and systems:
1. Mechanical systems specified in respective divisions
 2. Electrical systems specified in respective division.
 3. Fire protection systems specified in respective divisions
 4. Other items and systems as designated by A/E or requested by Owner.
- B. Conduct at project site using actual installed equipment and systems.
- C. Have copies of operation and maintenance manuals available. Use as training aids.
- D. Owner shall have right to record or video tape demonstration and training sessions.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Demolishing designated building equipment and fixtures.
 - 2. Demolishing designated construction.
 - 3. Removing designated items for reuse and Owner's retention.
 - 4. Protecting items designated to remain.
 - 5. Removing demolished materials.

- B. Related Work:
 - 1. Section 01 31 00: Project Management and Coordination
 - 2. Section 01 33 00: Submittal Procedures: Requirements for submittals.
 - 3. Section 01 70 00: Cutting and Patching

1.02 CONSTRUCTION SUBMITTALS

- A. Demolition Schedule: Indicate overall schedule and interruptions required for utility and building services.

- B. Where Work of this Section involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with original structure.

- C. Submit list of utilities and systems that will be relocated and those that will be temporarily out of service. Indicate how long service will be disrupted.

1.03 CLOSEOUT SUBMITTALS

- A. Section 01 78 00 Closeout Submittals: Requirements for submittals.

- B. Project Record Documents: Accurately record actual locations of capped utilities, concealed utilities discovered during demolition, and subsurface obstructions.

- C. Operation and Maintenance Data: Submit description of system, inspection data, and parts lists.

1.04 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.

- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.
- E. Cutting and Patching: Removal of portions of existing construction as required to accommodate the Work.

1.05 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.06 QUALITY ASSURANCE

- A. Conform to current applicable codes for demolition work, dust control, and products requiring utility disconnection and re-connection.
- B. Conform to current applicable codes for procedures when hazardous or contaminated materials are discovered.
- C. Obtain required permits from authorities having jurisdiction.

1.07 PRE-DEMOLITION MEETINGS

- A. Convene minimum one week prior to commencing work of this section.

1.08 SEQUENCING

- A. Owner will conduct salvage operations before demolition begins to remove materials Owner chooses to retain.

1.09 SCHEDULING

- A. Cooperate with Owner in scheduling noisy operations and waste removal that may impact Owners operation in adjoining spaces.
- B. Coordinate utility and building service interruptions with Owner.
 - 1. Do not disable or disrupt building fire or life safety systems without three days prior written notice to Owner.
 - 2. Schedule tie-ins to existing systems to minimize disruption.

3. Coordinate Work to ensure fire sprinklers, fire alarms, smoke detectors, emergency lighting, exit signs and other life safety systems remain in full operation in occupied areas.

1.10 PROJECT CONDITIONS

- A. Conduct demolition to minimize interference with adjacent [and occupied] building areas.
- B. Cease operations immediately if structure appears to be in danger and notify Architect/Engineer. Do not resume operations until directed.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 PREPARATION

- A. Notify affected utility companies before starting work and comply with their requirements.
- B. Mark location and termination of utilities.
- C. Erect, and maintain temporary barriers and security devices at locations indicated, including warning signs and lights, and similar measures, for protection of the public, Owner, and existing improvements indicated to remain.
- D. Layout cuts in post tensioned concrete elements to avoid cutting concrete within 12 inches of any stressing tendon. Notify Architect/Engineer three days in advance of cutting post-tensioned concrete.
- E. Erect and maintain weatherproof closures for exterior openings.
- F. Erect and maintain temporary partitions to prevent spread of dust, odors, and noise to permit continued Owner occupancy.
- G. Prevent movement of structure; provide temporary bracing and shoring required to ensure safety of existing structure.
- H. Provide appropriate temporary signage including signage for exit or building egress.
- I. Do not close or obstruct building egress path.
- J. Do not disable or disrupt building fire or life safety systems without 3 days prior written notice to Owner.

3.02 SALVAGE REQUIREMENTS

- A. Coordinate with Owner to identify building components and equipment required to be

- B. Tag components and equipment Owner designates for salvage.
- C. Protect designated salvage items from demolition operations until items can be removed.
- D. Carefully remove building components and equipment indicated to be salvaged.
- E. Disassemble as required to permit removal from building.
- F. Package small and loose parts to avoid loss.
- G. Mark equipment and packaged parts to permit identification and consolidation of components of each salvaged item.
- H. Prepare assembly instructions consistent with disassembled parts. Package assembly instructions in protective envelope and securely attach to each disassembled salvaged item.
- I. Deliver salvaged items to Owner. Obtain signed receipt from Owner.

3.03 DEMOLITION

- A. Conduct demolition to minimize interference with adjacent and occupied building areas.
- B. Maintain protected egress from and access to adjacent existing buildings at all times.
- C. Do not close or obstruct roadways and sidewalks without permits.
- D. Cease operations immediately if structure appears to be in danger and notify Architect/Engineer
- E. Disconnect and remove designated utilities within demolition areas.
- F. Cap and identify abandoned utilities at termination points when utility is not completely removed. Annotate Record Drawings indicating location and type of service for capped utilities remaining after demolition.
- G. Demolish in orderly and careful manner. Protect existing improvements and supporting structural members
- H. Carefully remove building components indicated to be reused.
 1. Disassemble components as required to permit removal.
 2. Package small and loose parts to avoid loss.
 3. Mark components and packaged parts to permit reinstallation.
 4. Store components, protected from construction operations, until reinstalled.
- I. Remove demolished materials from site except where specifically noted otherwise. Do not burn or bury materials on site.

- J. Remove materials as Work progresses. Upon completion of Work, leave areas in clean condition.
- K. Remove temporary Work.
- L. Perform cutting and removal work to remove minimum necessary, and in a manner to avoid damage to adjacent work. Cut finished surfaces such as masonry, tile, plaster and metals, by methods to terminate surfaces in a straight line at a natural point of division.
- M. Protect from damage existing finishes, equipment, and adjacent work scheduled to remain. Protect existing and new work from weather and extremes of temperature.
- N. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Proceed with patching after construction operations requiring cutting are complete.

3.04 SCHEDULES

- A. Remove, store and protect the following materials and equipment for reinstallation:
- B. Remove the following and salvage to the Owner's. Deliver to location designated by A/E: As noted on Drawings.
- C. Protect materials and equipment remaining.
- D. Demolish materials, equipment and construction as shown on the Drawings.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Cast-In-Place Concrete
- B. Reinforcing Steel
- C. Forms
- D. Admixtures
- E. Embedments

1.02 ADDITIONAL REQUIREMENTS SPECIFIED ELSEWHERE

- A. Section 01 45 00: Testing Laboratory Services.
- B. Section 03 33 00: Architectural Concrete

1.03 SUBMITTALS

- A. Shop Drawings and Product Data:
 - 1. Concrete mix design.
 - 2. Proposed admixtures, per ACI 318.
 - 3. Reinforcing bar lists, fabrication, and placement drawings for structures.
 - 4. Concrete accessories.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Storage:
 - 1. Cement and fly ash:
 - a. Store in moisture-proof enclosures.
 - b. Do not use if caked or lumpy.
 - 2. Aggregate:
 - a. Store to prevent segregation and inclusion of foreign materials.
 - 3. Reinforcing steel: Store on supports which will keep it from contact with the ground.
 - 4. Rubber and plastic materials:
 - a. Store in a cool place.
 - b. Do not expose to direct sunlight.

PART 2 PRODUCTS

2.01 MATERIALS

A. Forms:

1. The form work shall be designed in accordance with ACI 347.
2. Chamfer strips: Clear white pine, surface against concrete planed.
3. Form Coating: Industrial lubricants “Nox-crete Form Coating”, “L&M Debond”, Protex “Pro-Cote”, Richmond “Rich Cote”, or Engineer approved equivalent.
4. Form ties: Removable end, permanently embedded body type not requiring auxiliary spreaders, with cones on outer ends, embedded portion 1” minimum back from concrete face. If not provided with threaded ends, constructed for breaking off ends without damage to concrete.
5. Earth cuts shall not be used as forms for vertical surfaces, unless indicated on project drawings.

B. Reinforcing Steel:

1. Bars: ASTM A615, Grade 60.
2. Welded wire fabric: ASTM A185 or A497.
3. Bar supports: PS7; CRSI Class B, fabricated from galvanized wire.

C. Concrete:

1. Cement: ASTM C150, Type I or II. Use Type III only with prior written approval of Engineer.
2. Fly ash: ASTM C618, Class F, except loss on ignition not more than 5%
3. Fine aggregate: Clean, natural sand, ASTM C33.
4. Coarse aggregate: Crushed rock, natural gravel or other inert granular material, ASTM C33 except clay and shale particles no more than 1%.
5. Water: Clean, fresh and potable.
6. Admixtures:
 - a. Retarder: ASTM C494, Type D; Grace “Duratard-HC”, Master Builders “Pozzoloth 300-R”, Protex “Protard”, Sika Chemical “Plastiment”, or Engineer approved equivalent.
 - b. Plasticizer: ASTM C494, Type A; Grace “WRD A-HC”, Master Builders “Rheobuild 1000”, Sika Chemical “Plastocrete”, or Engineer approved equivalent.
 - c. Air entraining agent: ASTM C260; Grace “Darex AEA”, Master Builders “AE 90”, Protex “AES”, Sika Chemical “AEK”, or Engineer approved equivalent.
 - d. Water reducing agent ASTM C494, Type A; Master Builders “Pozzoloth 322-N”, or Engineer approved equivalent.

D. Accessories:

1. Polyethylene film: PS17, 6 mil.

2. Membrane curing compound and floor sealer: FS TT-C-600, Type 1; chlorinated rubber, minimum 18% solids; Grace “Dekote”, Process Solvent “Concrete Treatment ALX-9”, Protex “Triple Seal Series CRD-18”, TK Product “Tri-Kote TK-18”, or Engineer approved equivalent.
3. Expansion and contraction joint: Elastic
 - a. Rubber: Dumbell, 9” wide, 3/8 thick with 3/4” bead on each end, WR Grace, U.S. Rubber, William or Engineer approved equivalent.
 - b. PVC: Ribbed or serrated, 9” wide, 3/8” thick with “U” or “O” bulb closed center section, WR Grace, WR Meadows, Vinylex or Engineer approved equivalent.
4. Exterior expansion joint material: Asphalt impregnated fiberboard: ASTM D994.
5. Bond break joint material: 30 lb. asphalt saturated felt, ASTM D226.
6. Interior slab construction joint material: Preformed 20 gage steel or as indicated on Drawings.

2.02 CONCRETE MIX

- A. Comply with ASTM C94.
- B. Water to Cementitious Material Ratio: Maximum 0.50.
- C. Slump: Maximum 4.0”, unless otherwise scheduled.
- D. Compressive Strength: 28 days - 4000 psi, unless otherwise scheduled or shown on the Drawings.
- E. Volumetric Air Content: 4.5% to 7.5%, air may be omitted for interior slabs to be trowel finished.
- F. Admixtures:
 1. Content, batching method, and time of introduction in accordance with the manufacturer’s recommendations for compliance with this Specification.
 2. Include a water reducing admixture.
 3. Calcium chloride shall not be used.
- G. Coarse Aggregate:
 1. Maximum nominal dimension:
 - a. 3/4” for 8” concrete members.
- H. Consistency:
 1. Suitable for the placement conditions.
 2. Slump uniform.
 3. Aggregate floating uniformly throughout the concrete mass.
 4. Flow sluggishly when vibrated or spaded.
 5. Adjust mix in field, with Engineer’s approval, as required to meet specifications.

2.03 FABRICATION

A. Reinforcing Steel:

1. Fabricate in accordance with ACI 315 and 318 except as specified or indicated on Drawings.
2. Accurately fabricated.
3. Free from loose rust, scale, and contaminants which will reduce bond.

PART 3 EXECUTION

3.01 INSTALLATION

A. Forms:

1. In accordance with ACI 347.
2. Mortartight.
3. Exposed concrete surfaces free from irregularities.
4. True to line, grades, and dimensions shown on the Drawings.
5. Rigid and properly braced.
6. Ties arranged so that metal will not show or discolor concrete surface.
7. Bevel or chamfer exterior corners.
8. Coat forms with acceptable release material.

B. Reinforcing Steel:

1. Remove loose rust, scale, grease or any coating which may impair bond to concrete. Remove all rust that can be wiped off with a cloth.
2. Provide supports to provide minimum cover and spacing.
3. Provide splice lengths as required by ACI 318.

C. Embedments:

1. Accurately placed for the purpose intended.
2. Remove loose rust, scale, and other foreign matter before placing concrete. Remove all rust that can be wiped off with a cloth.

D. Concrete:

1. Place before initial set has occurred, but in no event after the concrete has contained its water content for more than 30 minutes.
2. Place concrete on compacted moist surfaces, free from standing or running water.
3. Concrete to be conveyed and placed in an approved manner to prevent segregation of the coarse aggregate.
4. Cold weather concreting:
 - a. Comply with ACI 306.
5. Hot weather concreting:
 - a. Comply with ACI 305.

- E. Expansion and Contraction Joints:
 - 1. Provide as indicated on the Drawings.

- F. Finishing:
 - 1. Not required on buried surfaces.
 - 2. No special concrete or cement mortar topping allowed for slab finish.
 - 3. Slabs brought to true and even finish by screeding, floating, and finishing to product a smooth impervious surface, free from blemishes.
 - 4. Unless otherwise specified or shown on the Drawings, a steel trowel finish shall be applied.
 - 5. Excess water shall not be present when the finish is made.

- G. Curing:
 - 1. Cure concrete by approved method which will keep surfaces adequately wet or protected from moisture loss for the curing period.

- H. Repairing Defective Concrete:
 - 1. Repair defects in formed concrete surfaces within 24 hours.
 - 2. Replace defective concrete within 48 hours.
 - 3. Cut out and remove to sound concrete honeycombed or otherwise defective concrete.
 - 4. Cut edges square to avoid feathering.
 - 5. Comply with Chapter 9, ACI 301.
 - 6. Perform repair work so as not to interfere with thorough curing of adjacent concrete.
 - 7. Adequately cure repair work.

3.02 FIELD QUALITY CONTROL

- A. Perform Field Control Test:
 - 1. Tests by qualified personnel.
 - 2. Make tests in presence of Engineer's representative.
 - 3. Provide all equipment, supplies, and the services of one or more employees, as required.
 - 4. The test frequencies specified are minimum; perform additional tests as required by the job conditions.

- B. Slump: Perform a test for each load in accordance with ASTM C143.

- C. Air Content: Test one (1) sample from one of each three (3) batches made and from each batch from which test cylinders are made, in accordance with ASTM C231.

- D. Compression Tests:
 - 1. Make one (1) set of four (4) cylinders from every load or batch or portion thereof.
 - 2. Make, cure, store, and deliver cylinders in accordance with ASTM C31.

3. Mark or tag each set of test cylinders with the date and time of day the cylinders were made, the location in the work where the concrete represented by the cylinders was placed, the delivery truck or batch number, the air content, and the slump.
 4. Testing laboratory will:
 - a. Test one (1) cylinder in each set at 7 days.
 - b. Test two (2) cylinders from each set at 28 days.
 - c. If compressive strength does not reach specified compressive strength at 28 days, test remaining cylinder at 56 days.
 - d. Do not test or discard remaining cylinder until so instructed by the Engineer.
 - e. Engineer will evaluate in accordance with ACI 214 and 318.
 - f. Test in accordance with ASTM C39.
 5. 4" dia. x 8" cylinders may only be used under the following conditions:
 - a. Coarse aggregate size for all mixes used on the project do not exceed 1" maximum size, and
 - b. Test cylinders for all mixes used on the project shall be the same size.
- E. Concrete used solely for blocking of water line valves or fittings will not require testing. It shall, however, be subject to acceptance by the Engineer as to its suitability.

END OF SECTION

SECTION 03 33 00

ARCHITECTURAL CONCRETE INTEGRALLY COLORED

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Special requirements for Architectural cast-in-place concrete including:
 - 1. Integrally colored
 - 2. Patterned and textured

1.02 QUALITY ASSURANCE

- A. Perform work in accordance with ACI 301, ACI 303, ACI 304, ACI 305, ACI 306, and ACI 309.
- B. Obtain materials from same source throughout the Work.
- C. Batch plant shall be able to show a minimum of five years experience in batching concrete. If required they shall furnish a list of similar sized jobs or special condition jobs performed during the last two years.
- D. Single Source Responsibility for Materials: Obtain integral coloring, color hardeners, patina stain, and curing compound materials from one manufacturer.
- E. Field Constructed Mock-Ups:
 - 1. Prepare field samples under provisions of Section SUBMITTALS and coordinate with Cast-in-Place Concrete Section. Locate where directed.
 - 2. Build mock-ups for each color and texture to be used on the project. Size panel to indicate special treatment or finish required. Use specified concrete and additives.
 - 3. Mock-ups shall include the full range of color and texture to be expected in the finished work.
 - 4. Mock-ups shall be approved by the A/E and Owner prior to commencement of the work.
 - 5. Maintain sample panel exposed to view for duration of concrete work. Remove when directed.
 - 6. Completed Work having color and/or texture which falls outside of the range of the approved mock-up shall be subject to rejection.

1.03 APPROVED MANUFACTURERS

- A. "Approved Equal" products may be accepted for use on this project under this section. Products must have the indicated qualities related to type, function,

dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

1. Other manufacturers' products will be accepted, provided sufficient information is submitted to allow the A/E to determine that products proposed as substitutions are equivalent to those named.
2. Contractor must submit a request for substitutions for any product or manufacturer not specifically named within 10 days of the date of Notice to Proceed. Requests for approval will be accompanied by all appropriate submittal data and samples.
3. Proof of product equivalency is the Contractor's responsibility.
4. A/E shall be the sole judge of the acceptability of the proposed product substitution.

- B. Should noncompliance be discovered, the Contractor shall provide the original products listed under this section.

1.04 SUBMITTALS

- A. Submit under provisions of Section SUBMITTALS.
- B. Indicate formwork shop drawings indicating pertinent dimensions, materials, and arrangement of joints, reinforcing, and ties.
- C. Submit product data for tape, gaskets, integral colorant admixtures, form inserts and liners, sealer, release agent, ties, waterstops, construction joints, and joint fillers.
- D. Samples:
1. Submit two, 12" by 18" by 2" thick samples showing required finishes using design mix proposed for finished Work.
 2. Sample approval will be for color, appearance and texture.
- E. Resubmit samples until approved.
- F. Forward two copies of design mixes and cylinder break certifications for each type of concrete to A/E for review at least ten days prior to need.

1.05 REGULATORY REQUIREMENTS

- A. Conform to applicable building code.

1.06 TESTS

- A. Testing, monitoring, and analysis of concrete will be performed under provisions of the General Conditions of the Contract and Cast-in-Place Concrete section.

1.07 COORDINATION

- A. Notify responsible trades of schedules of concrete pours so as to allow adequate time for installation of their work.
- B. Obtain anchor bolts and other miscellaneous steel items to be cast into concrete from material supplier.
- C. Coordinate size and location of mechanical equipment concrete pads with applicable trades.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store and handle materials in accordance with the requirements of DIVISION 1.
- B. Mix and deliver concrete to project ready mixed in accordance with ASTM C94.
- C. Schedule delivery so that continuity of any pour will not be interrupted for over 15 minutes.
- D. Place concrete on site within 90 minutes after proportioning materials at batch plant.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. The design of this project has been based upon products manufactured by Solomon Colors, Inc, Integral Colors for Ready Mix Concrete
- B. Other systems will be considered provided that they fully meet all specification and aesthetic intent and are then approved by the A/E.

2.02 MATERIALS

- A. Cement:
 - 1. ASTM C 150, Type II gray color. Provide white cement as necessary if required to achieve the specific color desired.
 - 2. Use only one brand, type and source of cement for entire Project.
- B. Aggregate:
 - 1. General:
 - a. Provide fine and coarse aggregate for each type finish from one source for entire Project..
 - 2. Fine aggregate: ASTM C33.
 - a. Manufactured sands from coarse aggregate or dust-free, silt-free, salt-free natural sand.

- b. Restrict deleterious reactive materials with alkalis in cement per ASTM C33.
 - c. Provide white sand as necessary if required to achieve the specific color as specified.
 - 3. Coarse aggregate:
 - a. Normal weight aggregate: ASTM C33.
 - C. Water: Clean, and potable containing less than 50 ppm of chlorides.
 - D. Admixtures: Refer to Cast-in-Place Concrete Section, except as modified herein.
 - E. Integral Color: Solomon Colors Dry Pigment Ready Mix.
 - 1. Pure mineral pigments for use in cementitious slump applications.
 - 2. Composition: Natural and synthetic iron oxides
 - 3. Color Range: 25 lbs per two (2) yards of concrete
 - F. Reinforcing Steel bar supports and spacers: Use stainless steel or plastic coated type chairs, bolsters, bar supports, and spacers adjacent to Architectural concrete surfaces, meeting the requirements of CRSI manual of Standard Practice.
 - G. Formwork Materials:
 - 1. Refer to Cast-in-Place Concrete Section.
 - 2. Verify that form release agent will not discolor or otherwise have detrimental effects on Architectural concrete.
 - H. Form Release Agent: Material that will not stain concrete finish and will not have detrimental effects on application of sealants.
 - I. Joint Fillers: Non Asphaltic Joint Fillers: ASTM D1752, Type I.
 - J. Sealants: Two part polyurethane sealants, of grade as required to suit application, meeting ASTM C920, in manufacturer's standard custom colors, and as follows:
 - 1. Urethane NS grade as specified in Section ELASTOMERIC SEALANTS.
 - K. Curing Compound: Meeting ASTM C309, water-based emulsion.
 - L. Sealing and Finish Coatings: See Section PAINTING.
- 2.03 CONCRETE MIX
- A. Refer to Cast-in-Place Concrete Section.

PART 3 EXECUTION

3.01 PREPARATION PRIOR TO PLACING CONCRETE

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Apply bonding agent in accordance with manufacturer's instructions.
- B. At locations where new concrete is doweled to existing work, drill over sized holes in existing concrete, insert steel dowels, and pack solid with non shrink grout.

3.02 PLACING CONCRETE

- A. Refer to Cast-in-Place Concrete Section.

3.03 CONCRETE CURING AND PROTECTION

- A. General: Protect freshly placed formed concrete from premature drying and excessive cold or hot temperatures. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than seven days.
- B. Curing Methods: Perform curing of formed concrete by moist curing, or by moisture retaining cover curing, as herein specified.
- C. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by moisture cover curing method.

3.04 FINISHING OF FORMED ARCHITECTURAL CONCRETE SURFACES

- A. General:
 - 1. Ensure exposed-to-view finish surfaces of concrete are uniform in color and appearance.
 - 2. Treat surfaces in continuous operation to achieve uniform appearance.
 - 3. Do not change equipment, materials, or procedure for surface treatment during Work.
- B. Finish:
 - On exposed to view surfaces, provide final texture as scheduled on the Drawings and to match approved sample

3.05 PATCHING CONCRETE SURFACES

- A. It is the intent of this section to provide for Architectural concrete surfaces of such quality as to require a minimum of pointing and patching.

- B. Methods and extent of patching concrete shall be reviewed with the A/E prior to application.
- C. Exercise care in the forming, mixing and placing of the concrete as to assure reasonably uniform dense surfaces, free from blemishes, voids, or honeycombs.
- D. Repair and patch defective areas with cement mortar and bonding agent mixture immediately after removal of forms, when acceptable to A/E.
 - 1. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush coat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.
 - 2. Blend cement and pigments in such a fashion so that when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar-in-place and strike off slightly higher than surrounding surface.
- E. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of A/E. Surface defects, as such include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar or precast cement cone plugs secured in place with bonding agent.
 - 1. Repair, where possible, concealed formed surfaces that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.
- F. Repair isolated random cracks and single holes not over 1" in diameter by dry pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry pack, consisting of one part Portland cement to 2 1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry pack before bonding compound has dried. Compact dry pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.
- G. Repair methods not specified above may be used (subject to acceptance of A/E).

3.06 DEFECTIVE CONCRETE

- A. Modify or replace (at A/E's option) concrete not conforming to required levels, lines, details, elevations and appearance. Removal and replacement shall not impair the strength or appearance of the structure.
- B. Repair or replace concrete not properly placed with the specified type.

3.07 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of DIVISION 1 and Cast-in-Place Concrete Section.
- B. Maintain records of placed concrete items. Record date, location of pour, quantity, air temperature, and test samples taken.

END OF SECTION

SECTION 04 00 00

UNIT MASONRY

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes the following:
 - 1. Concrete unit masonry.
 - 2. Reinforced unit masonry.
- B. Products furnished but not installed under this Section include the following:
 - 1. Dovetail slots for masonry anchors installed under Division 3 Section "Cast-in-Place Concrete."
- C. Source and field quality-control testing per the Inspection and Testing Division 01 Section.

1.03 PERFORMANCE REQUIREMENTS

- A. Provide unit masonry that develops the following installed compressive strengths (f'm) at 28 days.
 - 1. For Concrete Unit Masonry: As follows, based on net area:
 - a. f'm = 1900 psi (31.1 MPa).

1.04 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each different masonry unit, accessory, and other manufactured product specified.
- C. Shop drawings for reinforcing detailing fabrication, bending, and placement of unit masonry reinforcing bars. Comply with ACI 315 "Details and Detailing of Concrete Reinforcement" showing bar schedules, stirrup spacing, diagrams of bent bars, and arrangement of masonry reinforcement.

- D. Material certificates for the following, signed by manufacturer and Contractor, certifying that each material complies with requirements.
 - 1. Each different cement product required for mortar and grout, including name of manufacturer, brand, type, and weight slips at time of delivery.
 - 2. Each material and grade indicated for reinforcing bars.
 - 3. Each type and size of joint reinforcement.
 - 4. Each type and size of anchors, ties, and metal accessories.

- E. Material test reports from a qualified independent testing agency, employed and paid by Contractor or manufacturer, indicating and interpreting test results relative to compliance of the following proposed masonry materials with requirements indicated:
 - 1. Mortar complying with property requirements of ASTM C 270.
 - 2. Mortar complying with BIA M1.
 - 3. Grout mixes. Include description of type and proportions of grout ingredients.
 - 4. Masonry units.

1.05 QUALITY ASSURANCE

- A. Provide a survey and inspection of foundations for compliance with dimensional tolerances.

- B. Testing Agency Qualifications: To qualify for acceptance, an independent testing agency must demonstrate to Architect's satisfaction, based on evaluation of agency-submitted criteria conforming to ASTM C 1093, that it has the experience and capability to satisfactorily conduct the testing indicated without delaying the Work.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms, under cover, and in a dry location to prevent their deterioration or damage due to moisture, temperature changes, contaminants, corrosion, and other causes. If units become wet, do not install until they are in an air-dried condition.

- B. Store cementitious materials on elevated platforms, under cover, and in a dry location.

- C. Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

- D. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.07 PROJECT CONDITIONS

- A. Protection of Masonry: During erection, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
1. Extend cover a minimum of 24 inches down both sides and hold cover securely in place.
 2. Where one wythe of multiwythe masonry walls is completed in advance of other wythes, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.
- B. Do not apply uniform loads for at least 12 hours and concentrated loads for at least 3 days after building masonry walls or columns.
- C. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
1. Protect base of walls from rain-splashed mud and mortar splatter by coverings spread on ground and over wall surface.
 2. Protect sills, ledges, and projections from mortar droppings.
 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt on completed masonry.
- D. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit masonry damaged by frost or freezing conditions. Comply with the following requirements:
1. Cold-Weather Construction: When the ambient temperature is within the limits indicated, use the following procedures:
 - a. 40 to 32 deg F (4 to 0 deg C): Heat mixing water or sand to produce mortar temperatures between 40 and 120 deg F (4 and 49 deg C).
 - b. 32 to 25 deg F (0 to -4 deg C): Heat mixing water and sand to produce mortar temperatures between 40 and 120 deg F (4 and 49 deg C). Heat grout materials to produce grout temperatures between 40 and 120 deg F (4 and 49 deg C). Maintain mortar and grout above freezing until used in masonry.
 - c. 25 to 20 deg F (-4 to -7 deg C): Heat mixing water and sand to produce mortar temperatures between 40 and 120 deg F (4 and 49 deg C). Heat grout materials to produce grout temperatures between 40 and 120 deg F (4 and 49 deg C). Maintain mortar and grout above freezing until used in masonry. Heat masonry units to 40 deg F (4 deg C) if grouting. Use heat on both sides of walls under construction.

- d. 20 deg F (-7 deg C) and Below: Heat mixing water and sand to produce mortar temperatures between 40 and 120 deg F (4 and 49 deg C). Heat grout materials to produce grout temperatures between 40 and 120 deg F (4 and 49 deg C). Maintain mortar and grout above freezing until used in masonry. Heat masonry units to 40 deg F (4 deg C). Provide enclosures and use heat on both sides of walls under construction to maintain temperatures above 32 deg F (0 deg C) within the enclosures.
 - 2. Cold-Weather Protection: When the mean daily temperature is within the limits indicated, provide the following protection:
 - a. 40 to 25 deg F (4 to -4 deg C): Cover masonry with a weather-resistant membrane for 48 hours after construction.
 - b. 25 to 20 deg F (-4 to -7 deg C): Cover masonry with insulating blankets or provide enclosure and heat for 48 hours after construction to prevent freezing. Install wind breaks when wind velocity exceeds 15 mi./h (25 km/h).
 - c. 20 deg F (-7 deg C) and Below: Provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for 48 hours after construction.
 - 3. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and above and will remain so until masonry has dried out, but not less than 7 days after completion of cleaning.
- E. Hot-Weather Requirements: Protect unit masonry work when temperature and humidity conditions produce excessive evaporation of water from mortar and grout. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 100 deg F (38 deg C) and above.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Concrete Masonry Units:
 - a. Burns & Russell Co.
 - b. Trenwyth Industries, Inc.
 - c. CSR Crego
 - d. Utility Block Company, Inc.
 - 2. Portland Cement, Mortar Cement, Masonry Cement, and Lime:
 - a. Essroc Materials, Inc.
 - b. Glen-Gery Corporation.

- c. Lafarge Corporation.
- d. Lehigh Portland Cement Co.
- e. Riverton Corporation (The).
- 3. Joint Reinforcement, Ties, and Anchors:
 - a. AA Wire Products Co.
 - b. Dur-O-Wal, Inc.
 - c. Heckman Building Products, Inc.
 - d. Hohmann & Barnard, Inc.
 - e. Masonry Reinforcing Corp. of America.
 - f. National Wire Products Industries.
 - g. Southern Construction Products.

2.02 CONCRETE MASONRY UNITS

- A. General: Provide shapes indicated and as follows for each form of concrete masonry unit required.
 - 1. Provide special shapes for lintels, corners, jambs, sash, control joints, headers, bonding, and other special conditions.
 - 2. Provide bullnose units for outside corners, unless otherwise indicated.
 - 3. Provide square-edged units for outside corners, except where indicated as bullnose.
- B. Concrete Masonry Units: ASTM C 90 and as follows:
 - 1. Unit Compressive Strength: Provide units with minimum average net-area compressive strength indicated below:
 - a. 1900 psi (13.1 MPa).
 - 2. Weight Classification: Normal weight.
 - 3. Provide Type I, moisture-controlled units.
 - 4. Color as specified by Architectural Drawings.
 - 5. Size: Manufactured to the actual dimensions listed below (within tolerances specified in the applicable referenced ASTM specification) for the corresponding nominal sizes indicated on Drawings:
 - a. 6 inch (150 mm) nominal: 5-5/8 inch (139 mm) actual.
 - b. 8 inch (200 mm) nominal: 7-5/8 inch (194 mm) actual.
 - c. 12 inch (300 mm) nominal: 11-5/8 inch (296 mm) actual.

2.03 MORTAR AND GROUT MATERIALS

- A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- B. Masonry Cement: ASTM C 91.
- C. Mortar Cement: U.B.C. Standard No. 21-14.

- D. Hydrated Lime: ASTM C 207, Type S.
- E. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207.
- F. Aggregate for Mortar: ASTM C 144; except for joints less than 1/4 inch (6.5 mm), use aggregate graded with 100 percent passing the No. 16 (1.18 mm) sieve.
 - 1. White-Mortar Aggregates: Natural white sand or ground white stone.
- G. Aggregate for Grout: ASTM C 404.
- H. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes. Use only pigments with a record of satisfactory performance in masonry mortars.
- I. Ready-Mixed Mortar: Cementitious materials, water, and aggregate complying with requirements specified in this Article; combined with set-controlling admixtures to produce a ready-mixed mortar complying with ASTM C 1142.
- J. Epoxy Pointing Mortar: ASTM C 395, epoxy-resin-based material formulated for use as pointing mortar for, and approved by manufacturer of, structural clay tile facing units; in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- K. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494, Type C, and recommended by the manufacturer for use in masonry mortar of composition indicated.
- L. Water-Repellent Admixture: Liquid water-repellent mortar admixture intended for use with CMU, containing integral water repellent by same manufacturer.
- M. Water: Potable.
- N. Available Products: Subject to compliance with requirements, products that may be incorporated in the Work include, but are not limited to, the following:
- O. Products: Subject to compliance with requirements, provide one of the following:
 - 1. Cold-Weather Admixture:
 - a. Accelguard 80; Euclid Chemical Co.
 - b. Morset; Grace: W.R. Grace & Co.
 - 2. Water-Repellent Admixture:
 - a. Dry-Block Mortar Admixture; Grace: W.R. Grace & Co.

2.04 REINFORCING STEEL

- A. Steel Reinforcing Bars: Material and grade as follows:
 - 1. Billet steel complying with ASTM A 615.
 - a. Grade 60.
- B. Deformed Reinforcing Wire: ASTM A 496, with ASTM A 153, Class B-2 zinc coating.
- C. Welded-Wire Fabric: ASTM A 185.

2.05 JOINT REINFORCEMENT

- A. General: Provide joint reinforcement formed from the following:
 - 1. Galvanized carbon-steel wire, coating class as follows:
 - a. ASTM A 641, Class 1, for interior walls; and ASTM A 153, Class B-2, for exterior walls.
 - b. ASTM A 153, Class B-2, for both interior and exterior walls.
- B. For single-wythe masonry, provide type as follows with single pair of side rods:
 - 1. Ladder design with perpendicular cross rods spaced not more than 16 inches o.c.
- C. For multiwythe masonry, provide type as follows:
 - 1. Ladder design with perpendicular cross rods spaced not more than 16 inches o.c.

2.06 TIES AND ANCHORS, GENERAL

- A. General: Provide ties and anchors specified in subsequent articles that comply with requirements for metal and size of this Article, unless otherwise indicated.
- B. Wire: As follows:
 - 1. Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating.
 - 2. Galvanized Carbon-Steel Wire: ASTM A 82; with ASTM A 153, Class B-2 coating for wire ties and anchors in exterior walls.
 - a. Wire Diameter: 0.1875 inch.

2.07 MISCELLANEOUS ANCHORS

- A. Unit Type Inserts in Concrete: Cast-iron or malleable-iron inserts of type and size indicated.

- B. Dovetail Slots: Furnish dovetail slots with filler strips, of slot size indicated, fabricated from 0.0336-inch, galvanized steel sheet.
- C. Anchor Bolts: Steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153, Class C; of diameter and length indicated and in the following configurations:
 - 1. Headed bolts.

2.08 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Type 2, Class A, Grade 1; compressible up to 35 percent; of width and thickness indicated; formulated from the following material:
 - 1. Neoprene.
 - 2. Urethane.
 - 3. Polyvinyl chloride.
- B. Preformed Control-Joint Gaskets: Material as indicated below, designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
 - 1. Styrene-Butadiene Rubber Compound: ASTM D 2000, Designation M2AA-805.
 - 2. Polyvinyl Chloride: ASTM D 2287, General Purpose Grade, Type PVC-65406.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).

2.09 MASONRY CLEANERS

- A. Job-Mixed Detergent Solution: Solution of 1/2-cup dry measure tetrasodium polyphosphate and 1/2-cup dry measure laundry detergent dissolved in 1 gal. of water.
- B. Proprietary Acidic Cleaner: Manufacturer's standard-strength, general-purpose cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry surfaces of type indicated below without discoloring or damaging masonry surfaces; expressly approved for intended use by manufacturer of masonry units being cleaned.
 - 1. For masonry not subject to metallic oxidation stains, use formulation consisting of a concentrated blend of surface-acting acids, chelating, and wetting agents.
 - 2. For dark-colored masonry not subject to metallic oxidation stains, use formulation consisting of a liquid blend of surface-acting acids and special inhibitors.
 - 3. For masonry subject to metallic oxidation stains, use formulation consisting of a liquid blend of organic and inorganic acids and special inhibitors.

4. Available Products: Subject to compliance with requirements, products that may be used to clean unit masonry surfaces include, but are not limited to, the following:
5. Products: Subject to compliance with requirements, provide one of the following:
 - a. 202 New Masonry Detergent; Diedrich Technologies, Inc.
 - b. 200 Lime Solv; Diedrich Technologies, Inc.
 - c. 202V Vana-Stop; Diedrich Technologies, Inc.
 - d. Sure Klean No. 600 Detergent; ProSoCo, Inc.
 - e. Sure Klean No. 101 Lime Solvent; ProSoCo., Inc.
 - f. Sure Klean Vana Trol; ProSoCo, Inc.

2.10 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 1. Do not use calcium chloride in mortar or grout.
 2. Add cold-weather admixture (if used) at the same rate for all mortar, regardless of weather conditions, in order to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification, for types of mortar indicated below:
 1. Type: S. – above grade.
- C. Grout for Unit Masonry: Comply with ASTM C 476. Use grout of consistency indicated or, if not otherwise indicated, of consistency (fine or coarse) at time of placement that will completely fill spaces intended to receive grout.
 1. Use fine grout in grout spaces less than 2 inches in horizontal dimension, unless otherwise indicated.
 2. Use coarse grout in grout spaces 2 inches or more in least horizontal dimension, unless otherwise indicated.

2.11 SOURCE QUALITY CONTROL

- A. The Contractor will employ and pay a qualified independent testing agency to perform the following testing for source quality control. Retesting of materials failing to meet specified requirements shall be done at Contractor's expense.
- B. Concrete Masonry Unit Tests: For each type of concrete masonry unit indicated, units will be tested for strength, absorption, and moisture content per ASTM C 140.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of unit masonry. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Examine rough-in and built-in construction to verify actual locations of piping connections prior to installation.

3.02 INSTALLATION, GENERAL

- A. Thickness: Build cavity and composite walls and other masonry construction to the full thickness shown. Build single-wythe walls to the actual thickness of the masonry units, using units of thickness indicated.
- B. Build chases and recesses to accommodate items specified in this and other Sections of the Specifications.
- C. Cut masonry units with motor-driven saws to provide clean, sharp, unchipped edges. Cut units as required to provide continuous pattern and to fit adjoining construction. Use full-size units without cutting, where possible. Allow units cut with water-cooled saws to dry before placing, unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- D. Mix units for exposed unit masonry from several pallets or cubes as they are placed to produce uniform blend of colors and textures.

3.03 CONSTRUCTION TOLERANCES

- A. Variation from Plumb: For vertical lines and surfaces of columns, walls, and arrises, do not exceed 1/4 inch in 10 feet, nor 3/8 inch in 20 feet, nor 1/2 inch in 40 feet or more. For external corners, expansion joints, control joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For vertical alignment of head joints, do not exceed plus or minus 1/4 inch in 10 feet, nor 1/2 inch maximum.
- B. Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines, do not exceed 1/4 inch in 20 feet, nor 1/2 inch in 40 feet or more. For top surface of bearing walls, do not exceed 1/8 inch in 10 feet, nor 1/16 inch within width of a single unit.

- C. Variation of Linear Building Line: For position shown in plan and related portion of columns, walls, and partitions, do not exceed 1/2 inch in 20 feet, nor 3/4 inch in 40 feet or more.
- D. Variation in Cross-Sectional Dimensions: For columns and thickness of walls, from dimensions shown, do not exceed minus 1/4 inch nor plus 1/2 inch.
- E. Variation in Mortar-Joint Thickness: Do not vary from bed-joint thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary bed-joint thickness from bed-joint thickness of adjacent course by more than 1/8 inch. Do not vary from head-joint thickness indicated by more than plus or minus 1/8 inch. Do not vary head-joint thickness from adjacent head-joint thickness by more than 1/8 inch. Do not vary from collar-joint thickness indicated by more than minus 1/4 inch or plus 3/8 inch.

3.04 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint widths and for accurate locating of openings, movement-type joints, returns, and offsets. Avoid the use of less-than-half-size units at corners, jambs, and where possible at other locations.
- B. Lay walls to comply with specified construction tolerances, with courses accurately spaced and coordinated with other construction.
- C. Lay concealed masonry with all units in a wythe in running bond or bonded by lapping not less than 2 inches. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4-inch horizontal face dimensions at corners or jambs.
- D. Stopping and Resuming Work: In each course, rack back 1/2-unit length for one-half running bond or 1/3-unit length for one-third running bond; do not tooth. Clean exposed surfaces of set masonry, wet clay masonry units lightly if required, and remove loose masonry units and mortar prior to laying fresh masonry.
- E. Built-in Work: As construction progresses, build-in items specified under this and other Sections of the Specifications. Fill in solidly with masonry around built-in items.
- F. Fill space between hollow metal frames and masonry solidly with mortar, unless otherwise indicated.
- G. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath in the joint below and rod mortar or grout into core.

- H. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.05 MORTAR BEDDING AND JOINTING

- A. Lay hollow concrete masonry units as follows:
 - 1. With full mortar coverage on horizontal and vertical face shells.
 - 2. Bed webs in mortar in starting course on footings and in all courses of piers, columns, and pilasters, and where adjacent to cells or cavities to be filled with grout.
 - 3. For starting course on footings where cells are not grouted, spread out full mortar bed, including areas under cells.
 - 4. Maintain joint widths indicated, except for minor variations required to maintain bond alignment. If not indicated, lay walls with 3/8-inch joints.
- B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.
 - 1. For glazed masonry units, use a nonmetallic jointer 3/4 inch or more in width.
- C. Cut joints flush for masonry walls that are to receive plaster or other direct-applied finishes (other than paint), unless otherwise indicated.

3.06 HORIZONTAL-JOINT REINFORCEMENT

- A. General: Provide continuous horizontal-joint reinforcement as indicated. Install entire length of longitudinal side rods in mortar with a minimum cover of 5/8 inch on exterior side of walls, 1/2 inch elsewhere. Lap reinforcing a minimum of 6 inches.
 - 1. Space reinforcement not more than 16 inches (406 mm) o.c.
- B. Cut or interrupt joint reinforcement at control and expansion joints, unless otherwise indicated.
- C. Provide continuity at corners and wall intersections by using prefabricated "L" and "T" sections. Cut and bend reinforcement units as directed by manufacturer for continuity at returns, offsets, column fireproofing, pipe enclosures, and other special conditions.

3.07 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joints in unit masonry where indicated. Build-in related items as the masonry progresses. Do not form a continuous span through movement joints unless provisions are made to prevent in-plane restraint of wall or partition movement.

- B. Form control joints in concrete masonry as follows:
 - 1. Fit bond-breaker strips into hollow contour in ends of block units on one side of control joint. Fill the resultant core with grout and rake joints in exposed faces.

3.08 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or if units do not match adjoining units. Install new units to match adjoining units; install in fresh mortar or grout, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point-up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for application of sealants.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears prior to tooling joints.
- D. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 - 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 - 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 - 3. Protect adjacent stone and nonmasonry surfaces from contact with cleaner by covering them with liquid strippable masking agent, polyethylene film, or waterproof masking tape.
 - 4. Wet wall surfaces with water prior to application of cleaners; remove cleaners promptly by rinsing thoroughly with clear water.

END OF SECTION

SECTION 06 41 00

CUSTOM CASEWORK

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Shop fabricated and finished casework.
- B. Casework Includes:
 - 1. Custom Fabricated Decorative Metal Laminated Cabinets
 - 2. Stainless Steel Countertops
 - 3. Plastic Laminated Shelving
 - 4. Hardware and Accessories
 - 5. Shelf and Countertop Supports
 - 6. Coordination with other trades and installation
- C. Related Work:
 - 1. Division 06 Rough Carpentry – Blocking
 - 2. Division 06 Quartz Surfacing

1.02 SUBMITTALS

- A. Shop Drawings:
 - 1. Show casework elevations, plans, cross sections and installation details. Note surface finishes, materials, dimensions, sinks, fittings, hardware, supports and other accessories.
 - 2. Locate equipment for guidance of other trades.
 - 3. Show connections of cases to each other and adjacent work.
 - 4. Propose keying schedule for review and approval by the Owner.
- B. Samples:
 - 1. Laminates shall be selected by the A/E from the standard line offered by Wilsonart, Formica and Chemetal.
 - 2. Contractor shall submit to A/E:
 - a. Standard wood veneer samples and wood finishes from which the A/E will make a selection.
 - b. Catalog cut sheets for cabinet hardware and accessories.
- C. Quality Assurance: Provide AWI Quality Certification Program Certificate indicating that the woodwork, including installation, complies with requirements of grades specified. The Contractor, upon award of work, shall register the work under this section with the AWI Quality Certification Program.

1.03 QUALITY ASSURANCE

- A. Workmanship: Unless otherwise indicated, comply with the AWI's Architectural Woodwork Quality Standards for grades of interior architectural woodwork, construction, finishes and other requirements.
- B. Competence:
 - 1. The approved woodwork manufacturer must have a minimum of three years of documented experience specializing in the Work of this Section, must have a reputation for doing satisfactory work on time, and shall have successfully completed comparable work. The A/E has the right to approve the woodwork manufacturer selected.
 - 2. Installer shall be trained in the methods and skilled in the installation of woodwork.
- C. Standards for Materials:
 - 1. Particleboard: ANSI 208.1
 - 2. Softwood plywood: US Product Standards PS1
 - 3. Hardwood plywood: ANSI-HPVA, Hardwood Plywood and Veneer Association
 - 4. Hardboard: ANSI-AHA 135.484 American Hardboard Association
 - 5. National Electric Manufacturers Association (NEMA): High Pressure Decorative Laminates
 - 6. PVA Adhesive (polyvinyl acetate) white glue, Type III – ASTM-D3110
 - 7. Aliphatic Adhesive (carpenters glue) Type II – ASTM-D3110
 - 8. Solvent based contact cement: MMM-A-J130B
 - 9. ANSI/BHMA A156.9: Cabinet Hardware

1.04 FIELD MEASUREMENTS

- A. Verify dimensions of cabinet, countertop and shelf locations on site.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Protect all surfaces subject to damage while in transit.
- B. Deliver only when building is completely enclosed and heated and wet-type construction is finished.

1.06 ENVIRONMENTAL REQUIREMENTS

- A. During and after installation of Work of this section, maintain same temperature and humidity conditions in building spaces as will occur after occupancy.

1.07 DEFINITIONS

A. Exposed Portions:

1. All surfaces visible when doors and drawers are closed including interiors of open cabinets and interiors of accessible base cabinets including interior faces of retractable doors.
2. Cabinet tops less than 72" above finish floor, or greater than 72" above finish floor if visible from an upper building level, and sloping cabinet tops.
3. Visible edges of cabinet ends, door and drawer fronts.

B. Semi-Exposed Portions:

1. All surfaces visible when doors and drawers are open including interior faces of hinged doors.
2. Interior faces of doors on accessible base cabinets where doors are designed to be removed for accessible use.
3. The underside bottoms of wall hung cabinets.
4. The visible surfaces in open cabinets or behind glass doors.
5. Visible portions of bottoms, tops, and ends in front of sliding doors in closed position.
6. Front and back edges of adjustable shelves.

C. Concealed Portions:

1. Toe space unless otherwise noted.
2. Sleepers
3. Web frames, stretchers.
4. Security panels.
5. Underside of bottoms of cabinets less than 30" above the finished floor.
6. Flat tops of cabinets 72" or more above the finished floor, except if visible from an upper building level.
7. The underside of countertops, knee spaces and drawer aprons.
8. Faces of cabinet ends of adjoining units that butt together.

PART 2 PRODUCTS

2.01 METAL LAMINATED CASEWORK

A. Casework Exposed Portions:

1. Exposed material shall as selected by the A/E.
2. High pressure laminates, laminated with PVA adhesive under 50 PSI pressure, meeting NEMA LD-3 standards.
3. Provide general purpose grade plastic laminate in the following thickness:
 - a. Horizontal Grade .050" = GP50
 - b. Vertical Grade .028" = VG28
 - c. Postforming Grade .042" = PF42
 - d. Cabinet Linear Grade .020" = CL20
 - e. Chemical Resistant Grade .036"

4. Decorative laminate manufacturers include:
 - a. Formica
 - b. Chemetal
 - c. Wilsonart
 - d. Nevamar
- B. Semi-Exposed Portions:
1. Interior faces of cabinet doors, drawer fronts and finished ends are to be laminated with high pressure plastic laminate, color to match cabinet interior.
 2. Interior faces of tops, bottoms, ends, partitions and shelves shall be overlaid with low pressure thermofused melamine.
 3. Semi-exposed materials:
 - a. High pressure plastic laminate at .028" thickness, laminated with PVA adhesive under 50 PSI pressure, meeting NEMA LD-3 standards where indicated above.
 - b. Low pressure thermofused melamine or polyester laminate achieved through self-bonding of the resin under 300 PSI at 320 degrees, meeting ALA standards where indicated above.
 - c. Color shall be consistent throughout semi-exposed surfaces and shall be as selected by the A/E to closely match the shade of cabinet exteriors. Colors from which A/E will select from shall include a minimum of four choices including white, almond, grey and black.
 4. Cabinet backs and drawer bottoms shall have factory applied coating to both faces. Interior face to match cabinet interior color.
 5. Small vertical or horizontal dividers shall be 1/4" thick tempered hardboard where noted on the Drawings.
- C. Concealed Portions, Cores, and Substrates:
1. Concealed materials shall be any species or sound dry solid stock, plywood, particleboard, medium density fiberboard, or a combination thereof.
 2. All materials shall be securely glued with Type II adhesive.
 3. Laminate core material shall be 45 lb density composition premium grade particleboard or AB exterior rotary cut Douglas fir plywood as specified herein.
- D. Visible Edges, Exposed and Semi-Exposed:
1. Exposed edges of cabinet ends, doors and drawer fronts shall be edgebanded with .018" PVC, color to be selected by the A/E or match the existing face color if contrasting edgeband is not specified on the Drawings.
 2. Exposed edges of cabinet shelves, sub-tops, bottoms and partitions shall be edgebanded with .024" PVC to match cabinet interior.
 3. Edges at underside of upper cabinets and drawer parts shall be edgebanded with .024" PVC to match cabinet interior.

2.02 LAMINATED CASEWORK CONSTRUCTION

A. Drawers:

1. Drawer fronts shall be 11/16" thick particle board overlaid with high pressure laminate on both faces equal to 3/4" thickness. Inside color shall match drawer interior.
2. Drawer sides shall be 1/2" thick particle board overlaid with thermofused melamine on two sides to match cabinet interior. Drawer parts shall be joined together with hardwood dowels.
3. Drawer bottoms, subfronts and backs shall be 1/2" particle board, bottoms tongued into backs and sides, glued and clamped to produce a rigid drawer.
4. Drawers shall be mounted with positive "in" and "out" stops to provide permanent and quiet operation. Drawer fronts that impact cabinet body shall not be allowed.
5. All drawers shall have ball bearing slides as specified.
6. Full depth security panel shall be provided between drawers when individual drawer locking is required.

B. Doors:

1. Doors shall be 11/16" thick particle board overlaid with high pressure laminate equal to 3/4" thickness. Inside faces shall match cabinet interior.

C. Cabinet Ends:

1. Exposed or finished ends shall be 11/16" thick particle board overlaid with high pressure laminate on both faces equal to 3/4" thickness. Inside faces shall match cabinet interior.
2. Semi-exposed ends shall be 3/4" particle board overlaid with thermofused melamine on both faces.
3. Ends shall be drilled for adjustable shelf supports with 5mm holes on 1" centers.

D. Cabinet Tops and Bottoms:

1. Semi-exposed ends shall be 3/4" particle board overlaid with thermofused melamine on both faces.
2. Exposed or finished ends shall be 11/16" thick particle board overlaid with high pressure laminate on both faces equal to 3/4" thickness. Inside faces shall match cabinet interior.

E. Fixed and Adjustable Shelves:

1. Shelves shall be designed to support uniform loading of up to 50lb/sf with no more than .080" per lineal foot deflection of unsupported span.
2. Spans up to 31" shall be 3/4" particle board overlaid with thermofused melamine on both faces.
3. Spans over 31" and up to 41" long shall be 1" thick particle board overlaid with thermofused melamine on both faces.

4. Spans over 41" to 48" long shall be 1" plywood core overlaid with thermofused melamine on both faces.
 5. Spans over 48" are not permitted.
 6. Adjustable shelves shall be supported on 4 shelf clips up to 21" deep, and 6 shelf clips at 22" deep and over.
 7. Adjustable shelves for wall-mounted standards shall be 1" thick particle board overlaid with thermofused melamine on both faces and edged banded on all four edges.
- F. Cabinet Backs:
1. Semi-exposed backs shall be ½" particle board with thermofused melamine on exposed faces.
 2. Exposed backs shall be 11/16" thick particle board overlaid with high pressure laminate on both faces equal to ¾" thickness, inside color to match cabinet interior.
- G. Cabinet Bases:
1. Cabinet bases shall be 4" standard height made in continuous lengths to ensure straight, level and true line of casework. Base material is ¾" particle board unless otherwise noted.
- H. Filler Panels:
1. Panels shall be of 11/16" thick particle board overlaid with high pressure laminate on both faces to equal to ¾" thick and be fitted to adjacent surfaces.
 2. Exposed faces shall have laminate matching adjacent cabinets.

2.03 WOOD CASEWORK FOR TRANSPARENT FINISH

- A. Construction shall be for grade Custom in accordance with AWI.
- B. Panel and lumber products for grade custom in accordance with AWI:
1. Exposed panel products: "A" face veneer core particle or plywood where noted.
 2. Blending of panel products across multiple cabinet faces in one elevation: Warehouse stock panels blended for figure and color consistency.
 3. Direction and matching of wood grain on individual cabinet: Continuous vertical figure across doors of individual cabinet. Drawer fronts may be horizontal or vertical.
 4. Exposed solid lumber parts: Grade II, same species as adjacent face veneer on panel product unless otherwise specified.
 5. Semi-exposed parts not including drawer bodies: Thermoset decorative overlay, solid color melamine or Grade II solid lumber, compatible species to exposed.
 6. Concealed Parts: Mill option.
- C. Type of Cabinet Construction: Flush Overlay

- D. Stile and Rail Wood Door and Drawer Fronts and Exposed Panels: Raised Panel Construction
- E. Hardwood Species for Exposed Surfaces:
 - 1. Red Oak
- F. Cut: Plain Sliced
- G. Material Thickness and Joinery:
 - 1. Stile and Rail Cabinet Door and Drawer Fronts: $\frac{3}{4}$ " minimum nominal thickness.
 - 2. Body members:
 - a. $\frac{3}{4}$ " panel product, splined or bisquited, glued under pressure.
 - b. Ends shall be drilled for adjustable shelf supports with 5mm holes on 1" centers.
 - 3. Rails: $\frac{3}{4}$ " Lumber or panel product.
 - 4. Back panels: $\frac{1}{4}$ " panel product, side bound, captured in grooves on cabinet back, glued and pinned.
 - 5. Mounting or hanger strips: $\frac{1}{2}$ " Lumber or panel product.
 - 6. Drawers:
 - a. Sides, backs and subfronts: $\frac{1}{2}$ " lumber or panel product.
 - b. Bottoms: $\frac{1}{4}$ " panel product.
 - c. Drawers shall be mounted with positive "in" and "out" stops to provide permanent and quiet operation.
 - d. Drawer fronts that impact cabinet body shall not be allowed.
 - e. All drawers shall have ball bearing slides as specified.
 - f. Full depth security panel shall be provided between drawers when individual drawer locking is required.
 - 7. Shelves:
 - a. $\frac{3}{4}$ " veneer core plywood for spans up to 36 inches.
 - b. 1" veneer core plywood for spans up to 48 inches.
 - c. Adjustable shelves shall be supported on 4 shelf clips up to 21" deep, and 6 shelf clips at 22" deep and over.
- H. Edge Treatment of Exposed and Semi-Exposed Panel Products:
 - 1. Body Members: $\frac{1}{50}$ " same species as face.
 - 2. Exposed Shelves: $\frac{1}{50}$ " same species as face.
 - 3. Semi-exposed Shelves: $\frac{1}{50}$ " compatible with interior.
 - 4. Door and Drawer Fronts: $\frac{1}{50}$ " same species as face.
- I. Finishing: Mill finish casework in accordance with AWI Division 1500-S-4 Finish System Standards:
 - 1. Sand work smooth, set exposed fasteners, and apply wood filler in exposed indentations.
 - 2. Finish to be water based stain and ultraviolet (UV) cured polyurethane sealer to comply with EPA Title 5 guidelines for Volatile Organic Compounds (VOC) emissions limitations.

3. Finish must meet or exceed performance standards of TR-6 catalyzed polyurethane.
4. Color shall be as selected by the A/E from manufacturer's standard colors.

2.04 COUNTERTOPS

- A. Stainless Steel Countertops:
1. Sheet steel galvanized to 1.2 or 2.0 oz per sq. ft.
 2. Stainless steel Type 304 with #4 satin finish.
 3. Edges shall be bent around and returned 1/2" under substrate.
 4. Solid 3/4" plywood core shall be bonded to the underside of the steel for rigidity and sound deadening.
 5. Backsplashes shall be 3/4" thick and 4" high unless otherwise specified, formed coved to be integral with the deck surface.
 6. Field joints shall be hairline butt joints mechanically bolted through continuous channels welded to underside at edge.

2.05 HARDWARE AND ACCESSORIES

- A. Supply product listed or submit equivalent product as a "substitution" through process outlined in Division 1.
1. Hinges: Concealed Blum Modul 170, typical and Blum Clip where accessible or removable are noted on the Drawings.
 2. Wire Pulls: Doors and Drawers: Amerock 867 Series Brushed Steel.
 3. Catches: Magnetic, Lawrence #SC-1364, or approved 7 lb. pull rating.
 4. Heavy-Duty 12-GA Standards and Shelf Brackets: K&V #87 Standards, K&V #187 Brackets.
 5. Adjustable Shelf Standard and Supports: K&V #255 standards, K&V #256 clips, or series of holes at 1-1/4" maximum with metal shelf clip (6 per shelf) at mill option.
 6. Sliding Door Tracks: Anodized aluminum top and bottom tracks with nylon rollers, K&V #1092.
 7. Under Counter Mount Pencil Drawer Ball Bearing Slides: Accuride 2006
 8. Light to Medium Duty Drawer Slides on Max. 24" Wide Drawers: Accuride 7432 all ball bearing, rail-mount, full-extension slides, 100 lb/pr load rating.
 9. Heavy Duty Drawer Slides on Max. 24" Wide Drawers: Accuride 4032 all ball bearing, rail-mount, full-extension slides, 150 lb/pr load rating.
 10. Heavy Duty Storage Drawer Slides on Max. 30" Wide Drawers: Accuride 3640 all ball bearing, rail-mount, full-extension slides, 200 lb/pr load rating.
 11. Casters: Rubber tires with mechanism that locks both the swivel and the tire rotation, bolted to steel frame or through cabinet bottom.
 12. Countertop Support Brackets: Shall be constructed of 16 ga, 1 1/2" tube steel with welded construction designed to support countertops off finished wall at heights indicated on the drawings, ground smooth, primed.
 - a. 18" x 21" for up to 26" deep countertops.
 - b. 21" x 27" for up to 32" deep countertops.

13. Single Shelf Support Brackets: Shall be constructed of 1/4" flat bar with 1/4" wire rod gusset, welded construction designed to support up to 15" deep shelf, ground smooth, primed.
14. Wire Grommets: Provide with removable and adjustable caps in color selected by the Architect from manufacturer's standard color selection, 2 3/8" diameter, Hafele #429.99-60mm.
15. National Disc Tumbler Door and Drawer Lock, Surface Mounted, Dead bolt-type where indicated on the Drawings. Finish shall match door and drawer pulls.

B. Accessories:

1. Adhesive for High Pressure Decorative Laminates: Type recommended by laminate manufacturer to suit application.
2. Veneer Edge Band: Standard wood veneer edge band matching face veneer.
3. Fasteners: Size and type to suit application.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify adequacy of backing and support framing.
- B. Verify location and sizes of utility rough-in associated with work of this section.

3.02 INSTALLATION

A. General:

1. All components shall be neatly assembled and clamped together with adhesive, dowels, screws and other fasteners to form a complete system.
2. All casework shall be installed in accordance with AWI Custom Grade Quality Standards.

B. Attachment:

1. Set casework accurately in place, level, scribe, and secure to floor or walls.
2. Primary anchorage of base and wall cabinets shall be through the 1/2" thick cabinet backs into the wall framing or blocking furnished under other sections.
3. Additional anchorage will be made into cabinet bases and adjacent side walls where they occur.
4. All installations shall be in strict accordance with seismic codes.
5. At free-standing countertops and work surfaces, steel support brackets shall be provided at a maximum spacing of 32" oc or less if shown on the drawings. Support brackets shall be designed to allow for knee space clearance and attach to wall framing for support.

C. Workmanship:

1. Erect casework straight, level, plumb and true.

2. Neatly scribe casework to walls, soffits and columns. Fillers to color match adjacent surfaces and will not be permitted in excess of 1 ½” wide unless specified otherwise.
3. Joints are not permitted in continuous countertops. Joints, where approved, are to be tight, in perfect alignment, and not allowing excessive deflection.

D. Coordination:

1. Provide cutting and fitting as necessary to accommodate mechanical and electrical work built into casework units.
2. Provide alterations to casework to keep devices accessible when they are covered by casework. This includes mechanical and electrical switches, receptacles, panels, access doors and other devices.

3.03 CLEAN AND ADJUST

- A. Install items complete with all accessories.
- B. Adjust moving parts to operate properly.
- C. Leave surfaces clean and free from debris at time of final acceptance.

3.04 SCHEDULE

- A. Metal laminate for cabinets shall be Chemetal 601 Deep Bronze Aluminum or similar dark matte finish approved by the A/E

END OF SECTION

SECTION 06 61 19

QUARTZ SURFACING

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following quartz surfacing fabrication types:
 - 1. Countertops with undermount sinks and waterfall edge.
- B. Related Sections include the following:
 - 1. Section 07 92 00 - Joint Sealers: Sealers between quartz surfacing and work of other Sections which are not specified in this Section
 - 2. Section 09 22 00 Gypsum Board Assemblies: Provide framing and blocking to support quartz surfacing within specified tolerances and in accordance with manufacturer's instructions.
 - 3. Division 22 Section "Plumbing Fixtures."

1.02 SUBMITTALS

- A. Product Data:
 - 1. Quartz Surfacing: Submit manufacturer's product data, sample warranty form, and fabrication and installation instructions.
 - 2. Accessories: Submit manufacturer's product data and installation instructions.
- B. Shop Drawings:
 - 1. Show field-verified dimensions, quartz surfacing dimensions, locations and dimensions of cutouts, required locations of support and blocking members, edge profiles, seam locations and installation details and methods. Identify colors and finishes.
- C. Samples:
 - 1. Provide Samples for Color Approval: Submit two samples 4x4 inches of each color and finish selected.
 - 2. Submit samples of an adhesive joint for color quartz surfacing selected. Show color match of adhesive.
- D. Maintenance data: Submit manufacturer's care and maintenance data. Maintenance kit for finishes shall be submitted. Include in project closeout documents.
- E. Fabricator Qualifications: Submit evidence of fabricator's qualifications. Closeout Submittals:
- F. Submit completed warranty form.

1.03 REFERENCES

A. ASTM International:

1. ASTM C97 – Absorption and Bulk Specific Gravity of Dimension Stone.
2. ASTM C99 – Modulus of Rupture of Dimension Stone.
3. ASTM C170 – Compressive Strength of Dimension Stone.
4. ASTM C217 – Weather Resistance of Slate.
5. ASTM C482 – Bond Strength of Ceramic Tile to Portland Cement.
6. ASTM C484 – Thermal Shock Resistance of Glazed Ceramic Tile.
7. ASTM C501 – Relative Resistance to Wear of Unglazed Ceramic Tile by the Taber Abraser.
8. ASTM C531 – Linear Shrinkage and Coefficient of Thermal Expansion of Chemical-Resistant Mortars, Grouts, Monolithic Surfacing, and Polymer Concretes.
9. ASTM C880 – Flexural Strength of Dimension Stone.
10. ASTM C1028 – Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method.
11. ASTM D256 – Izod Pendulum Impact Resistance of Plastics.
12. ASTM D2047 – Static Coefficient of Friction of Polish-Coated Floor Surfaces by the James Machine.
13. ASTM D2299 – Relative Stain Resistance of Plastics.
14. ASTM E84 – Surface Burning Characteristics of Building Materials.

B. NSF/ANSI Standard 2: Food Service Equipment:

1. Fabricated food equipment: Kitchen, bakery, pantry and cafeteria units, and other food handling and processing equipment including tables and components, counters, shelves, sinks, hoods, etc

1.04 QUALITY ASSURANCE

A. Qualifications:

1. Shop that employs skilled workers who custom fabricate products similar to those required for this project and whose products have a record of successful in-service performance.

B. Fabricator/installer Qualifications:

1. Work of this section shall be by a certified fabricator/installer, certified in writing by the manufacturer.

C. Allowable Tolerances:

1. Variation in component size: $\pm 1/8$ " (3 mm) over a 10' length.
2. Location of openings: $\pm 1/8$ " (3 mm) from indicated location. Maximum $1/8$ " (3 mm) clearance between quartz surfaces and each wall.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Packaging, Shipping, Handling, and Unloading:
 - 1. Observe manufacturer's recommendations and handle in manner to prevent breakage or damage. Brace parts if necessary.
 - 2. Transport in the near-vertical position with finished face toward finished face.
 - 3. Do not allow finished surfaces to rub during shipping or handling.
- B. Storage and Protection:
 - 1. Store in racks in near-vertical position. Prevent warpage and breakage. Store inside away from direct exposure to sun.
 - 2. Store between 25 and 130 °F (- 4 and 54 °C). Store with finished face toward finished face.

1.06 WARRANTY

- A. Provide manufacturer's 10-year warranty against defects in materials. Warranty shall provide material to repair or replace defective materials.
 - 1. Damage caused by physical or chemical abuse or damage from excessive heat will not be warranted

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. CaesarStone Quartz Surfaces
- B. Cambria Quartz Surfaces
- C. ONE Quartz Surfacing distributed by Daltile
- D. Silestone Quartz Surfaces
- E. Viatera Quartz Surfaces by LG HAUSYS AMERICA, INC
- F. Zodiaq Quartz Surfaces by DuPont

2.02 MATERIALS

- A. Homogeneous Quartz Surfaces Material:
 - 1. Composition: Quartz surface shall be composed of 93 % premium grade pure quartz and 7% high quality polyester resin
 - 2. Size: Slabs shall be not less than 5 x 120 inches to minimize number of joints in installation.
 - 3. Identification: Material shall be labeled with batch number and imprinted on back with manufacturer's identifying mark.

4. Thickness:
 - a. 3/4" thick at vertical applications.
 - b. 1-1/4" thick at horizontal applications.

- B. Performance:
 1. Breaking Strength: 1,207 lbs.
 2. Moisture Absorption: 0.01 – 0.03%; ASTM C97.
 3. DCOF < 0.42 per ASTM A137.1-2012,

- C. Colors and Finish:
 1. Color: To be selected from manufacturer's available "Black" finishes.
 2. Finish: Honed
 3. Edge Details: Waterfall as shown on the drawings
 4. Backsplash where shown on the drawings
 - a. Edges: To match counter edge profile

2.03 ACCESSORIES/MIXES

- A. Manufacturer's approved bowl clips, brass inserts and fasteners for attachment of undermount sinks/bowls

- B. Mounting Adhesives: Provide structural-grade silicone or epoxy adhesives of type recommended by manufacturer for application and conditions of use.
 1. Acceptable Silicone Manufactures:
 - a. Dow Corning.
 - b. GE Sealants and Adhesives.
 2. Acceptable Epoxy Manufacturers:
 - a. Akemi North America.
 - b. Bonstone Material Corporation.
 - c. Tenax USA.
 3. Provide spacers, if required, of type recommended by adhesive manufacturer.

- C. Stone Adhesive: Provide epoxy or polyester adhesive of type recommend by manufacturer for application and conditions of use.
 1. Acceptable Manufacturers:
 - a. Akemi North America.
 - b. Bonstone Material Corporation.
 - c. Tenax USA.
 2. Color: Adhesive which will be visible in finished work shall be tinted to match quartz surfacing.

- D. Joint Sealants: Clear silicone sealant of type recommended by manufacturer for application and conditions of use. Provide anti-bacterial type in toilet rooms, bar areas and food preparation areas
 1. Acceptable Manufactures:
 - a. Dow Corning.
 - b. GE Sealants and Adhesives

E. Solvent: Product recommended by adhesive manufacturer to clean surface of quartz surfacing to assure adhesion of adhesives and sealants.

F. Cleaning Agents: Non-abrasive, soft-scrub type

2.04 FABRICATION

A. Include manufacturer authorization if manufacturer's warranty is specified.

B. Fabricator: Firm shall have five years experience fabricating architectural stone and shall have water-cooled cutting tools. Firm shall be authorized in writing by manufacturer.

C. Shop Assembly: Observe proper safety procedures and comply with manufacturer's instructions.

D. Layout: Layout joints to minimize joints and to avoid L-shaped pieces of quartz surfacing.

E. Inspect Material:

1. Inspect material for defects prior to fabrication.

F. Color Match:

1. Materials throughout Project shall be from the same batch and shall bear labels with same batch number.

2. Visually inspect materials to be used for adjacent pieces to assure acceptable color match. Inspect in lighting conditions similar to those on Project.

3. Variation in distribution of aggregates in quartz surfacing which are within manufacturer's tolerances is not a defect.

G. Tools: Cut and polish with water-cooled power tools.

H. Cutouts:

1. Cutouts shall have 3/8 inches minimum inside corner radius. Inside corners shall be reinforced in an acceptable manner to prevent cracking.

2. Where edges of cutout will be exposed in finished work, polish edges.

3. If the remaining material outside a cutout is less than three inches wide, reinforce area by laminating it with a strip of quartz surfacing.

I. Laminations: Laminate layers of quartz surfacing as required to create built-up edges, trim, and other areas requiring additional thickness.

PART 3 EXECUTION

3.01 ACCEPTABLE INSTALLER

A. Installer: Firm shall have five years experience installing architectural stone.

3.02 EXAMINATION

A. Site Verification:

1. Verify dimensions by field measurements prior to fabrication.
2. Verify that substrates supporting quartz surfaces are plumb, level, and flat to within 1/16 inch in ten feet and that necessary supports and blocking are in place.
3. Base Cabinets: Cabinet units shall be securely fixed to adjoining units and back wall. Inspect finished surfaces for damage. Do not install until damage materials have been repaired in an acceptable manner or replaced.

3.03 PREPARATION

- #### A. Protect finished surfaces against scratches. Apply masking where necessary. Guard against grit, dust, and other trades.

3.04 INSTALLATION

- #### A. Install materials in accordance to manufacturer's recommendations. Lift and place to avoid breakage.

B. Preliminary Installation and Adjustment:

1. Position materials to verify that materials are correctly sized and prepared. Make necessary adjustments.
2. If jobsite cutting, grinding, or polishing is required, use water-cooled tools. Protect jobsite and surfaces against dust and water. Perform work away from installation site if possible.
3. Countertops: Allow gaps for expansion of not less than 1/16 inch per five feet when installed between walls or other fixed conditions.
4. Drainage: Adjacent to sinks and where drainage is required, shim countertops slightly to insure positive drainage.

C. Permanent Installation:

1. After verifying fit, remove quartz surfacing from position, clean substrates of dust and contamination, and clean quartz surfacing back side and joints with solvent.
2. Apply sufficient quantity of mounting adhesive in accordance with adhesive manufacturer's recommendations to provide permanent, secure installation.
3. Install surfacing plumb, level, and square and flat to within 1/16 inch in ten feet

D. Joints:

1. Joints Between Adjacent Pieces of Quartz Surfacing:
 - a. Joints shall be flush, tight fitting, level, and neat. Securely join with stone adhesive. Fill joints level with quartz surfacing.
 - b. Clamp or brace quartz surfacing in position until adhesive sets.
 - c. Joints between Backsplashes and Countertops: Seal joints with silicone sealer.

3.05 REPAIR

- A. Repair or replace damaged materials in a satisfactory manner.

3.06 CLEANING

- A. Remove masking and excess adhesives and sealants. Clean exposed surfaces.

3.07 PROTECTION

- A. Protect surfacing from damage by other Sections. Replace damaged work.

3.08 SCHEDULE

- A.

END OF SECTION

SECTION 07 11 13

DAMPPROOFING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Cold applied water based emulsified asphalt dampproofing for exterior below grade foundations.
- B. Related Sections:
 - 1. Division 3 – Cast-in-Place Concrete
 - 2. Division 7 – Perimeter Insulation

1.02 SYSTEM DESCRIPTION

- A. Performance Requirements: Provide material complying with the following requirements:
 - 1. Nonflammable
 - 2. VOC Content:
 - a. 0.25 pounds per gallon (30 g/L) less water and exempt solvents.
 - 3. Service Temperature Range:
 - a. Minus 40 degrees F to 150 degrees F.
 - 4. Compliance:
 - a. Brush, roller and spray applied short fiber reinforced complying with ASTM D1227, Type 2, Class I, and ASTM D1187, Type 1.

1.03 SUBMITTALS

- A. Comply with Section 01 33 00.
- B. Product Data: Submit manufacturer's technical bulletins and MSDS on each product.
- C. Quality Control Submittals:
 - 1. Provide protection plan of surrounding areas and surfaces not to receive dampproofing.

1.04 QUALITY ASSURANCE

- A. Comply with Section 01 43 00.
- B. Qualifications:
 - 1. Manufacturer Qualifications: Company with minimum 15 years of experience in manufacturing of specified products and systems.

2. Applicator Qualifications: Company with minimum of 5 years experience in application of specified products and systems on projects of similar size and scope, and is acceptable to product manufacturer.
 - a. Successful completion of a minimum of 5 projects of similar size and complexity to specified Work.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section 01 60 00.
- B. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- C. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels intact.
- D. Store tightly sealed materials off ground and away from moisture, direct sunlight, extreme heat, and freezing temperatures.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements:
 1. Keep from freezing in the container.
 2. Do not apply at temperatures below 40 degrees F or when temperatures are expected to fall to 40 degrees F within 24 hours.
 3. Protect from rain until coating has set.
 4. Application shall be protected or covered within 7 days of application.
 5. Do not expose to long-term UV.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Subject to compliance with requirements, provide products from the following manufacturer:
 1. Dampproofing: BASF Building Systems
 2. Extruded Polystyrene Protection Board:
 - a. Dow Chemical Company
 - b. Pactive GreengardA PB4
- B. Substitutions: Comply with Section 01 60 00.
- C. Specifications and Drawings are based on manufacturer's proprietary literature from BASF Building Systems. Other manufacturers shall comply with minimum levels of material, color selection, and detailing indicated in Specifications or on Drawings. Architect will be sole judge of appropriateness of substitutions.

2.02 MATERIALS

- A. Cold Applied Water Based Emulsified Asphalt:
 - 1. Short-fiber Fibrated Product: Hydrocide 700B by BASF Building Systems.
- B. Extruded Polystyrene Protection Board: Fan-folded
 - 1. Thickness - 1/4"
 - 2. ASTM D1621- Minimum compressive strength 8 psi.
 - 3. ASTM C272 - Maximum 0.6 % water absorption % by volume.
 - 4. ASTM E96 – Maximum water vapor transmission rate 0.8 g/m/24hrs.
 - 5. ASTM E84 – Fire Characteristics – 25 Flame Spread/250 Smoke Developed.
- C. Chemical Cleaner: Reducer 990 by BASF Building Systems.

PART 3 EXECUTION

3.01 SURFACE PREPARATION

- A. Protect adjacent Work areas and finish surfaces from damage during damproofing application.
- B. Surface should be free of oil, grease, dirt, laitance, and loose material. Dry surfaces shall be dampened with water and kept damp until application.

3.02 APPLICATION

- A. Exterior Surfaces Below Grade—Dense Surfaces:
 - 1. Apply short fiber fibrated material in 2 coats by brush or spray.
 - 2. Fill in crevices and grooves, providing continuous coating and free from breaks and pinholes. Carry coating over exposed top and outside edge of footing. Spread around joints, grooves, and slots, and into chases, corners, reveals, and soffits. Bring coating to finished grade.
 - 3. Install Waterproofing Protection Board after applying the waterproofing membrane to exterior foundation walls to prevent damage from backfilling.
 - 4. Place backfill at least 24 to 48 hours after application, but within 7 days. Do not rupture or displace coating or protection board.
- B. Exterior Surfaces Below Grade—Porous Surfaces:
 - 1. Apply short fiber fibrated material in 2 coats by brush and spray. Allow first coat to dry tacky before applying second coat. Allow material to set before backfilling.
 - 2. Fill in crevices and grooves, providing continuous coating free from breaks and pinholes. Carry coating over exposed top and outside edge of footing. Spread around joints, grooves, and slots, and into chases, corners, reveals, and soffits. Bring coating to finished grade.
 - 3. Install Waterproofing Protection Board after applying the waterproofing membrane to exterior foundation walls to prevent damage when backfilling.

4. Place backfill at least 24 to 48 hours after application, but within 7 days. Do not rupture or displace coating or protection board.

3.03 CLEANING

- A. Clean tools and equipment immediately with hot, soapy water. Cured material can be removed with solvent.
- B. Clean up and properly dispose of debris remaining on Project site related to application.
- C. Remove temporary coverings and protection from adjacent Work areas.

3.04 PROTECTION

- A. Protect application from damage during construction.

END OF SECTION

SECTION 07 20 00

INSULATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This section specifies thermal and acoustical insulation for buildings:
 - 1. Acoustical insulation is identified by thickness and words "Acoustical Insulation or Sound Attenuation Batts".
- B. Related Sections:
 - 1. Division 3 - Concrete

1.02 REFERENCES

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C553 Mineral Fiber Blanket Thermal Insulation for Commercial and Industrial Applications
 - 2. ASTM C578 Rigid, Cellular Polystyrene Thermal Insulation
 - 3. ASTM C591 Unfaced Preformed Rigid Cellular Polyisocyanurate Thermal Insulation
 - 4. ASTM C612 Mineral Fiber Block and Board Thermal Insulation
 - 5. ASTM C665 .Mineral Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
 - 6. ASTM C1029 - Standard Specification for Spray-Applied Rigid Cellular Polyurethane Thermal Insulation.
 - 7. ASTM E84, Surface Burning Characteristics of Building Materials
 - 8. ASTM E970 - Standard Test Method for Critical Radiant Flux of Exposed Attic Floor Insulation Using a Radiant Heat Energy Source.

1.03 SUBMITTALS

- A. Product Data for each type of insulation used.
- B. Manufacturer's Installation Instructions.
- C. Certificates: Stating the type, thickness and "R" value (thermal resistance) of the insulation to be installed.

1.04 QUALITY ASSURANCE

- A. Insulation Installed in Concealed Locations Surface Burning Characteristics:
 - 1. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
 - 2. Where such materials are installed in Construction Type III, Type IV, and Type V, the flame spread and smoke developed limitations do not apply to facings that are installed behind and in substantial contact with the unexposed surface of the ceiling wall or floor finish.
- B. Insulation Installed in Exposed Locations Surface Burning Characteristics:
 - 1. Maximum 25/450 flame spread/smoke developed index when tested in accordance with ASTM E84.
 - 2. Attic Floor Insulation (directly above ceiling): Minimum 0.12 watt per sq cm critical radiant flux when tested in accordance with ASTM E970.

1.05 STORAGE AND HANDLING

- A. Store insulation materials in weathertight enclosure.
- B. Protect insulation from damage from handling, weather and construction operations before, during, and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Dow Chemical Co.
- B. Firestone Building Products
- C. GAF Materials Corporation
- D. Owens Corning
- E. Sound Proof Cow
- F. Approved Equal

2.02 MATERIALS

- A. Where thermal resistance (“R” value) is specified or shown for insulation, the thickness shown on the drawings is nominal. Use only insulation with actual thickness that is not less than that required to provide the thermal resistance specified.
 - 1. Where “R” value is not specified for insulation, use the thickness shown on the Drawings.

- B. Rigid Insulation for wall furring, perimeter/foundation, and sheathing applications:
 - 1. Type IV: Extruded cellular polystyrene; thermal resistance “R” per inch of 5.0; minimum compressive strength of 25 psi; water absorption by volume in accordance with ASTM C272, 0.10 percent; square edges; thickness indicated on Drawings.
 - 2. Adhesive: Type recommended by insulation manufacturer for application.

- C. Interior Acoustical Insulation/Sound Attenuation Batts: Quiet Batt 30 or similar formaldehyde-free, high-performance sound-proofing insulation manufactured with 80% natural cotton fibers
 - 1. Flammability Rating: Class A
 - 2. Thickness: 3 in.
 - 3. Density: 1.2 lbs/sf
 - 4. NRC Rating: 0.95
 - 5. Thermal Resistance: R 13

- D. Accessories:
 - 1. Expanding Insulating Foam Sealant for filling gaps around sealing around windows and doors.
 - 2. Nails or Staples: Steel wire, electroplated or galvanized; type and size to suit application.
 - 3. Tape: As recommended by insulation manufacturer.
 - 4. Fasteners:
 - a. Staples or Nails: ASTM F1667, zinc-coated, size and type best suited for purpose.
 - b. Screws: ASTM C954 or C1002, size and length best suited for purpose with washer not less than 50 mm (two inches) in diameter.
 - c. Impaling Pins: Steel pins with head not less than 50 mm (two inches) in diameter with adhesive for anchorage to substrate. Provide impaling pins of length to extend beyond insulation and retain cap washer when washer is placed on the pin.
 - d. As recommended by the manufacturer of the insulation.
 - 5. Wire Mesh (for applications of batt insulation greater than 6-1/2” thick): Galvanized steel hexagonal wire mesh.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Preparation for Perimeter Insulation:
 - 1. Verify substrate and adjacent materials and insulation boards are dry and ready to receive insulation and adhesive.
 - 2. Verify substrate surface is flat, free of irregularities and materials that will impede adhesive bond.
 - 3. Verify insulation boards are unbroken, free of damage.

B. Perimeter Insulation:

1. Install in full conformance with manufacturer's instructions and recommendations.
2. Where insulation is to be installed on exterior face of foundation wall, install insulation boards over dampproofing or waterproofing specified in other sections.
3. Where insulation is to be installed on interior face of foundation wall, install vapor barrier between soil and insulation.
4. Install boards on foundation wall in a method to maximize contact bedding; stagger joints. Butt edges and ends tight to adjacent board and to protrusions. Assure full contact of tongue and groove edges.
5. Install rigid insulating units with joints close and flush, in regular courses and with cross joints broken.
6. Where insulation is installed on exterior face of foundation wall, adhere protection boards immediately following insulation board installation.

C. Exterior Framing or Furring Thermal Batt Insulation:

1. Install separate vapor/air barrier on warm side of insulation when noted on the Drawings.
2. Install faced insulation with the vapor retarder facing the heated side, unless specified otherwise. Tape seal tears or cuts in vapor retarder. Extend vapor retarder tight to full perimeter of adjacent window and door frames and other items interrupting plane of membrane. Tape seal in place.
3. Install batt or blanket insulation in exterior walls, roof, and ceiling spaces from wall-to-wall without gaps or voids with tight joints and filling framing void.
4. Pack or install foam insulation around door frames and windows and in building expansion joints, door soffits and other voids. Pack or install foam behind outlets around pipes, ducts, and services encased in walls. Open voids are not permitted. Hold insulation in place with pressure sensitive tape.
5. Lap vapor retarder flanges together over face of framing for continuous surface. Seal all penetrations through the insulation.
6. Fasten blanket insulation between metal studs or framing and exterior wall furring by continuous pressure sensitive tape along flanged edges.
7. Fasten blanket insulation between wood studs or framing with nails or staples through flanged edges on face of stud. Space fastenings not more than six inches apart.
8. Roof Rafter Insulation: Place mineral fiber blankets between framing to provide not less than a two inch air space between insulation and roof sheathing.
9. Ceiling Insulation and Soffit Insulation:
 - a. Fasten blanket insulation between wood framing or joists with nails or staples through flanged edges of insulation.
 - b. At metal framing or ceilings suspension systems, install blanket insulation above suspended ceilings or metal framing at right angles to the main

runners or framing. Tape insulation tightly together so no gaps occur and metal framing members are covered by insulation.

- c. In areas where suspended ceilings adjoin areas without suspended ceilings, install blankets, batts, or mineral fiberboard extending from the suspended ceiling to underside of deck or slab above. Secure in place to prevent collapse or separation of hung blanket, batt, or board insulation and maintain in vertical position.
- d. Retain roof batt insulation in place with wire mesh secured to framing members. Tape seal tears or cuts in barrier.

D. Acoustical Insulation:

1. Fasten blanket insulation between metal studs and wall furring with continuous pressure sensitive tape along edges or adhesive.
2. Pack insulation around door frames and windows and in cracks, expansion joints, control joints, door soffits and other voids. Pack behind outlets, around pipes, ducts, and services encased in wall or partition.
3. Hold insulation in place with pressure sensitive tape or adhesive. Do not compress insulation below required thickness except where embedded items prevent required thickness.
4. Where acoustical insulation is installed above suspended ceilings, install blanket at right angles to the main runners or framing. Extend insulation over wall insulation systems not extending to structure above.

END OF SECTION

SECTION 07 92 00

ELASTOMERIC SEALANTS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide elastomeric joint sealants, joint fillers and joint backer materials for complete and durable seal at all locations scheduled and as indicated on the Drawings.

1.02 RELATED WORK

- A. Included Elsewhere to be Performed in Compliance with this Section:
 - 1. Division 03: Concrete
 - 2. Division 04: Masonry
 - 3. Division 05: Metals
 - 4. Division 06 Wood, Plastics and Composites
 - 5. Division 07: Thermal and Moisture Protection
 - 6. Division 08: Openings
 - 7. Division 09: Finishes
 - 8. Division 10: Specialties
 - 9. Division 22: Plumbing
 - 10. Division 23: Heating, Ventilating and Air-Conditioning
 - 11. Division 26: Electrical
 - 12. Division 32: Exterior Improvements
- B. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, and Sections in Division 1 of these Specifications.

1.03 REFERENCES

- A. ASTM C 321 - Standard Test Method for Bond Strength of Chemical-Resistant Mortars.
- B. ASTM C 834 - Standard Specification for Latex Sealants.
- C. ASTM C 882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.
- D. ASTM C 919 - Standard Practice for Use of Sealants in Acoustical Applications.
- E. ASTM C 920 - Standard Specification for Elastomeric Joint Sealants.
- F. ASTM C 1330 - Standard Specification for Cylindrical Sealant Backing for Use with Cold Liquid Applied Sealants.

- G. FS (Federal Specification) TT-S-00227E (COM-NBS) - Interim Federal Specification for Sealing Compound: Elastomeric Type, Multi-Component (for Caulking, Sealing, and Glazing in Buildings and Other Structures).
- H. FS (Federal Specification) TT-S-00230C - Interim Federal Specification for Sealing Compound: Elastomeric Type, Single Component (for Caulking, Sealing, and Glazing in Buildings and Other Structures).
- I. FS (Federal Specification) TT-S-001543 (COM-NBS) - Interim Federal Specification for Sealing Compound: Silicone Rubber Base (for Caulking, Sealing, and Glazing in Buildings and Other Structures).

1.04 SUBMITTALS

- A. Comply with pertinent provisions of SUBMITTALS SECTION.
- B. Product Data: Materials list of items proposed to be provided under this Section.
- C. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
- D. Shop Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades.
- E. Manufacturer's current recommended installation procedures which, when reviewed by Engineer/Architect, will become the basis for accepting or rejecting actual installation procedures used on the Work.
- F. Color Charts of Sealants: Colors shall be selected by the Architect/Engineer from the range of manufacturer's standard colors.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company regularly engaged in manufacturing and marketing of products specified in this section.
- B. Applicator Qualifications:
 - 1. Applicator shall have at least three years experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity.
- C. Single Source Responsibility for Joint Sealants:
 - 1. Obtain joint sealants from single manufacturer for each different product required to ensure compatibility.
 - 2. Manufacturer shall instruct applicator in procedures for intersecting sealants.
- D. Perform work in accord with ASTM C-1193 guidelines except where more stringent requirements are indicated or specified.

- E. Schedule applications of waterproofing, water repellents and preservative finishes after sealant installation unless sealant manufacturer approves otherwise in writing. Cure installed sealant sufficiently prior to subsequent applications.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original factory packaging bearing identification of product, manufacturer, and batch number. Provide Material Safety Data Sheets for each product.
- B. Store products in a location protected from freezing, damage, construction activity, precipitation, and direct sunlight in strict accordance with manufacturer's recommendations.
- C. Condition products to approximately 60 to 70 degrees F (16 to 21 degrees C) for use in accordance with manufacturer's recommendations.
- D. Handle all products with appropriate precautions and care as stated on Material Safety Data Sheet.

1.07 SUBSTRATE CONDITIONS

- A. General:
 - 1. Provide joints properly dimensioned to receive the approved sealant system.
 - 2. Provide joint surfaces that are clean, dry, sound and free of voids, deformations, protrusions and contaminants that may inhibit application or performance of the joint sealant.
 - 3. Provide a reservoir to accept sealant at expansion joints with preformed joint fillers.

1.08 PROJECT CONDITIONS

- A. Do not use products under conditions of precipitation or freezing weather. Use appropriate measures for protection and supplementary heating to ensure proper curing conditions in accordance with manufacturer's recommendations if application during inclement weather occurs.
- B. Ensure substrate is dry.
- C. Protect adjacent work from contamination due to mixing, handling, and application of flexible epoxy joint filler.

1.09 WARRANTY

- A. Deliver to the Engineer/Architect signed copies of the following written warranties against adhesive and cohesive failure of the sealant and against infiltration of water and air through the sealed joint for a period of 3 years from date of completion.
 - 1. Manufacturer's standard warranty covering sealant materials.

2. Applicator's standard warranty covering workmanship.
3. Defective work shall include, but not be restricted to, joint leakage, cracking, crumbling, melting, running, loss of adhesion, loss of cohesion, or staining of adjoining or adjacent work or surfaces.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers may be from those listed or an A/E approved equal:
 1. Sonneborn(R) Building Products, ChemRex, Inc.
 2. General Electric
 3. Dow Corning
 4. Pecora
 5. Tremco, Inc.
 6. A/E approved equal
- B. Compatibility:
 1. Provide joint sealants, joint fillers and accessory joint materials that are compatible with one another and with joint substrates under project conditions.
 2. Install joint sealants, joint fillers and related joint materials that are nonstaining to visible joint surfaces and surrounding substrate surfaces.

2.02 MATERIALS

- A. Sealant Type A: Low-modulus, non-sag sealant; comply with ASTM C920, TT-S-00230C, Grade NS, Class 25. Acceptable sealants:
 1. Single Component Urethane Type S, comply with TT-S-00230C
 - a. Sonolastic(R) NP 1
 - b. Vulkem 116, 911, 921 or 931
 - c. Tremflex 25
 - d. Pecora Dynatrol I XL
 - e. A/E approved equal
 2. Multi Component Urethane Type M, comply with TT-S-00227E
 - a. Sonolastic(R) NP 2
 - b. Dymeric 511
 - c. Vulkem 227 or 922
 - d. Pecora Dynatred
 - e. A/E approved equal
 3. Single-Component Silicones Type S, comply with TT-S-001543A
 - a. Spectrem 1, 2 or 3
 - b. Pecora 860
 - c. A/E approved equal
- B. Sealant Type B: Self-leveling sealant having a Shore A hardness of not less than 25 or more than 50 and plus-or-minus 25 percent joint movement capability; comply with ASTM C920, Grade P or NS, Class 25. Acceptable sealants:

1. Single-Component Urethane, Type S, comply with TT-S-00230C
 - a. Sonolastic SL 1
 - b. Vulkem 45
 - c. Tremflex SL
 - d. Pecora Urexpan NR-201
 - e. A/E approved equal
 2. Multi-component Urethane, Type M, comply with TT-S-00227E
 - a. Sonolastic SL 2
 - b. THC-900/901
 - c. Vulkem 227 or 245
 - d. Pecora Urexpan NR-200
 - e. A/E approved equal
- C. Sealant Type C: Non-skinning and non-staining flexible sealant designed for buttering or bedding application between non-porous substrates, including galvanized steel, unpainted steel and coated metals that are squeezed together by fastening.
1. Butyls:
 - a. Tremco JS-773
 - b. Tremco Butyl Sealant
 - c. Pecora
 - d. A/E approved equal
- D. Sealant Type D: Non-sag, high-performance sealant for perimeter caulking and glazing. Acceptable products
1. Urethanes:
 - a. Vulkem 1, 911, 921 or 931
 - b. Dymonic
 - c. Tremflex 25
 - d. A/E approved equal
 2. Silicones:
 - a. Spectrem 2 or 3
 - b. Proglaze
 - c. A/E approved equal
 3. Other:
 - a. JS-773
 - b. Tremco Butyl Sealant
 - c. Tremco Acoustical
 - d. A/E approved equal
- E. Sealant Type E: Comply with United States Department of Agriculture (USDA) guidelines for incidental food contact with the cured sealant; comply with ASTM C920, Type S or M, Grade P or NS, Class 25; select color from listing of those approved. Acceptable Sealants:
1. Urethanes:
 - a. Vulkem 116, 911, 921, or 931
 - b. Dymonic
 - c. Tremflex 25

- d. Pecora Dynatrol I XL or II
 - e. A/E approved equal
 - 2. Silicones:
 - a. Proglaze
 - b. Spectrem 1, 2 or 3
 - c. Tremsil 600
 - d. Pecora 860
 - e. A/E approved equal
- F. Sealant Type F: Certified by National Sanitation Foundation as conforming to the requirements of NSF Standard 61-Drinking Water System Components-Health Effects; comply with ASTM C920, Type S or M, Grade P or NS, Class 25; select color from the NSF listing. Acceptable sealants:
- 1. Single Component Urethane:
 - a. Vulkem 45 or 921
 - b. Dymonic
 - c. A/E approved equal
 - 2. Multi Component Urethane:
 - a. Vulkem 245
 - b. A/E approved equal
 - 3. Polysulfide:
 - a. Pecora Synthacalk GC2+
 - b. A/E approved equal
- G. Joint Cleaner: Non-corrosive and non-staining type recommended by sealant manufacturer and compatible with joint forming materials.
- H. Joint Primer: As recommended by sealant manufacturer for substrates, conditions and exposures indicated.
- I. Bond Breaker: Polyethylene tape or other adhesive faced tape as recommended by sealant manufacturer to prevent sealant contact where it would be detrimental to sealant performance.
- J. Joint Backer: Polyethylene foam rod:
 - 1. Soft: Non-gassing, reticulated closed-cell for use with cold-applied joint sealants. Comply with ASTM C 1330
 - 2. Closed-cell: Designed for use with cold-applied joint sealants for on-grade or below-grade applications
- K. Joint Filler: Closed-cell polyethylene joint filler designed for use in cold joints, construction joints, or isolation joints wider than 1/4 inch (6 mm).
 - 1. Size required for joint design.
 - 2. Masking Tape: Non-staining, non-absorbent tape product compatible with joint sealants and adjacent joint surfaces that is suitable for masking.

- L. Expanding Insulating Foam Sealant for filling gaps and sealing around windows and doors.

2.03 OTHER MATERIALS

- A. Provide other materials as selected by the Contractor and approved by the sealant manufacturer as compatible, which not specifically described but are required for a complete and proper installation.

PART 3 EXECUTION

3.01 SURFACE CONDITIONS

- A. Coordinate as required with other trades to assure proper and adequate provision in the work of those trades for interface with the work of this Section.
- B. Applicator shall examine the areas and conditions under which work of this Section will be performed.
 - 1. Verify conformance with manufacturer's requirements.
 - 2. Report unsatisfactory conditions in writing to the Engineer/Architect.
 - 3. Do not proceed until unsatisfactory conditions are corrected.
- C. Preformed joint fillers in joints to be sealed should provide a reservoir to accept the sealant such as by a molded breakaway joint cap or a removable block out. Preformed joint fillers that may contact the sealant should not be impregnated with oil, bitumen, non-curing polymers or similar contaminants.

3.02 PREPARATION

- A. Prepare surfaces to receive sealants in accord with sealant manufacturer's instructions and recommendations except where more stringent requirements are indicated.
- B. Thoroughly clean joint surfaces using cleaners approved by sealant manufacturer whether primers are required or not.
 - 1. Remove all traces of previous sealant and joint backer by mechanical methods, such as by cutting, grinding and wire brushing, in manner not damaging to surrounding surfaces.
 - 2. Remove paints from joint surfaces except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer.
 - 3. Remove wax, oil, grease, dirt film residues, temporary protective coatings and other residues by wiping with cleaner recommended for that purpose. Use clean, white, lint-free cloths and change cloths frequently.
 - 4. Remove dust by blowing clean with oil-free, compressed air.
- C. Back-Up Material:
 - 1. Install appropriate size backer rod, larger than joint where necessary according to manufacturer's recommendations.

2. Install polyethylene joint filler in joints wider than 1/4 inch (6 mm) to back-up material per manufacturer's recommendations.
 3. Do not install epoxy joint filler over backer rod.
- D. Bond Breaker: Install bond-breaker strip in joint to be sealed on top of back-up material to prevent adhesion of sealant to back-up material; install per manufacturer's recommendations.
- E. Prime Joint Substrates Where Required:
1. Use and apply primer according to sealant manufacturer's recommendations.
 2. Confine primers to sealant bond surfaces; do not allow spillage or migration onto adjoining surfaces.
- F. Taping:
1. Use masking tape where required to prevent sealant or primer contact with adjoining surfaces that would be permanently stained or otherwise damaged by such contact or the cleaning methods required for removal.
 2. Apply tape so as not to shift readily and remove tape immediately after tooling without disturbing joint seal.

3.03 INSTALLATION

- A. Provide the approved sealant system indicated in the schedule, and in strict accord with the manufacturer's recommendations as approved by the A/E.
- B. Install sealants immediately after joint preparation.
- C. Mix and apply multi-component sealants in accord with manufacturer's printed instructions.
- D. Install sealants to fill joints completely from the back, without voids or entrapped air, using proven techniques, proper nozzles and sufficient force that result in sealants directly contacting and fully wetting joint surfaces.
- E. Install sealants to uniform cross-sectional shapes with depths relative to joint widths that allow optimum sealant movement capability as recommended by sealant manufacturer.
- F. Tool sealants in manner that forces sealant against back of joint, ensures firm, full contact at joint interfaces and leaves a finish that is smooth, uniform and free of ridges, wrinkles, sags, air pockets and embedded impurities.
1. Dry tooling is preferred; tooling liquids that are non-staining, non-damaging to adjacent surfaces and approved by sealant manufacturer may be used if necessary when care is taken to ensure that the liquid does not contact joint surfaces before the sealant.
 2. Provide concave tooled joints unless otherwise indicated to provide flush tooling or recessed tooling.
 3. Provide recessed-tooled joints where the outer face of substrate is irregular.

- G. Remove sealant from adjacent surfaces in accord with sealant and substrate manufacturer recommendations as work progresses.
- H. Protect joint sealants from contact with contaminating substances and from damages. Cut out, remove and replace contaminated or damaged sealants, immediately, so that they are without contamination or damage at time of substantial completion.

3.04 INSTALLATION SCHEDULE

- A. Sealant Type A: For exterior and interior joints in vertical surfaces and non-traffic horizontal surfaces such as, but not limited to:
 - 1. Control and expansion joints in cast-in-place concrete.
 - 2. Control and expansion joints in unit masonry.
 - 3. Control and expansion joints on exposed interior surfaces of exterior walls.
 - 4. Joints between different materials listed above.
 - 5. Perimeter joints between materials listed above and frames of exterior and interior doors, windows, storefronts, louvers, elevator entrances and similar openings.
 - 6. Control and expansion joints in ceiling and overhead surfaces.
 - 7. Perimeter joints on exposed interior surfaces of exterior openings.
 - 8. Trim or finish joints subject to movement.
- B. Sealant Type B: For exterior and interior joints in horizontal and sloped traffic surfaces such as, but not limited to:
 - 1. Control, expansion and isolation joints in cast-in-place concrete.
 - 2. Tile control and expansion joints.
 - 3. Joints between different materials listed above.
- C. Sealant Type C: For interior or exterior joints in vertical surfaces between laps in fabrications of sheet metal:
 - 1. Metal building roof and side wall panels.
 - 2. Between dissimilar metals to prevent galvanic action.
 - 3. Air ducts.
- D. Sealant Type D: For general architectural sealing and caulking not listed above such as:
 - 1. Under metal thresholds and saddles.
 - 2. Bedding sealant for sheet metal flashing.
 - 3. For frames of metal or wood and glazing.
 - 4. Silicone only around plumbing fixtures.
- E. Sealant Type E: For interior joints in vertical and horizontal surfaces in kitchen and food preparation areas where incidental food contact occurs.

END OF SECTION

SECTION 08 11 00

METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Furnish hollow metal frames as specified and shown on plans and schedules.
- B. Metal Frames:
 - 1. Fire-rated and non-rated door frames.
 - 2. Glazed transom assemblies.
 - 3. Glazed sidelight assemblies.
 - 4. Glazed window assemblies.

1.02 RELATED WORK

- A. Division 7:
 - 1. Elastomeric Sealants
- B. Division 8:
 - 1. Wood Doors
 - 2. Glass And Glazing
 - 3. Finish Hardware
- C. Division 9:
 - 1. Gypsum Board Systems
 - 2. Painting

1.03 REFERENCE STANDARDS

- A. SDI Standards:
 - 1. SDI-111-2000 Recommended Details and Guidelines for Standard Steel Doors, Frames, and Accessories
 - 2. SDI-112-1997 Zinc-Coated (Galvanized/Galvannealed) Standard Steel Doors and Frames
 - 3. SDI-117-2000 Manufacturing Tolerances for Standard Steel Doors and Frames
- B. ANSI Standards:
 - 1. ANSI/SDI A250.3-1999 Test Procedure and Acceptance Criteria for Factory Applied Finish Painted Steel Surfaces for Steel Doors and Frames
 - 2. ANSI/SDI A250.4-2001 Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frame Anchors and Hardware Reinforcings

3. ANSI/SDI A250.6-1997 Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames
4. ANSI/SDI A250.7-1997 Nomenclature for Standard Steel Doors and Steel Frames
5. ANSI/SDI A250.10-1998 Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames
6. ANSI/SDI A250.11-2001 Recommended Erection Instructions for Steel Frames (Formerly SDI-105)
7. A115 Hardware Preparation in Steel Doors and Steel Frames
8. A115.IG Installation Guide for Doors and Hardware

C. ASTM Standards:

1. ASTM A1008-2003 Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
2. ASTM A568-2003 Standard Specification for Steel Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for
3. ASTM A1011-2001 Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
4. ASTM A591-1998 Standard Specification for Steel Sheet, Electrolytic Zinc-Coated, for Light Coating Weight [Mass] Applications
5. ASTM A653-2002 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
6. ASTM A924-1999 Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process

1.04 QUALITY ASSURANCE

- A. Manufacturer shall meet or exceed all standards as noted in Section 2.01 references.
- B. No product shall be manufactured prior to receipt of approved hardware schedule and templates.

1.05 SUBMITTALS

- A. Submit shop drawings indicating each type of:
 1. Frame
 2. Material thickness
 3. Anchorages
 4. Locations of exposed fasteners
 5. Openings
 6. Glazing and glazing type

- B. Submit Schedule:
 - 1. Identify each unit with door and window marks and numbers.
 - 2. Relate numbers to Architect's door and window schedules.

1.06 SIZES

- A. Custom Doors and Frames shall be fabricated for special applications to fit openings as scheduled on the Drawings.

1.07 DELIVERY, STORAGE AND HANDLING

- A. Products shall be marked with architects opening number on all doors, frames, misc. parts and cartons.
- B. All doors and frames shall be stored vertically under cover. The units shall be placed on at least 4" high wood sills or in a manner that will prevent rust or damage.
- C. ANSI/SDI A250.8-2003¹⁷The use of non-vented plastic or canvas shelters that can create a humidity chamber shall be avoided.
- D. A 1/4" space between the doors shall be provided to promote air circulation. If the wrapper on the door becomes wet, it must be removed immediately.

PART 2 PRODUCTS

2.01 MATERIALS

- A. All steels used to manufacture doors, frames, anchors, and accessories shall meet at least one or more of the following requirements:
 - 1. Cold rolled steel shall conform to ASTM designations A1008, "Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability" and A568, "Standard Specification for Steel Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for."
 - 2. Hot rolled, pickled and oiled steel shall comply with ASTM designations A1011, "Standard Specification for Steel Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability" and A568, "Standard Specification for Steel Sheet, Carbon, and High-Strength, Low-Alloy, Hot-Rolled and Cold-Rolled, General Requirements for."
 - 3. Hot dipped zinc coated steel shall be of the alloyed type and comply with ASTM designations A924, "Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process" and A653, "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process."

2.02 FRAMES

- A. Exterior frames shall be 16 gauge full profile welded type construction.
- B. Interior frames shall be 16 gauge:
 - 1. Face welded type.
 - 2. Slip-on for existing drywall construction.
- C. Finish: Factory primed, for field finishing.
- D. Frames for Glazing:
 - 1. Mullions and transom bars shall be joined to adjacent members by welding or by rigid mechanical connection which maintains alignment of parts and assure performance when field assembled.
 - 2. Vertical mullions shall be supplied with floor anchors
 - 3. Prepare frames for glass and glazing installed on the exterior rabbet of the frame assembly unless detailed otherwise on the drawings.
 - 4. Glazing beads shall be flush type formed channel, min 5/8" height and accurately fitted, butted at corners and fastened to frame sections with counter-sunk oval head sheet metal screws.
- E. Provide frames with a minimum of three anchors per jamb suitable for the adjoining wall construction. Provide anchors of not less than 0.042" in thickness or 0.167" diameter wire. Frames over 7'-6" shall be provided with an additional anchor per jamb.
- F. Base anchors shall be provided with minimum thickness of 0.042".
- G. Welding shall conform to ANSI/AWS-101-94: Welded joints shall be ground to a smooth uniform finish.
- H. Butt joints of mullions, transom bars, center rails and sills shall be coped accurately and securely welded.
- I. Provide factory-applied touch up primer at areas where zinc coating has been removed during fabrication.

2.03 HARDWARE PREPARATION

- A. Mortise, reinforce drill and tap frames as required for mortised hardware furnished under Division 08 Sections, Finish Hardware in accordance with a final approved hardware schedule and templates provided by the hardware supplier and security supplier, including a minimum 1/2" raceway for electrical hardware, electric hinges and power transfers, door position switches, and other electrified hardware.

- B. Minimum hardware reinforcing gages shall comply with Table 4 of ANSI/SDI A250.8, "SDI-100, Recommended Specifications for Standard Steel Doors and Frames".
- C. Follow SDI 127C for Frame cutout limits.
- D. Obtain templates from hardware and security suppliers.
- E. Interior frames shall be prepared for single stud door silencers, three (3) per frame.
- F. Drilling and tapping for surface door closers, door closer brackets, and adjusters shall be done in the field by the installer.

2.04 FINISH

- A. Doors and frames shall be leveled and ground smooth.
- B. Apply mineral filler to eliminate weld scars and other blemishes
- C. Prime Finish:
 1. Doors and frames shall be thoroughly cleaned, and chemically treated to insure maximum paint adhesion.
 2. All surfaces of the door and frame exposed to view shall receive a factory applied coat of rust inhibiting primer, either air-dried or baked-on.
 3. The finish shall meet the requirements for acceptance stated in ANSI/SDI A250.10 "Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames."

PART 3 EXECUTION

3.01 INSTALLATION

- A. Verify that rough openings are no less than 3/16" larger on all 3 sides than the intended overall frame size.
- B. Frames shall be installed plumb, level, rigid and in true alignment as recommended in ANSI/SDI A250.11, "Recommended Erection Instructions for Steel Frames" and A115.IG, "Installation Guide for Doors and Hardware".
- C. All frames shall be fastened to the adjacent structure so as to retain their position and stability.
- D. Anchor bottoms of frames with expansion bolts or powder-actuated fasteners. Build in or secure wall anchors to adjoining construction.
- E. Installation of hardware items shall be in accordance with the hardware manufacturer's recommendations and templates. A115.IG, "Installation Guide for Doors and Hardware" and ANSI/SDI A250.6, "Recommended Practice for Hardware

Reinforcing on Standard Steel Doors and Frames” shall be consulted for other pertinent information.

F. Contractor shall seal/caulk around frames in place

3.02 PRIME COAT TOUCH-UP

A. Immediately after erection, areas where prime coat has been damaged shall be sanded smooth and touched up with same primer as applied at shop.

B. Remove rust before above specified touch-up is applied.

C. Touch-up shall not be obvious.

D. Before job painting is started, finish on frame and doors shall comply with finish on approved sample.

3.03 CLEAN

A. Complete painting prior to glass installation.

B. Clean surface promptly after installation of windows, exercising care to avoid damage to finish. Remove excess glazing and sealant compounds, dirt, and other substances.

3.04 PROTECTION

A. Protect installed hollow metal work against damage from other construction work.

3.05 SCHEDULE

A. As indicated on Drawings.

END OF SECTION

SECTION 08 14 33

STILE AND RAIL WOOD DOORS

PART 1 GENERAL

1.01 SUMMARY

- A. Furnish and install stile and rail wood doors. Quantity, location, and size of each wood door area shown on Drawings and in Schedules.
- B. Types of wood doors required include the following:
 - 1. Prefinished Interior Stile and Rail Wood Doors, non-rated
 - 2. Prefinished Interior Stile and Rail Wood Doors, with metal mesh panel behind rails and stiles in lieu of raised panels

1.02 RELATED SECTIONS

- A. Division 6:
 - 1. Custom Casework
- B. Division 8:
 - 1. Metal Frames
 - 2. Finish hardware

1.03 REFERENCES AND REGULATORY REQUIREMENTS

- A. Quality Standards:
 - 1. WDMA Industry Standard I.S. 1-A-97 (Window & Door Manufacturers Association).
 - 2. AWI Quality Standards 7th Edition, Version 1.0 1997.
 - 3. ANSI A115. W Series, Wood Door Hardware Standards. (American National Standard Institute)

1.04 SUBMITTALS

- A. Product Data: Submit door manufacturer's product construction data, hardware attachment performance data, specifications and installation instructions for each type of wood door, including details of core, raised panel and edge construction, and similar components.
- B. Specific Product Warranty: The door shall be warranted by the manufacturer to be free of manufacturing defects for the life of the original, interior-use, installation. Warranty shall provide for repair or replacement of the door as originally furnished.

Manufacturer shall elect to repair or replace defective door(s), and will assume reasonable costs associated with same. Manufacturer may, per its discretion, elect to use either its own or third party resources to resolve warranty claims.

- C. Shop Drawings: Provide the following information:
 - 1. Door number
 - 2. Door type
 - 3. Door size
 - 4. Hardware types and locations
 - 5. Panel Configuration

- D. Construction Samples: Submit one or more of manufacturer's standard samples demonstrating door construction.

- E. Finish Samples:
 - 1. A set of 3 illustrating the range of color and grain of the specified door face materials.
 - 2. Color Selection Samples, showing manufacturer's standard range of finishes

1.05 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing Stile and Rail Wood Doors, with a minimum of five years documented experience. All doors must be supplied through one company.

- B. Quality Standard: Doors to comply with WDMA I.S. 6A (Window and Door Manufacturers Association).

1.06 DELIVERY, STORAGE AND HANDLING

- A. Store and protect doors in accordance with manufacturer's recommendations and WDMA. Following are general guidelines. For more specific information refer to WDMA's Appendix Section "Care and Installation at Job Site."

- B. Store doors flat and off the floor on a level surface in a dry, well-ventilated building. Do not store on edge. Protect doors from dirt, water and abuse.

- C. Certain wood species are light sensitive. Protect doors from exposure to light (artificial or natural) after delivery.

- D. Do not subject interior doors to extremes in either heat or humidity. HVAC systems should be operational and balanced, providing a temperature range of 50 to 90 degrees Fahrenheit and 30% to 60% relative humidity.

- E. When handling doors, always lift and carry. Do not drag across other doors or surfaces. Handle with clean hands or gloves.
- F. Each door will be marked on top rail with opening number.

1.07 WARRANTY

- A. Manufacturer's signed warranty covering manufacturing or material defects for life of original installation, including repair, replacement, machining, detailing and finishing as a required part of the manufacturer's warranty for interior stile and rail wood doors.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products which may be incorporated in the work include, but are not limited to, those listed
 1. Marshfield Door Systems, Inc
 2. Eggers Industries, Architectural Door Division
 3. The Maiman Company
 4. Manufacturers approved as equivalent by A/E in accordance with Product Substitution procedure outlined in MATERIAL AND EQUIPMENT Section

2.02 DOOR CONSTRUCTION, GENERAL

- A. General Grade Specification per WDMA I.S. 6A:
 1. Custom:
 - a. All custom raised panel doors shall be manufactured using the traditional construction of panels grooved into adjacent stiles and rails with the stiles tongued and grooved, and doweled together with glue under pressure.
 - b. Assembly of Stile and Rail Components: Stiles and rails must be joined with both wooden dowels and cope and stick joints. Doweled butt joints or cope and stick only joints are not allowed.
- B. Raised Panel Type:
 1. Veneered Profiled:
 - a. Minimum thickness of panel shall be 1-1/8"
 - b. Construct per WDMA I.S. 6A using Hot Press method for laminating door materials
- C. Door construction of stiles and rails must include wood composite crossbanding between core material and face veneers.
 1. Dowels used for assembly shall be no less than 1/2" x 5".

2. Edge banding and sticking profile must be solid lumber. Veneered profile is not acceptable.
3. Sticking shall be as detailed on the drawings. Wood shall be the same species as the face veneer unless otherwise noted.

- D. Veneers - minimum of 1/16" thick:
1. Grade Specified: "A"
 2. Cut Specified: Plain sliced
 3. Species Specified: Red Oak
 4. Match Specified: Random
 5. Assembly Specified: Running

2.03 NON-FIRE-RATED DOORS

- A. Door Thickness: 1-3/4"
- B. Core material for Stile and Rail Components: Structural Composite Lumber (SCL) engineered hardwood composite complying with WDMA minimum performance levels for interior applications
1. Screw holding power of 540 lbs.,
 2. Average modulus of rupture of 4,000 psi
 3. Average modulus of elasticity of 600,000 psi
 4. Density of 38 lbs per cubic foot.
- C. Stiles (Vertical Edges) - hardwood, one piece:
1. Same species as face veneer.
- D. Rails (Horizontal Edges): Rails are structural composite lumber (SCL) as specified in core section. SCL must meet the minimum requirements of WDMA.

2.04 DOORS IN PAIRS OR SETS

- A. The veneer, slice or cut, finish and assembly method shall match. Primary basis of selection for matching between paired doors shall be compatibility of color.

2.05 DOOR FABRICATION

- A. Factory-prefit and bevel doors (3°) to suit frame sizes indicated, with 3/16" prefit in width, + 0"/- 1/32", tolerances.
1. Prefit top of door 1/8" +1/16"/-0:, and undercut as designated by floor condition.
 2. For fire-rated doors comply with NFPA 80 for prefits and undercuts.

- B. Factory pre-machine doors for hardware that is not surface applied. Locations and hole patterns to comply with specified hardware requirements as per NFPA 80 standards for doors specified; and to maintain door manufacturer's warranty.
 - 1. Specific locations for hardware will be coordinated between frame and door manufacturers.
 - 2. Specific hardware preps will be per coordinated between door manufacturer and hardware supplier. Hardware preps to be neatly and cleanly squared as required per hardware templates.
 - 3. Metal astragals and channels to be supplied where fire-ratings will not allow metal-free edge(s).

2.06 FACTORY FINISH

- A. Factory finish doors in accordance with WDMA G-17 Finish System Description or AWI Division 1500-S-4 - Finish System Standards.
 - 1. Factory finish to be water based stain and ultraviolet (UV) cured polyurethane sealer to comply with EPA Title 5 guidelines for Volatile Organic Compounds (VOC) emissions limitations.
 - 2. Finish must meet or exceed performance standards of TR-6 catalyzed polyurethane.
- B. Color shall be as selected by the A/E from manufacturer's standard colors
- C. Factory finished doors to be installed just prior to substantial completion.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify substrate opening conditions.
- B. Verify that opening sizes and tolerances are acceptable and ready to receive this work.
- C. Do not install doors in frame openings that are not plumb or are out of tolerance for size or alignment.

3.02 INSTALLATION

- A. Trim non-rated door width by cutting equally on both jamb edges.
- B. Trim door height by cutting bottom edges to a maximum 3/4 inch (19 mm).
- C. Trim fire door height at bottom edge only, in accordance with fire rating requirements.

- D. Pilot drill screw and bolt holes using templates provided by hardware manufacturer. (Use threaded throughbolts for half surface hinges).
- E. Coordinate installation of doors with installation of frames and hardware
- F. Coordinate installation of glass and glazing.
- G. Reseal or refinish any doors that required site alteration

3.03 WARRANTY TOLERANCES

- A. Conform to WDMA standards and testing methods for warp, cup, bow and telegraphing.

3.04 ADJUSTING

- A. Adjust work under provisions Division 1.
- B. Adjust doors for smooth and balanced door movement.
- C. Operation: Rehang or replace doors that do not swing or operate freely, as directed by the Architect.
- D. Finished Doors: Refinish or replace doors damaged during installation, as directed by the A/E.
- E. Institute protective measures as recommended and accepted by door manufacturer to assure that wood doors will be without damage or deterioration at time of subsequent completion.

3.05 SCHEDULE

- A. Refer to Drawings for door and frame schedule.

END OF SECTION

SECTION 08 33 23

OVERHEAD COILING DOORS

PART 1 GENERAL

1.01 SUMMARY

- A. High speed roll-up doors for conveyor openings, fully weather sealed, with electric reversing edge, electric motor operation and accessories and trim for a complete installation.
- B. Related Sections: Other specification sections which directly relate to the work of this Section include, but are not limited to, the following:
 - 1. Division 8: Finish Hardware; key cylinders for locks.
 - 2. Division 26: Electrical; wiring.

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each type of rolling door. Include both published data and any specific data prepared for this project.
- B. Shop Drawings: Submit shop drawing for approval prior to fabrication. Include detailed plans, elevations, and details of framing members, required clearances, anchors, and accessories. Include relationship with adjacent materials.
- C. Samples: Manufacturer's finish color chart from which A/E will make a selection.

1.03 QUALITY ASSURANCE

- A. Manufacturer: Rolling doors shall be manufactured by a firm with a minimum of five years experience in the fabrication and installation of rolling doors.
- B. Installer: Installation of rolling doors shall be performed by the authorized representative of the manufacturer.
- C. Single-Source Responsibility: Provide doors, guides, motors, and related primary components from one manufacturer for each type of door. Provide secondary components from source acceptable to manufacturer of primary components.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and products in labeled protective packages.

- B. Store and handle in strict compliance with manufacturers instructions and recommendations.
- C. Protect from damage from weather, excessive temperatures and construction operations.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Marathon by ASI Technologies Inc., Milwaukee, WI 40-14-464-6200
 - 1. Basis of Design: Marathon 109B
- B. Manufacturers of equivalent products may be approved by the A/E when submitted in accordance with Division 1, Product Substitution Procedures.

2.02 ROLL-UP DOORS

- A. Door Construction
 - 1. Provide direct drive high-speed electric powered insulated aluminum slat roll-up doors for openings in sizes as shown on the drawings
 - 2. Curtain: Unitized interlocking slats. Endlocks at each end of alternate slats to prevent lateral movement.
 - a. Exterior Face: Front slats shall be factory painted aluminum in RAL color selected by the A/E.
 - b. Interior face: Back slat shall be shock absorbing rigid PVC; "K" factor of .12 at 75°F.
 - c. Cavity shall be filled with dense polyurethane foam insulation.
 - 3. Weather seal: Full perimeter gaskets .
- B. Operation
 - 1. Electric Direct Drive
 - 2. Two Speed:Open 20 inches/sec. Close 10 inches/sec.
 - 3. Electric motor to be 3/4hp, direct drive power system.
 - 4. Electric control panel to be in a NEMA-4 rated enclosure, assembled and ready for connection by others.
 - 5. Door curtain to be equipped with air activated instant reversing edge. Reversing edge to be active along full length of door edge.
 - 6. Travel limit switch to provide infinite adjustment. Adjustments to be made without the aid of special tools.
 - 7. Door actuation to be provided by: Two single control push buttons.
- C. Provide galvanized metal shroud to cover barrel and operator painted to match door slats
- D. Locking: Interior slide bolt with interlock switch

PART 3 EXECUTION

3.01 EXAMINATION

- A. Take field dimension and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 PREPARATION

- A. Protect surrounding areas and surfaces to prevent damage during work of this section

3.03 INSTALLATION

- A. Install the work in accordance with the manufacturer's installation instructions. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.
- B. Instruct Owners personnel in proper operating procedures and maintenance schedule.

3.04 ADJUSTING AND CLEANING

- A. Test rolling doors for proper operation and adjust as necessary to provide proper operation without binding or distortion.
- B. Touch-up damaged coatings, finishes, and repair minor damage. Clean exposed surfaces using non-abrasive materials and methods recommended by manufacturer of material or product being cleaned.

3.05 SCHEDULE

- A. As shown on Drawings.

END OF SECTION

SECTION 08 38 13

FLEXIBLE STRIP DOORS

PART 1 GENERAL

1.01 SUMMARY

- A. The work of this Section includes
 1. Flexible Strip Doors: free hanging PVC strip curtains manufactured to fit openings receiving overhead coiling doors as shown on the drawings

1.02 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions for each door. Include both published data and any specific data prepared for this project.
- B. Shop Drawings: Submit shop drawing for approval prior to fabrication. Include detailed plans, elevations, details of framing members, required clearances, anchors, and accessories. Include relationship with adjacent materials.

1.03 WARRANTY

- A. Strip doors shall be warranted against defects in material and workmanship for one year. Heat-sealed bonds between strips and J-Hook are warranted for life of door.
- B. Warranty shall cover replacement of malfunctioning parts at no cost to the Owner. when recommended materials and configurations are used and components are installed in accordance with installation instructions.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials and products in labeled protective packages. Store and handle in strict compliance with manufacturers instructions and recommendations. Protect from damage from weather, excessive temperatures and construction operations.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Provide doors by
 1. Chalfant Dor-Seals, Cleveland, OH
 2. Chase Doors, Portland, OR
 3. Simplex Isolation Systems, Fontana, CA
 4. A/E approved equivalent

2.02 MATERIALS

A. Flexible Strip Doors

1. Door Strip Type: extruded PVC
2. Strip Sizes: 6" wide x .06" thick, 33% overlap, for personnel doors, conveyor opening and reach-through areas
3. Mounting shall be surface mount
4. Strips to be affixed to two-piece extruded aluminum mounting bracket using Heat sealed J-Hook system (life-time warranty) Track Mounting Bracket

PART 3 EXECUTION

3.01 PREPARATION

- A. Take field dimension and examine conditions of substrates, supports, and other conditions under which this work is to be performed. Do not proceed with work until unsatisfactory conditions are corrected.

3.02 INSTALLATION

- A. Strictly comply with manufacturer's installation instructions and recommendations. Coordinate installation with adjacent work to ensure proper clearances and allow for maintenance.

3.03 SCHEDULE

- A. As indicated on the drawings

END OF SECTION

SECTION 08 41 13

ALUMINUM ENTRANCES AND STOREFRONTS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Section includes glazed storefront systems to receive glazing, embedded items and connections for attaching systems to building structure as indicated on the Drawings. Systems shall have thermal break materials.
- B. Section includes glazed aluminum entrance doors, door frames, hardware, and embedded items and connections for attaching them to building structure as indicated on the Drawings.
- C. Related Work:
 - 1. Division 7: Elastomeric Sealants
 - 2. Division 8:
 - a. Sliding Automatic Entrances
 - b. Finish Hardware
 - c. Glazing

1.02 SYSTEM DESCRIPTION

- A. General: Provide the manufacturer's glazed storefront systems, adapted to the application indicated, and modified as required to comply with performance requirements and materials specified, as demonstrated by testing the manufacturer's corresponding systems according to test methods indicated.
 - 1. Performance Requirements:
 - a. Wind Loads: Provide storefront system, including, but not limited to, anchorage, capable of withstanding wind load design pressures as noted within the Structural Design Criteria.
 - b. Storefront Air Infiltration: Not more than 0.060 cfm (0.00003 m³/s) per square foot (0.09 m²) (projected area of module) at 6.24 psf (299 Pa) static air pressure differential, when tested in accordance with ASTM E283.
 - c. Entrance Air Infiltration: Not more than 0.50 cfm (0.00025 m³/s) per lineal foot (305 mm) at 1.57 psf (75 Pa) static air pressure differential, when tested in accordance with ASTM E283.
 - d. Water Leakage: There shall be no uncontrolled water entry at 8.0 psf (383 Pa) test pressure as defined in ASTM E331.
 - e. Structural Performance: Structural performance shall be based on a maximum allowable deflection of L/175 of the clear span for spans up to 13'-6" (4115 mm) or L/240 of clear span plus 1/4 inch (6 mm) for spans greater than 13'-6" (4115 mm), or an amount that restricts edge deflection

of individual glazing lites of glass to 3/4 inch (19 mm), whichever is smaller. The system shall perform to those criteria under the wind load specified for this Project.

- f. Thermal Transmittance: Thermal transmittance due to conduction (Uc) shall not be greater than 0.56 Btu/hour/ft²/°F per AAMA 1503. Condensation resistance factor (CRF) shall not be less than 64 per AAMA 1503.

1.03 SUBMITTALS

- A. Quality Assurance: Submit certified test reports showing compliance with specified performance characteristics.
- B. Submit product data for each type of product specified.
- C. Shop drawings, including elevations, detail sections of composite members, hardware mounting heights, anchorages, reinforcements, expansion provisions, finish colors and glazing.
- D. Operation and Maintenance Manuals: Furnish complete operation and maintenance manuals describing the materials, devices, and procedures to be followed in operating, cleaning, and maintaining the work.

1.04 QUALITY ASSURANCE

- A. Installer qualifications: Installer shall be a company specializing in installation of aluminum framing, entrances and storefront systems with glazing and have a minimum of three (3) years experience.

1.05 WARRANTY

- A. Manufacturer's Product warranty agreeing to replace doors which fail in materials or workmanship within two years from date of substantial completion.
- B. Lifetime limited warranty for welded door corner construction.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays.
- B. Materials shall be delivered in manufacturer's original, unopened, undamaged containers with identification labels intact.
- C. Store materials protected from exposure to harmful weather conditions. Handle entrance doors and components to avoid damage. Protect entrance doors against

damage from elements, construction activities, and other hazards before, during, and after installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design:
Aluminum Storefronts and Entrances shall be as manufactured by Tubelite Inc, Walker, Michigan
- B. Equivalent products by listed manufacturers are acceptable. The Architect will be the sole judge of the basis of what is equivalent.

2.02 GENERAL

- A. Fit and Finish:
 - 1. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
 - 2. Finish to be: Painted Finish. Powder coat painted to match architect's sample.
 - 3. All exposed framing surfaces shall be free of scratches and other serious blemishes.
 - 4. All door and frame members shall be accurately fitted to flush hairline joints

2.03 ALUMINUM STOREFRONT

- A. Basis of Design: Product specified is "VersaTherm Series Storefront" as manufactured by Tubelite, Inc. Items specified are to establish a standard of quality for design, function, materials, and appearance.
 - 1. Face width: 1 ¾"
 - 2. Overall Depth: 4 ½"
 - 3. Glass Thickness: 1"
 - 4. Air Infiltration: 0.01 CFM/Ft.2 @ 6.24 PSF
 - 5. Static Water: 12 psf
 - 6. Uniform Load Deflection: 30 psf
- B. Materials
 - 1. Aluminum: Extrusions shall be of aluminum alloy 6063-T5 extruded within commercial tolerance and free from defects impairing strength and/or durability. Main framing sections shall be a minimum of 0.109 inch (2.8 mm) wall thickness. Glazing stop moldings shall be a minimum of 0.050 inch (1.3 mm) wall thickness.
 - 2. Steel Plates, Shapes, and Bars: ASTM A36/A36M, galvanized in accordance with ASTM A123/A123M. If galvanizing is not compatible with alloy of

component parts, apply heavy coating of epoxy paint where necessary to prevent galvanic action with dissimilar materials.

3. Fasteners and Anchors: Provide manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
 4. Inserts: Provide galvanized steel or cast iron inserts of suitable design and adequate strength for condition of use.
 5. Galvanizing Repair Paint: Provide high zinc dust content paint for regalvanizing welds in galvanized steel, with dry film containing not less than 94 percent zinc dust by weight, and complying with SSPC Paint 20.
 6. Bituminous Paint: Provide cold-applied asphalt mastic, containing no asbestos fibers.
 7. Glazing Material: Glazing shall be by means of an exterior and interior roll-in wedge of high quality extruded elastomeric material.
 8. Thermal Barrier: Thermal barrier shall be made from weatherable DuPont acetal resin clip.
- C. Carefully fit and match work with continuity of line and design. Rigidly secure members with hairline joints, unless otherwise indicated. Reinforce members and joints with steel plates, bars, rods, or angles for rigidity and strength as needed to fulfill performance requirements.
1. Glazing: Fabricate framing for exterior glazing at spandrels and interior glazing at other openings.
 2. Weeps and Flashings: Fabricate the system so as not to require additional weeps or flashing beyond that which is integral to the system.
 3. Fasteners: Conceal fasteners unless otherwise indicated. For exterior systems use fasteners for joints which cannot be welded.
 4. Dissimilar Materials: Separate dissimilar materials with a heavy coating of epoxy paint or other suitable permanent separation as required to prevent galvanic action.

2.04 ENTRANCES

- A. Entrance Performance Requirements:
1. Air Infiltration: Not more than 0.50 cfm per lineal foot at 1.57 psf static air pressure differential, when tested in accordance with ASTM E 283.
 2. Structural: Corner strength shall be tested by an independent testing laboratory to ensure weld compliance and corner integrity
 3. Style: Medium 4" stile at top and side rails, 10" bottom rail for continuous hinge doors
 4. Snap-in stops for 1" insulated glazing at exterior applications and ¼" single glazing at interiors
- B. Materials:
1. Extrusions shall be of aluminum alloy 6063-T5 extruded within commercial tolerance and free from defects impairing strength and/or durability. Door stile

and rail sections shall be a minimum of 0.125 inch (3.2 mm) wall thickness. Door frame sections shall be of 0.080 inch (2.0 mm) minimum wall thickness, with glazing and door moldings a minimum of 0.050 inch (1.3 mm).

2. Steel tension rods of 0.375 inch (9.5 mm) diameter shall run the full width of the top and bottom rails and shall be fixed with steel plates and lock nuts.
 3. Door frame members shall have a continuous wool pile/vinyl fin weatherstripping at the head and jamb members. Provide bottom rail weatherstrip at threshold if indicated or scheduled.
 4. Medium Stile Doors: Provide medium (4 inches [102 mm]) stile doors and frames.
- C. Hardware: Refer to Section 08 71 00 Finish Hardware.
1. Supply items indicated to be provided by the Aluminum storefront Manufacturer.
 2. Hardware furnished by others shall be sent to the door manufacturer for application.
- D. Fabrication: Carefully fit and match work with continuity of line and design. Rigidly secure members with hairline joints, unless otherwise indicated. Reinforce members and joints for rigidity and strength as needed to fulfill performance requirements.
1. Door glazing shall be by means of an interior and exterior fixed gasket of high quality extruded elastomeric material.
 2. Conceal fasteners unless otherwise indicated.
 3. Separate dissimilar materials with a heavy coating of epoxy paint or other suitable permanent separation as required to prevent galvanic action.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions: Examine areas and conditions under which the work is to be installed, and notify the Contractor in writing, with a copy to the Owner and the Architect, of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected.
1. Beginning of the work shall indicate acceptance of the areas and conditions as satisfactory by the Installer.

3.02 PREPARATION

- A. Coordinate and furnish anchors, concrete inserts, sleeves, anchor bolts, etc., that are to be embedded in concrete or masonry construction. Coordinate delivery of such items to the Project site.

3.03 INSTALLATION

- A. General: Installation shall be in accordance with reviewed product data, final shop drawings, the manufacturer's specifications and recommendations, and as indicated on the Drawings.
 - 1. Erection Tolerances: Comply with manufacturer's published instructions.

3.04 ADJUSTING AND CLEANING

- A. Touch-Up Painting: Immediately after installation, touch-up scratched, nicked, abraded, chipped, or otherwise damaged areas of the finish so as to be unnoticeable.
- B. Cleaning: Wash to remove mortar, plaster, sprayed fire-resistive material, and any other deleterious material from finished surfaces immediately.

3.05 DEMONSTRATION

- A. Maintenance Instructions: Instruct the Owner's personnel who will be responsible for window washing after the time of final acceptance.

3.06 PROTECTION

- A. Provide final protection and maintain conditions in a manner acceptable to the Installer that shall ensure that the glazed storefronts and glazed entrances shall be without damage at time of Substantial Completion.

END OF SECTION

SECTION 08 42 29

SLIDING AUTOMATIC ENTRANCES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes the following types of automatic entrances:
 - 1. Exterior 3-panel, sliding automatic entrances as shown on the drawings.
- B. Related Sections:
 - 1. Division 7 Sections for caulking to the extent not specified in this section.
 - 2. Division 8 Section "Aluminum-Framed Entrances and Storefronts" for entrances furnished and installed separately in Division 8 Section.
 - 3. Division 8 Section "Door Hardware" for hardware to the extent not specified in this Section.
 - 4. Division 26 Sections for electrical connections provided separately including conduit and wiring for power to sliding automatic entrances.

1.02 REFERENCES

- A. General: Standards listed by reference, including revisions by issuing authority, form a part of this specification section to extent indicated. Standards listed are identified by issuing authority, authority abbreviation, designation number, title or other designation established by issuing authority. Standards subsequently referenced herein are referred to by issuing authority abbreviation and standard designation.
- B. Underwriters Laboratories (UL): UL 325 – Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems.
- C. American National Standards Institute (ANSI) / Builders' Hardware Manufacturers Association (BHMA):
 - 1. ANSI/BHMA A156.10: Standard for Power Operated Pedestrian Doors.
 - 2. ANSI/BHMA A156.5: Standard for Auxiliary Locks and Associated Products
 - 3. ANSI Z97.1: Standard for Safety Glazing Materials Used In Buildings - Safety Performance Specifications and Methods of Test.
- D. Consumer Product Safety Commission (CPSC): CPSC 16 CFR 1201: Safety Standard for Architectural Glazing Materials
- E. American Society for Testing and Materials (ASTM):
 - 1. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.
 - 2. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

- F. American Association of Automatic Door Manufacturers (AAADM)
- G. National Fire Protection Association (NFPA):
 1. NFPA 101 – Life Safety Code.
 2. NFPA 70 – National Electric Code.
- H. International Code Council (ICC): IBC: International Building Code
- I. National Association of Architectural Metal Manufacturers (NAAMM): Metal Finishes Manual for Architectural and Metal Products.
- J. American Architectural Manufacturers Association (AAMA):
 1. AAMA 606.1 – Integral Color Anodic Finishes for Architectural Aluminum
 2. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.
 3. AAMA 701 Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

1.03 DEFINITIONS

- A. Activation Device: Device that, when actuated, sends an electrical signal to the door operator to open the door.
- B. Safety Device: Device that prevents a door from opening or closing, as appropriate.

1.04 PERFORMANCE REQUIREMENTS

- A. General: Provide automatic entrance door assemblies capable of withstanding loads and thermal movements based on testing manufacturer's standard units in assemblies similar to those indicated for this Project.
- B. Thermal Movements: Provide automatic entrances that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
- C. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
 1. Operating Range: Minus 30 deg F (Minus 34 deg C) to 130 deg F (54 deg C).
- D. Opening-Force Requirements for Egress Doors: Force shall be adjustable; but, not more than 50 lbf (222 N) required to manually set swinging egress door panel(s) in motion.
- E. Closing-Force Requirements: Not more than 30 lbf (133 N) required to prevent door from closing.

1.05 SUBMITTALS

- A. Shop Drawings: Include plans, elevations, sections, details, hardware mounting heights, and attachments to other work.
- B. Color Samples for selection of factory-applied color finishes.
- C. Closeout Submittals:
 - 1. Owner's Manual.
 - 2. Warranties.

1.06 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative, with certificate issued by AAADM, who is trained for installation and maintenance of units required for this Project.
- B. Manufacturer Qualifications: A qualified manufacturer with a manufacturing facility certified under ISO 9001.
- C. Manufacturer shall have in place a national service dispatch center providing 24 hours a day, 7 days a week, emergency call back service.
- D. Certifications: Automatic sliding door systems shall be certified by the manufacturer to meet performance design criteria in accordance with the following standards:
 - 1. ANSI/BHMA A156.10.
 - 2. NFPA 101.
 - 3. UL 325 listed.
 - 4. IBC 2009
- E. Source Limitations: Obtain automatic entrance door assemblies through one source from a single manufacturer.
- F. Product Options: Drawings indicate sizes, profiles, and dimensional requirements of automatic entrance door assemblies and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements.
- G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- H. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.

1.07 PROJECT CONDITIONS

- A. Field Measurements: General Contractor shall verify openings to receive automatic entrance door assemblies by field measurements before fabrication and indicate measurements on Shop Drawings.
- B. Mounting Surfaces: General Contractor shall verify all surfaces to be plumb, straight and secure; substrates to be of proper dimension and material.
- C. Other trades: General Contractor shall advise of any inadequate conditions or equipment.

1.08 COORDINATION

- A. Templates: Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing automatic entrances to comply with indicated requirements.
- B. Electrical System Roughing-in: Coordinate layout and installation of automatic entrance door assemblies with connections to power supplies.

1.09 WARRANTY

- A. Automatic Entrances shall be free of defects in material and workmanship for a period of one (1) year from the date of substantial completion.
- B. During the warranty period the Owner shall engage a factory-trained technician to perform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form shall be submitted to the Owner.
- C. During the warranty period all warranty work, including but not limited to emergency service, shall be performed during normal working hours.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Stanley Access Technologies; Dura-Glide™ 5200 Series sliding automatic entrances.
- B. Equivalent products by other manufacturers; i.e. ASSA Abloy/Besam

2.02 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Headers, stiles, rails, and frames: 6063-T6.
 - 2. Extruded Bars, Rods, Profiles, and Tubes: ASTM B 221.

3. Sheet and Plate: ASTM B 209.

B. Sealants and Joint Fillers: Performed under Division 7 Section "Joint Sealants".

2.03 AUTOMATIC ENTRANCE DOOR ASSEMBLIES

A. General: Provide manufacturer's automatic entrance door assemblies including doors, sidelights, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

B. Sliding Automatic Entrances - 3-Panel Telescopic Entrances:

1. Configuration: Two sliding leaves and one full sidelight.
2. Traffic Pattern: Two-way.
3. Emergency Breakaway Capability: Lead sliding leaf only
4. Mounting: Surface applied.

2.04 COMPONENTS

A. Framing Members: Manufacturer's standard extruded aluminum reinforced as required to support imposed loads.

1. Nominal Size: 1 3/4 inch by 6 inch.
2. Concealed Fastening: Framing shall incorporate a concealed fastening pocket, and continuous flush insert cover, extending full length of each framing member.

B. Glass Panels and Rails: Manufacturer's standard 1 3/4 inch (45 mm) thick extruded-aluminum tubular rail members. Rail members to be specifically designed by automatic entrance manufacturer for use with glass panel automatic entrance systems. Fasten rails to glass panels by mechanical clamp; adhesive systems not acceptable.

1. Stile Design: Medium Stile; 3-1/2".
2. Bottom Rail: 10 inch nominal height.
3. Muntin bars: Horizontal Tubular Rail for each door, 4-1/2" nom width
4. Glazing: Provide glazing for sliding automatic entrances as follows:
 - a. Provide safety glass complying with ANSI Z97.1 and CPSC 16 CFR 1201 for Category II materials.
 - b. Safety Glass: 1" insulating, fully tempered, with polished edges, in all panels.

C. Headers: Fabricated from extruded aluminum and extending full width of automatic entrance door units to conceal door operators, carrier assemblies, and roller tracks. Provide hinged or removable access panels for service and adjustment of door operators and controls. Secure panels to prevent unauthorized access.

1. Mounting: Concealed, with one side of header flush with framing.
2. Capacity: Capable of supporting up to 220 lb per panel, three panels, over spans up to 14 feet (4.3 m) without intermediate supports.

D. Carrier Assemblies and Overhead Roller Tracks: Manufacturer's standard carrier assembly that allows vertical adjustment of at least 1/8 inch (3 mm); consisting of

urethane with precision steel lubricated ball-bearing wheels, operating on a continuous roller track. Support panels from carrier assembly with load wheels and factory adjusted cantilever and pivot assembly and integrated anti-riser mechanism. Minimum two ball-bearing load wheels for each active leaf. Minimum load wheel diameter shall be 1 3/8 inch (35 mm).

- E. Thresholds: Manufacturer's standard thresholds as indicated below:
 - 1. Standard tapered extrusion, double bevel, under sidelights; no threshold under sliding opening.
 - 2. All thresholds to conform to details and requirements for code compliance.
- F. Fasteners and Accessories: Manufacturer's standard corrosion-resistant, non-staining, non-bleeding fasteners and accessories compatible with adjacent materials.
- G. Signage: Provide signage in accordance with ANSI/BHMA A156.10.

2.05 DOOR OPERATORS

- A. General: Provide door operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for long-term, operation under normal traffic load for type of occupancy indicated.
- B. Electromechanical Operators: Self-contained overhead unit powered by a minimum of 1/4 horsepower, permanent-magnet DC motor with gear reduction drive, microprocessor controller; and encoder.
 - 1. Operation: Power opening and power closing.
 - 2. Features:
 - a. Adjustable opening and closing speeds.
 - b. Adjustable back-check and latching.
 - c. Adjustable braking.
 - d. Adjustable hold-open time between 0 and 30 seconds.
 - e. Obstruction recycle.
 - f. On/Off switch to control electric power to operator.
 - g. Energy conservation switch that reduces door-opening width.
 - h. Closed loop speed control with active braking and acceleration.
 - i. Adjustable obstruction recycle time delay.
 - j. Self adjusting stop position.
 - k. Self adjusting closing compression force.
 - l. Onboard sensor power supply.
 - m. Onboard sensor monitoring.
 - n. Optional Switch to open/Switch to close operation.
 - 3. Mounting: Concealed.
 - 4. Drive System: Synchronous belt type.
- C. Electrical service to door operators shall be provided under Division 26 Electrical. Minimum service to be 120 VAC, 5 amps.

2.06 ELECTRICAL CONTROLS

- A. Electrical Control System: Electrical control system shall include a microprocessor controller and position encoder. The encoder shall monitor revolutions of the operator shaft and send signals to microprocessor controller to define door position and speed. Systems utilizing external magnets and magnetic switches are not acceptable.
- B. Performance Data: The microprocessor shall collect and store performance data as follows:
 - 1. Counter: A non-resettable counter to track operating cycles.
 - 2. Event Reporting: Unit shall include event and error recording including number of occurrences of events and errors, and cycle count of most recent events and errors.
 - 3. LED Display: Display presenting the current operating state of the controller.
- C. Controller Protection: The microprocessor controller shall incorporate the following features to ensure trouble free operation:
 - 1. Automatic Reset Upon Power Up.
 - 2. Main Fuse Protection.
 - 3. Electronic Surge Protection.
 - 4. Internal Power Supply Protection.
 - 5. Resettable sensor supply fuse protection.
 - 6. Motor Protection, over-current protection.
- D. Soft Start/Stop: A “soft-start” “soft-stop” motor driving circuit shall be provided for smooth normal opening and recycling.
- E. Obstruction Recycle: Provide system to recycle the sliding panels when an obstruction is encountered during the closing cycle. If an obstruction is detected, the system shall search for that object on the next closing cycle by reducing door closing speed prior to the previously encountered obstruction location, and will continue to close in check speed until doors are fully closed, at which time the doors will reset to normal speed. If obstruction is encountered again, the door will come to a full stop. The doors shall remain stopped until obstruction is removed and operate signal is given, resetting the door to normal operation.
- F. Programmable Controller: Microprocessor controller shall be programmable and shall be designed for connection to a local configuration tool. Local configuration tool shall be a software driven handheld interface. The following parameters may be adjusted via the configuration tool.
 - 1. Operating speeds and forces as required to meet ANSI/BHMA A156.10.
 - 2. Adjustable and variable features as specified in 2.5, B., 2.
 - 3. Reduced opening position.
 - 4. Fail Safe/Secure control.
 - 5. Firmware update.
 - 6. Trouble Shooting

7. I/O Status.
8. Electrical component monitoring including parameter summary.
9. Software for local configuration tool shall be available as a free download from the sliding automatic entrance manufacturer's internet site. Software shall be compatible with the following operating system platforms: Palm®, Android®, and Windows Mobile®.

2.07 ACTIVATION AND SAFETY DEVICES

- A. Motion Sensors: Motion sensors shall be mounted on each side of door header to detect pedestrians in the activating zone, and to provide a signal to open doors in accordance with ANSI/BHMA A156.10. Units shall be programmable for bi-directional or uni-directional operation and shall incorporate K-band microwave frequency to detect all motion in both directions.
- B. Presence Sensors: Presence sensors shall be provided to sense people or objects in the threshold safety zone in accordance with ANSI/BHMA A156.10. Units shall be self-contained, fully adjustable, and shall function accordingly with motion sensors provided. The sensor shall be enabled simultaneously with the door-opening signal and shall emit an elliptical shaped infrared presence zone, centered on the doorway threshold line. Presence sensors shall be capable of selectively retuning to adjust for objects which may enter the safety zone; tuning out, or disregarding, the presence of small nuisance objects and not tuning out large objects regardless of the time the object is present in the safety zone. The door shall close only after all sensors detect a clear surveillance field.
- C. Photoelectric Beams: In addition to the threshold sensor include a minimum of two (2) doorway holding beams. Photoelectric beams shall be pulsed infrared type, including sender receiver assemblies for recessed mounting. Beams shall be monitored by electrical controls for faults and shall fail safe.

2.08 HARDWARE

- A. General: Provide units in sizes and types recommended by automatic entrance door and hardware manufacturers for entrances and uses indicated.
- B. Emergency Breakaway Feature: Provide release hardware that allows panel(s) to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf (222 N) according to ANSI/BHMA A156.10. Interrupt powered operation of panel operator while in breakaway mode.
 1. Emergency breakaway feature shall include at least one adjustable detent device mounted in the top of each breakaway panel to control panel breakaway force.
 2. Limit Arms: Limit arms shall be provided to control swing of lead sliding or non-sliding panels on break-out; swing shall not exceed 90 degrees. Limit arms shall be spring loaded to prevent shock, and include adjustable friction damping.

- C. Deadlocks: Manufacturer's standard deadbolt operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1.
 - 1. Cylinders: Provide lock cylinders by BEST Access Systems, with core and key.
 - 2. Locking: Provide independent locks incorporated into the bottom rails of the sliding panel that, when engaged, automatically extend flush bolts into the threshold.

- D. Control Switch: Provide manufacturer's standard header mounted rocker switches and door position switch to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
 - 1. One-way traffic
 - 2. Reduced Opening
 - 3. Open/Closed/Automatic

- E. Power Switch: Sliding automatic entrances shall be equipped with a two position On/Off rocker switch to control power to the door.

- F. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of flexible PVC.

- G. Weather Sweeps: Manufacturer's standard adjustable nylon brush sweep mounted to underside of panel bottom.

2.09 FABRICATION

- A. General: Factory fabricates automatic entrance door assembly components to designs, sizes, and thickness indicated and to comply with indicated standards.
 - 1. Form aluminum shapes before finishing.
 - 2. Use concealed fasteners to greatest extent possible.
 - a. Where fasteners are subject to loosening or turning out from thermal and structural movements, wind loads, or vibration, use self-locking devices.
 - b. Reinforce members as required to receive fastener threads.

- B. Framing: Provide automatic entrances as prefabricated assemblies.
 - 1. Fabricate tubular and channel frame assemblies with manufacturer's standard mechanical or welded joints. Provide sub-frames and reinforcement as required for a complete system to support required loads.
 - 2. Perform fabrication operations in manner that prevents damage to exposed finish surfaces.
 - 3. Form profiles that are sharp, straight, and free of defects or deformations.
 - 4. Prepare components to receive concealed fasteners and anchor and connection devices.
 - 5. Fabricate components with accurately fitted joints with ends coped or mitered to produce hairline joints free of burrs and distortion.

- C. Doors: Factory fabricated and assembled in profiles indicated. Reinforce as required to support imposed loads and for installing hardware.
- D. Door Operators: Factory fabricated and installed in headers, including adjusting and testing.
- E. Glazing: Fabricate framing with minimum glazing edge clearances for thickness and type of glazing indicated.
- F. Hardware: Factory install hardware to the greatest extent possible; remove only as required for final finishing operation and for delivery to and installation at Project site.

2.10 ALUMINUM FINISHES

- A. General: Comply with NAAMM Metal Finishes Manual for Architectural and Metal Products for recommendations for applying and designing finishes. Finish designations prefixed by AA comply with system established by Aluminum Association for designing finishes.
- B. Painted Finish:
 - 1. Powder coat painted to match architect's sample.

PART 3 EXECUTION

3.01 INSPECTION

- A. Examine conditions for compliance with requirements for installation tolerances, header support, and other conditions affecting performance of automatic entrances. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. General: Do not install damaged components. Fit frame joints to produce joints free of burrs and distortion. Rigidly secure non-movement joints.
- B. Entrances: Install automatic entrances plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
 - 1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
 - 2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.
- C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections.

- D. Glazing: Glaze sliding automatic entrance door panels in accordance with, the Glass Association of North America (GANA) Glazing Manual, published recommendations of glass product manufacturer, and sliding automatic entrance manufacturer's instructions.
- E. Sealants: Comply with requirements specified in Division 7 Section "Joint Sealants".

3.03 FIELD QUALITY CONTROL

- A. Testing Services: Factory Trained Installer shall test and inspect each automatic entrance door to determine compliance of installed systems with applicable ANSI standards.

3.04 ADJUSTING

- A. Adjust door operators, controls, and hardware for smooth and safe operation, for tight closure, and complying with requirements in ANSI/BHMA A156.10.

3.05 CLEANING AND PROTECTION

- A. Clean glass and aluminum surfaces promptly after installation. Remove excess glazing and sealant compounds, dirt, and other substances. Repair damaged finish to match original finish. Comply with requirements in Division 8 Section "Glazing", for cleaning and maintaining glass.

END OF SECTION

SECTION 08 71 00

FINISH HARDWARE

PART 1 GENERAL

1.01 DESCRIPTION

- A. Door hardware

1.02 QUALITY ASSURANCE

- A. SUPPLIER QUALIFICATIONS

- 1. The hardware supplier must have in his/her employment an Architectural Hardware Consultant (AHC), as recognized by the Door And Hardware Institute, with a minimum of 10 years of Architectural Hardware experience, who shall be responsible for the detailing , scheduling, and ordering of the finish hardware for this Contract.

- B. DESIGN CRITERIA

- 1. Provide Underwriter’s Laboratory listed hardware for fire or accident hazard where scheduled or required to maintain rating of openings. Comply with requirements of door and door frame labels. Comply with NFPA No. 80 and local codes that are in effect in the area of the project.

1.03 SUBMITTALS

- A. Hardware Schedule: Within 10 days after receipt of a contract for the finish hardware, prepare a complete schedule and submit 6 copies of the hardware schedule with 3 copies of catalogue cuts, highlighted to show each different hardware item to the Architect for review.
- B. Do not order hardware until an approved copy of the schedule is returned to the supplier bearing the approval of the Architect.

This schedule shall indicate the following details:

Door numbers	Frame materials
Location	Hand of door
Size and thickness of door	Degree of opening
Door material	Type of attachment

- C. Templates: After receipt of the approved corrected hardware schedule, upon request the hardware supplier shall send 4 sets of templates and corrected hardware schedule to the general contractor for distribution to the wood door, metal door, and frame manufacturers/suppliers.
- D. Maintenance Manuals: Furnish 1 (one) copy of maintenance manual covering the finish hardware for this project. The manual shall consist of printed sheets from the hardware manufacturer bound in a three-ring binder and properly indexed.
 - 1. Include the following information in the maintenance manuals:
 - a. Address and telephone number of the hardware supplier.
 - b. Address and telephone number of each hardware manufacturer.
 - c. Maintenance instructions and parts list for each type of operating hardware including:
 - 1) Locks
 - 2) Exit Devices
 - 3) Closers
 - d. Warranty for closers and all other hardware.

1.04 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hardware to the jobsite only after proper provision for storage has been made. NO DIRECT SHIPMENTS WILL BE ALLOWED.
- B. Properly package and clearly identify each item relative to the hardware schedule.
- C. The hardware supplier shall authorize his representative to be present when all finish hardware is delivered to the jobsite and shall check-in each item and turn over to the General Trades Contractor for storage in a secure place under lock and key.

1.05 WARRANTY

- A. Furnish 3 copies of the following written warranty to be included in the Maintenance Manual:
 - 1. Warranty against mechanical failure of door closers for a 30 year period.
 - 2. Warranty against failure of parts of all hardware except door closers for a period 1 year.
 - 3. Warranty shall include cylinder locks.
 - 4. Starting date for all warranty periods to be the date of substantial completion of building by Architect.

PART 2 PRODUCTS

- A. Butts: Ives, Hager, Stanley IVE
- B. Exit Devices: Von Duprin 98 Series – Match Existing VON
- C. Door Closers: LCN4011/4111 - Match Existing LCN

D.	Locksets:	Schlage ND Series – Match Existing	SCH
E.	Thresholds & Weatherstrip:	National Guard, Reese, Zero	NGP
F.	Stops & Door Trim:	Ives, Trimco, Rockwood	IVE
G.	O/H Stops:	Glynn Johnson, Rixson, ABH or equal as approved by the architect	GLY

2.02 SCHEDULED HARDWARE

- A. Requirements for design: grade, function, finish, size, and other distinctive qualities of each type of Builders Hardware are indicated in the Hardware Schedule at the end of this section. Products are identified by manufacturer's hardware product numbers.
- B. Manufacturer's Product Designation: One or more manufacturers are listed for each hardware type required. The initial after the manufacturer's name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide either the product designated or where more than one manufacturer is listed, the comparable product of one of the other manufacturers which comply with requirements including those specified elsewhere in the section.

2.03 MATERIALS AND FABRICATION

- A. Hand of Door: The drawings show the direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of the door movement as shown.
- B. Base Metals: Produce hardware units of the basic metal and forming method indicated using the manufacturer's standard metal alloy, composition, temper, and hardness. Do not Furnish "optional" materials or forming methods for those indicated except as otherwise specified.
- C. Fasteners: Manufacture hardware to conform to published templates generally prepared for machine screw installation. Do not provide hardware that has been prepared for self-tapping screws except as specifically indicated.
 - 1. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match the hardware finish or if exposed in surfaces of other work to match the finish of such other work as closely as possible including "prepared for paint" in surfaces to receive painted finish.
 - a. Sex Bolts: Install door closer, door holders, and exit devices on wood doors by means of thru bolts and sex nuts.
 - 2. Provide concealed fasteners for hardware units that are exposed when the door is closed except to the extent no standard units of the type specified are

available with concealed fasteners. Do not use thru bolts for installation where the bolt head or the nut on the opposite face is exposed in other work except where it is not feasible to adequately reinforce the work.

2.04 BUTTS, HINGES, AND PIVOTS

- A. Templates: Provide only template produced units.
- B. Screws: Furnish Phillips flat-head all purpose or machine screws for installation of units except furnish Phillips flat-head all purpose wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated provide hinge pins as follows:
 - 1. Steel Hinges: Steel pins
 - 2. Non-ferrous Hinges: Stainless steel pins
 - 3. Exterior Doors: Non-removable pins (NRP)
 - 4. Interior Doors: Non-rising pins
 - 5. Tips: Flat button and matching plug finished to match leaves.
- D. Number of Hinges: Provide number of hinges indicated but not less than 3 hinges per door leaf for doors 90” or less in height and 1 additional hinge for each 30” of additional height.
- E. Size of Hinge Leaves: 4.5” high, except 5” for doors over 3’6” wide.
- F. Width of Hinges: Shall be sufficient to clear trim projection when door swings 180 degrees.
- G. Fire Rated doors over 8’0” shall have heavy weight hinges.
- H. All hinges SHALL be made of steel and have steel ball bearings where specified.

2.05 KEYING

- A. The hardware supplier shall make available to the Architect and/or Owner a representative for the purpose of consulting and reviewing the project’s keying requirements and make a written proposal of the complete key system.
- B. Proposed key plan shall include expansion potential for the Owner’s future requirements.
- C. All locksets and cylinders SHALL be provided with temporary construction cores/cylinders. Material supplier shall install permanent cores under the supervision of the owner.

- D. All locksets and cylinders SHALL be keyed to the instructions as provided by the Architect/Owner into the existing Great-Grand-Masterkey system in a keyway as directed by owner.
- E. Keys Required: Furnish quantity of keys as follows:
 - 1. Five (5) Master Keys
 - 2. Two (2) keys per lock or cylinder.
 - 3. 12 Construction keys
- F. Grandmaster, master, and change keys shall be stamped with their respective set symbol.
- G. Final cut keys to be turned over directly to the owner by means as directed by the owner.
- H. All keys shall be made of nickel silver.

2.06 CYLINDRICAL TYPE LOCKSETS

- A. All locksets and latchsets shall have steel cylindrical cases with interior parts made of steel or brass. Latch retractors shall be made of a forged steel material, **NO STAMPED STEEL LATCH RETRACTORS WILL BE ALLOWED AT HEAVY DUTY LOCKS.** No plastic, die cast or aluminum mechanisms will be allowed.
- B. All steel parts shall be bronze plated or coated with zinc-dichromate to resist rusting and corrosion.
- C. Locksets and cylinders shall have 6 pins.
- D. Furnish wrought boxes with all lock strikes.
- E. Strikes lips shall not project more than 1/8" beyond the frame at single doors or face of the inactive leaf at pairs of doors.

2.07 DEADLOCKS

- A. Deadlocks shall be cylindrical type with interior parts made of steel or bronze.
- B. All steel parts shall be bronze plated or coated with zinc-dichromate to resist rusting and corrosion.

2.08 CLOSER AND DOOR CONTROL DEVICES

- A. Surface type door closers shall be fully hydraulic, full rack and pinion action with a one piece forge steel piston 1-1/2" minimum diameter , and have a cast iron or cast aluminum case with a ten year warranty at heavy duty closers. Hydraulic fluid shall

be of a type requiring no seasonal adjustments for temperatures from 120 degrees F. to -30 degrees F.. Pinion shaft shall be minimum of 5/8” diameter at heavy duty closers. Barrier-free at all interior doors.

- B. Separate adjusting valves shall be provided for closing speed, latching speed and backcheck.
- C. Adjusting valves shall be made of a metal material with a v-slot regulating valve, concealed, and adjustable only with special wrench and shall be seated with “O” type rings.
- D. All outswinging doors to be supplied with HEAVY DUTY parallel arm at heavy duty closers.

2.09 EXIT DEVICES

- A. Provide all exit devices with roller strikes and deadlocking latchbolts.
- B. Lever trim shall have a clutch break away mechanism to disengage lever from operating mechanisms should excess force be applied.
- C. Provide removable mullions that are easily removed by a single operation of the mortise cylinder.
- D. Where exit devices are mounted on doors with raised glass beads / kits, supply the appropriate Glass Bead Kit for that condition.

2.10 MISCELLANEOUS DOOR TRIM UNITS

- A. Material shall be brass, bronze or stainless steel as appropriate for required finish. Brass bronze material to be 0.050” minimum thickness and stainless steel to be 0.050” minimum thickness. Edges of plates to be beveled and polished except lower edge can be square.
- B. Width of plates shall be 2” less than door width.
- C. Push Plates: Plate shall be 4” x 16”.
- D. Pull Plates: Plate shall be 4” x 16”. Grip shall be extruded or cast bronze or stainless steel. Locate on center of plate.
- E. Smoke Seal shall be a self-adhesive SILICONE material measuring 3/8” x 1/4”.

2.11 TOOLS FOR MAINTENANCE

- A. Furnish a complete set of specialized tools as needed for Owner's continued adjustment, maintenance and removal or replacement of finish hardware.

PART 3 EXECUTION

3.01 INSTALLATION

- A. General: All finish hardware shall be installed by General Contractor.
- B. Furnish all items of hardware with attachment screws, bolts, nuts, etc., as required to attach hardware to type of material involved and with finish to match hardware with which they are to be used. Make all attachments to metal by template machine screws.
- C. Provide sex nuts and bolts for door closers, forearm shoes of closers, and holding devices.
- D. Attach hardware to masonry or concrete with expansion bolts or similar drilled anchors to develop full strength of attached device.
- E. Run weatherstripping or soundstripping full height of both jambs and full width of head. Run thresholds full width of opening. Run door bottoms full width of doors. Set expansion anchors in solid masonry, not mortar joints. Set thresholds in caulking by sealant contractor.

3.02 PROTECTION

- A. Do not install door silencers, kickplates, pushplates, door bottoms, and wall stops until after painting is complete. Loosen locksets and panic hardware prior to painting and re-tighten after painting is complete. Mask all hardware or otherwise protect during painting operation.

3.03 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units which cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

- C. Instruct Owner’s personnel in proper adjustment and maintenance of hardware and hardware finishes during the final adjustment of hardware.
- D. Adjust all closers to meet ADA Requirements for sweep time and opening force. Set the closer’s backcheck valve to slow the doors opening from 85 degrees on.

3.04 HARDWARE SCHEDULE

- A. It is intended the following schedule include all item of finish hardware necessary to complete the work; if a discrepancy is found in the schedule, such as a missing item, improper hardware for frame, door, or fire codes, the Preamble will be the deciding document.
- B. All items shall be of proper type for attaching securely to type of material on which they occur.
- C. The schedule of materials is as follows:

✎ = Hardware Item Requiring Electrical Coordination

HARDWARE GROUP NO. 01

DOOR NUMBER:

101A

EACH TO HAVE:

2 EA	CONT. HINGE	112HD	313	IVE
1 EA	PANIC HARDWARE	CD-9849-EO	313	VON
1 EA	PANIC HARDWARE	CD-9849-NL-OP-110MD	313	VON
1 EA	RIM CYLINDER	20-057-ICX	613	SCH
2 EA	MORTISE CYLINDER	20-061-ICX	613	SCH
3 EA	FSIC CORE	23-030	606	SCH
2 EA	OFFSET PULL	8190HD-10"	613	IVE
1 EA	OH STOP	900S SHIM	613	GLY
		INSTALL OH STOP BEFORE		
		INSTALLING DOOR CLOSER		
2 EA	SURFACE CLOSER	4021	695	LCN
2 EA	MOUNTING PLATE	4020-18G	695	LCN
1 EA	WALL STOP	WS406/407CVX	613	IVE
1 EA	THRESHOLD	425EDKB X D.W.	DKB	NGP
1 SET	SEALS	BY ALUMINUM FRAME SUPPLER		
2 EA	DOOR SWEEP	200NDBK X D.W.	DKB	NGP

HARDWARE GROUP NO. 02

DOOR NUMBER:

101B

EACH TO HAVE:

2 EA	CONT. HINGE	112HD	313	IVE
2 EA	DUMMY PUSH BAR	350	313	VON
2 EA	OFFSET PULL	8190HD-10"	613	IVE
2 EA	OH STOP	900S SHIM	613	GLY
		INSTALL OH STOP BEFORE INSTALLING DOOR CLOSER		
2 EA	SURFACE CLOSER	4021	695	LCN
2 EA	MOUNTING PLATE	4020-18G	695	LCN
1 SET	SEALS	BY ALUMINUM FRAME SUPPLER		

HARDWARE GROUP NO. 03

DOOR NUMBER:

104

EACH TO HAVE:

2 EA	MORTISE CYLINDER	20-062-ICX	613	SCH
2 EA	FSIC CORE	23-030	606	SCH
		BALANCE OF HARDWARE BY DOOR MANUFACTURER		

HARDWARE GROUP NO. 04

DOOR NUMBER:

113A 113B 113C

EACH TO HAVE:

3 EA	HINGE	5BB1 4.5 X 4.5 NRP	643	IVE
1 EA	STOREROOM LOCK	ND96PD RHO	643E	SCH
1 EA	OH STOP	900S SNB	613	GLY
3 EA	SILENCER	SR64	GY	IVE

HARDWARE GROUP NO. 05

DOOR NUMBER:

113D

EACH TO HAVE:

3 EA	HINGE	5BB1 4.5 X 4.5 NRP	643	IVE
1 EA	STOREROOM LOCK	ND96PD RHO	643E	SCH
1 EA	WALL STOP	WS406/407CVX	613	IVE
3 EA	SILENCER	SR64	GY	IVE

HARDWARE GROUP NO. 06

DOOR NUMBER:
114A

EACH TO HAVE:

1 EA	CONT. HINGE	112HD	313	IVE
1 EA	DBL CYL STORE LOCK	ND66PD RHO	643E	SCH
1 EA	SURFACE CLOSER	4011 H	695	LCN
1 EA	THRESHOLD	425EDKB X D.W.	DKB	NGP
1 SET	SEALS	BY ALUMINUM FRAME SUPPLER		
1 EA	DOOR BOTTOM	35VDKB X D.W.	DKB	NGP

HARDWARE GROUP NO. 07

DOOR NUMBER:
114B

EACH TO HAVE:

3 EA	HW HINGE	5BB1HW 5 X 4.5 NRP	643	IVE
1 EA	PANIC HARDWARE	LD-98-EO	313	VON
1 EA	SURFACE CLOSER	4111 EDA	695	LCN
1 EA	KICK PLATE	8400 8" X 2" LDW B4E	613	IVE
1 EA	WALL STOP	WS406/407CVX	613	IVE
3 EA	SILENCER	SR64	GY	IVE

HARDWARE GROUP NO. 08

DOOR NUMBER:
114C 116B 116C

EACH TO HAVE:

1 EA	MORTISE CYLINDER	20-062-ICX	613	SCH
1 EA	FSIC CORE	23-030	606	SCH
		BALANCE OF HARDWARE BY DOOR MANUFACTURER		

HARDWARE GROUP NO. 09

DOOR NUMBER:
116A

EACH TO HAVE:

3 EA	HINGE	5BB1 4.5 X 4.5	643	IVE
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1 EA	ENTRY LOCK	ND92PD RHO	643E	SCH
1 EA	SURFACE CLOSER	4011	695	LCN
1 EA	KICK PLATE	8400 8" X 2" LDW B4E	613	IVE
1 EA	WALL STOP	WS406/407CCV	613	IVE
3 EA	SILENCER	SR64	GY	IVE

HARDWARE GROUP NO. 10

DOOR NUMBER:

116D 118B

EACH TO HAVE:

1 EA	CONT. HINGE	112HD	313	IVE
1 EA	ENTRY LOCK	ND92PD RHO	643E	SCH
1 EA	LOCK GUARD	LG1	695	IVE
1 EA	OH STOP	900S SHIM	613	GLY
		INSTALL OH STOP BEFORE INSTALLING DOOR CLOSER		
1 EA	SURFACE CLOSER	4021	695	LCN
1 EA	MOUNTING PLATE	4020-18G	695	LCN
1 EA	THRESHOLD	425EDKB X D.W.	DKB	NGP
1 SET	SEALS	BY ALUMINUM FRAME SUPPLER		
1 EA	DOOR SWEEP	200NDBK X D.W.	DKB	NGP

HARDWARE GROUP NO. 11

DOOR NUMBER:

116E 118A

EACH TO HAVE:

3 EA	HINGE	5BB1 4.5 X 4.5 NRP	643	IVE
1 EA	DBL CYL STORE LOCK	ND66PD RHO	643E	SCH
1 EA	SURFACE CLOSER	4111 SCUSH	695	LCN
1 EA	KICK PLATE	8400 8" X 2" LDW B4E	613	IVE
3 EA	SILENCER	SR64	GY	IVE

HARDWARE GROUP NO. 12

DOOR NUMBER:

125

EACH TO HAVE:

3 EA	HW HINGE	5BB1HW 4.5 X 4.5 NRP	643	IVE
1 EA	POWER TRANSFER	EPT10	⚡ 695	VON
1 EA	DELAYED PANIC HARDWARE	CXA-9875-L-06	⚡ 313	VON

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2 EA	MORTISE CYLINDER	20-061-ICX	613	SCH
2 EA	FSIC CORE	23-030	606	SCH
1 EA	SURFACE CLOSER	4111 SHCUSH	695	LCN
1 EA	KICK PLATE	8400 8" X 2" LDW B4E	613	IVE
3 EA	SILENCER	SR64	GY	IVE
1 EA	DOOR CONTACT	679-05 HM OR WD AS REQ	⚡	BLK SCE
1 EA	POWER SUPPLY	PS914	⚡	LGR VON
1 EA	WIRING DIAGRAM	POINT TO POINT / RISER	⚡	

DELAYED EGRESS EXIT DEVICE SYSTEM - DEPRESSING PUSHBAR FOR DESIGNATED AMOUNT OF TIME BEGINS IRREVERSIBLE ALARM CYCLE. UPON COMPLETION OF ALARM CYCLE FREE EGRESS IS ALLOWED. DEVICE CAN BE ARMED, RESET OR DISARMED BY KEY OR ACCESS CONTROL. (DELAYED EGRESS RESTRICTIONS PER IBC 2009 - 1008.1.9.7). LATCHBOLT RETRACTED BY LEVER UNLESS LOCKED BY KEY. KEY LOCKS AND UNLOCKS LEVER. DELAY 15 SECONDS.

HARDWARE GROUP NO. 13

DOOR NUMBER:
138B

EACH TO HAVE:

1 EA	CONT. HINGE	112HD EPT	313	IVE
1 EA	POWER TRANSFER	EPT10	⚡	695 VON
1 EA	DELAYED PANIC HARDWARE	CXA-9875-L-06	⚡	313 VON
2 EA	MORTISE CYLINDER	20-061-ICX	613	SCH
2 EA	FSIC CORE	23-030	606	SCH
1 EA	OH STOP & HOLDER	900H SHIM	613	GLY
1 EA	SURFACE CLOSER	4021	695	LCN
1 EA	MOUNTING PLATE	4020-18G	695	LCN
1 EA	THRESHOLD	425EDKB X D.W.	DKB	NGP
1 SET	SEALS	BY ALUMINUM FRAME SUPPLER		
1 EA	DOOR SWEEP	200NDBK X D.W.	DKB	NGP
1 EA	DOOR CONTACT	679-05 HM OR WD AS REQ	⚡	BLK SCE
1 EA	POWER SUPPLY	PS914	⚡	LGR VON
1 EA	WIRING DIAGRAM	POINT TO POINT / RISER	⚡	

DELAYED EGRESS EXIT DEVICE SYSTEM - DEPRESSING PUSHBAR FOR DESIGNATED AMOUNT OF TIME BEGINS IRREVERSIBLE ALARM CYCLE. UPON COMPLETION OF ALARM CYCLE FREE EGRESS IS ALLOWED. DEVICE CAN BE ARMED, RESET OR DISARMED BY KEY OR ACCESS CONTROL. (DELAYED EGRESS RESTRICTIONS PER IBC 2009 - 1008.1.9.7). LATCHBOLT RETRACTED BY LEVER UNLESS LOCKED BY KEY. KEY LOCKS AND UNLOCKS LEVER. DELAY 15 SECONDS.

HARDWARE GROUP NO. 14

DOOR NUMBER:
139A 139B

EACH TO HAVE:

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3 EA	HINGE	5BB1 4.5 X 4.5	643	IVE
1 EA	DOOR BOLT OCC IND	B571	643E	SCH
1 EA	DOOR PULL	8102HD-6"	613	IVE
1 EA	PUSH PLATE	8200 4" X 16"	613	IVE
1 EA	SURFACE CLOSER	4111 EDA	695	LCN
1 EA	KICK PLATE	8400 8" X 2" LDW B4E	613	IVE
1 EA	WALL STOP	WS406/407CVX	613	IVE
3 EA	SILENCER	SR64	GY	IVE

HARDWARE GROUP NO. 15

DOOR NUMBER:

145

EACH TO HAVE:

3 EA	HINGE	5BB1 4.5 X 4.5 NRP	643	IVE
1 EA	INSTITUTION LOCK	ND82PD RHO	643E	SCH
1 EA	ELECTRIC STRIKE	6211 FSE	✓ 613	VON
1 EA	SURFACE CLOSER	4111 SCUSH	695	LCN
1 EA	KICK PLATE	8400 8" X 2" LDW B4E	613	IVE
3 EA	SILENCER	SR64	GY	IVE
2 EA	CARD READER	BY ACCESS CONTROL INTEGRATOR	✓ BLK	SCE
1 EA	DOOR CONTACT	679-05 HM OR WD AS REQ	✓ BLK	SCE
1 EA	POWER SUPPLY	PS902 900-BBK	✓ LGR	SCE
1 EA	WIRING DIAGRAM	POINT TO POINT / RISER	✓	

DOOR NORMALLY CLOSED AND LOCKED

ENTRY FROM EITHER SIDE OF DOOR BY VALID CREDENTIAL AT CARD READER

END OF SECTION

SECTION 08 80 00

GLAZING

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. Provide transparent and translucent glass as indicated on the Drawings, for door, window, sidelight, transom, entrance, and storefront applications
 - 1. Float Glass
 - 2. Tempered Glass
 - 3. Glazing accessories
- B. Related Work
 - 1. Division 32 Aluminum Windscreen Systems

1.02 QUALITY ASSURANCE

- A. Perform Work in accordance with GANA Glazing Manual for glazing installation methods.
- B. Provide glazing systems capable of withstanding normal thermal movements, windloads and impact loads, without failure, including loss due to defective manufacture, fabrication and installation.
- C. Limit glass deflection to 1/200 or flexure limit of glass with full recovery of glazing
- D. Safety glass products in the US are to comply with CPSC 16 CFR Part 1201 for Category II materials.
- E. Insulating Glass products shall be permanently marked either on spacers or at least one insulating unit component with certification label of Insulating Glass Certification Council (IGCC).
- F. Single-source fabrication responsibility: All glass fabricated for each type shall be processed and supplied by a single fabricator

1.03 REFERENCES

- A. American National Standards Institute:
 - 1. ANSI Z97.1 - Safety Glazing Materials Used in Buildings Safety.

B. ASTM International:

1. ASTM C864 - Standard Specification for Dense Elastomeric Compression Seal Gaskets, Setting Blocks, and Spacers.
2. ASTM C920 - Standard Specification for Elastomeric Joint Sealants.
3. ASTM C1036 - Standard Specification for Flat Glass.
4. ASTM C1048 - Standard Specification for Heat-Treated Flat Glass-Kind HS, Kind FT Coated and Uncoated Glass.
5. ASTM C1172 - Standard Specification for Laminated Architectural Flat Glass.
6. ASTM C1193 - Standard Guide for Use of Joint Sealants.
7. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
8. ASTM E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors By Uniform Static Air Pressure Difference.
9. ASTM E546 - Standard Test Method for Frost Point of Sealed Insulating Glass Units.
10. ASTM E576 - Standard Test Method for Frost Point of Sealed Insulating Glass Units in the Vertical Position.
11. ASTM E773 - Standard Test Methods for Seal Durability of Sealed Insulating Glass Units.
12. ASTM E774 - Standard Specification for Sealed Insulating Glass Units.

C. Glass Association of North America:

1. GANA - FGMA Sealant Manual.
2. GANA - Glazing Manual.
3. GANA - Laminated Glass Design Guide.

1.04 QUALIFICATIONS

- A. Installer: Company specializing in performing Work of this section with minimum three years documented experience.

1.05 PRODUCT HANDLING

- A. Use all means necessary to protect glass and glazing materials before, during, and after installation and to protect the installed work and material of all other trades.
- B. In the event of damage including chips, cracks, fractures, and other gross flaws, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.
- C. Store glass indoors and take necessary precautions to protect it from direct exposure to rain, standing water, direct sunlight and other adverse weather conditions.
- D. Protect all edges from impact and use a clean, dry separating material.

1.06 SUBMITTALS

- A. Product data: Submit manufacturer's technical data for each glass and glazing material required, including installation and maintenance instructions.
- B. Certificates of compliance from glass and glazing materials manufacturers attesting that glass and glazing materials furnished for project comply with requirements. Separate certification will not be required for glazing materials bearing manufacturer's permanent label designating type and thickness of glass, provided labels represent a quality control program involving a recognized certification agency or independent testing laboratory acceptable to authority having jurisdiction.
- C. Product Test Listings: From a qualified testing agency indicating insulated units and security glass complies with requirements, based on comprehensive testing of current product.

1.07 WARRANTIES

- A. All glass products of architectural quality produced within normal industry tolerances and standards as set forth in each manufacturer's published literature and catalog data shall warrant the following products meet the conformances listed in the references section.
- B. Provide a 10-year limited warranty for insulating glass. Warranty covers deterioration due to normal conditions of use and not to handling, installing, protecting and maintaining practices contrary to glass manufacturer's printed instructions.
- C. Provide a 10-year limited warranty for reflective coating. Warranty covers deterioration due to normal conditions of use and not to handling, installing, protecting and maintaining practices contrary to glass manufacturer's printed instructions.
- D. The Contractor shall warrant the installation of all glass and glazing products against defects in material or workmanship for a period of 2 years.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Guardian Industries Corporation, 3801 S Highway 287, Corsicana, TX 75110, Ph 903-872-4871 or 800-527-2511, Fx 903-874-8638
- B. PPG Industries, One PPG Place, 31N Pittsburgh, PA 15272, Ph 412-434-2858, Fx 412-434-3675.

- C. Pilkington; Toledo, Ohio; www.pilkington.com.
- D. A/E approved equal

2.02 GLASS PRODUCTS

- A. Clear Float Glass Type FG-CF shall be:
 - 1. ASTM C1036 Type I transparent flat
 - 2. Class 1: Clear.
 - 3. Quality: q3 glazing select for architectural fenestrations
 - 4. Quality: q4 for display cases and applications where near objects are viewed through the glass.
 - 5. Thickness - 1/4" unless otherwise noted on the drawings or other sections of this specification.
- B. Tinted Float Glass Type FG-TF shall be:
 - 1. ASTM C1036 Type I transparent flat
 - 2. Class 2: Tinted, heat absorbing, light-reducing
 - 3. Quality: q3 glazing select
 - 4. Thickness: 1/4" unless otherwise noted on the drawings or other sections of this specification.
 - 5. Color – bronze.
- C. Clear Tempered Glass Type SG-CT:
 - 1. ASTM C1048, Kind FT Fully tempered
 - 2. Condition A, uncoated,
 - 3. Type 1 transparent flat
 - 4. Class 1 clear
 - 5. Quality q3 glazing select
 - 6. Thickness: 1/4" unless otherwise noted on the drawings or other sections of this specification.
 - 7. Permanent logo, which signifies conformance with the Consumers Product Safety Commission 16 CFR-1201 and the Safety Glass Test Requirements of ANSI Z-97
- D. Tinted Tempered Glass Type SG-TT:
 - 1. ASTM C1048, Kind FT Fully tempered,
 - 2. Condition A, uncoated
 - 3. Type 1 transparent flat
 - 4. Quality q3 glazing select
 - 5. Class 2 tinted, heat absorbing, light reducing .
 - 6. Permanent logo, which signifies conformance with the Consumers Product Safety Commission 16 CFR-1201 and the Safety Glass Test Requirements of ANSI Z-97
 - 7. Color – bronze.

2.03 DOUBLE PANE INSULATING GLAZING UNITS

- A. Glazing Unit Composition:
 - 1. Exterior door units shall consist of a tempered exterior clear of ¼” thickness, a 1/8” airspace and a tempered interior clear glass of ¼” thickness with silicone sealant edge seal.
- B. Glazing Unit Performance Values:
 - 1. Indoor Lite - Clear Float glass/Outdoor Lite - Clear Float glass
 - a. Visible Light Transmission- 79% min
 - b. U-Value Winter - 0.48
 - c. U-Value Summer - 0.55
 - d. Relative Heat Gain - 170
 - e. Shading Coefficient - 0.81 max
 - f. Outdoor Visible Light Reflectance - 15%
 - 2. Impact Safety Resistance: ANSI Z97.1 and CPSC 16CFR1201
 - 3. STC Rating: Approximately 35 dB.
 - 4. Surface Finish: polished.
 - 5. Positive Pressure Test: UL 10C, UBC 7-2 and 7-4; passes.
- C. Labeling: Permanently label each piece of fire-rated glazing with manufacturer’s logo, UL and/or WHI logo and fire rating in sizes up to 3,325 sq. in

2.04 GLAZING MATERIALS

1.02 GLAZING MATERIALS

- A. Elastomeric Glazing Sealants: Materials compatible with adjacent materials including glass, insulating glass seals and glazing channels.
 - 1. Silicone Glazing Sealant: ASTM C920, Type S, Grade NS, Class and Use suitable for glazing application indicated; single component; chemical curing; capable of water immersion without loss of properties; non-staining, cured Shore A hardness of 15 to 25.
 - a. Color: As selected.
 - b. Structural Silicone: Furnish high-modulus structural silicone glazing materials where sealant bonds glass to substrate.
- B. Glazing Compounds:
 - 1. Glazing Compound: Modified oil type, non-hardening, knife grade consistency; manufacturer’s standard gray color.
- C. Glazing Splines and Gaskets: neoprene extruded shape to suit glazing channel retaining slot.

- D. Glazing Tape: Closed cell polyvinyl chloride foam, coiled on release paper over adhesive on two sides, maximum water absorption by volume of 2 percent, designed for compression of 25 percent to effect an air barrier and vapor retarder seal.
- E. Setting Blocks: Neoprene or silicone, 80 to 90 Shore A durometer hardness, length of 0.1 inch for each square foot of glazing or minimum 4 inch x width of glazing rabbet space minus 1/16 inch x height to suit glazing method and pane weight and area.
- F. Spacer Shims: Neoprene or Silicone, 50 to 60 Shore A durometer hardness, minimum 3 inch long x one half the height of glazing stop x thickness to suit application
- G. Glazing Clips: Manufacturer's standard type.

2.05 FABRICATION

- A. Fabricate glass and other glazing products in sizes required to glaze openings indicated for Project, with edge and face clearances, edge and surface conditions, and bite complying with recommendations of product manufacturer and referenced glazing standard as required to comply with system performance requirements.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine glass framing, with glazier present, for compliance with the following:
 - 1. Manufacturing and installation tolerances, including those for size, squareness, offsets at corners.
 - 2. Minimum required face or edge clearances.
 - 3. Observable edge damage or face imperfections.
- B. Do not proceed with glazing until unsatisfactory conditions have been corrected.
- C. Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings that are not firmly bonded to substrates.

3.02 INSTALLATION (GLAZING)

- A. Follow current glazing guidelines published by American Architectural Manufacturing Association (AAMA), Glass Association of North America (GANA), formerly Flat Glass Marketing Association (FGMA) and Sealed Insulating Glass Manufacturers Association (SIGMA) and all precautions, limitations and design considerations detailed in manufacturer's Product and Technical Data Sheets.
- B. Set units of glass in each series with uniformity of pattern, draw, bow, and similar characteristics.

- C. Cut glazing tape to length and set against permanent stops, flush with sight lines to fit openings exactly, with stretch allowance during installation.
- D. Place setting blocks located at quarter points of glass with edge block no more than 6 inches from corners.
- E. Glaze vertically into labeled fire-rated metal frames or partition walls with same fire rating as glass and push against tape for full contact at perimeter of pane or unit.
- F. Place glazing tape on free perimeter of glazing in same manner described above.
- G. Install removable stops and secure without displacement of tape. Face shims will not be allowed
- H. Using specified glazing compound, without adulteration; bed glazing material in glazing compound; entirely fill all recess and spaces. Provide visible glazing compound with smooth and straight edges.
- I. Install in vision panels in fire-rated doors to requirements of NFPA 80.
- J. Install so that appropriate markings remain permanently visible
- K. Provide adequate clearance for bow and warp of tempered glass as specified in the ASTM Standard C-1048-92.
- L. Protect glass from welding splatter, sand blasting, fireproofing, concrete splatter and other potentially damaging work.

3.03 SAFETY

- A. Provide all means necessary to ensure the safety of all trades and the public relating to the work of this section.

3.04 CLEAN-UP

- A. Prior to final inspection, clean all glazing products installed under this section. Leave manufacturer's labels in place throughout the final inspection period or until directed by the Architect to remove them.
 - 1. Immediately prior to the execution of the Certificate of Substantial Completion and occupancy by the Owner, clean all glazing in accordance with the product manufacturer's instructions.

3.05 SCHEDULE

- A. See Drawings.

END OF SECTION

SECTION 09 22 00

GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.01 DESCRIPTION OF WORK

- A. Section includes
1. Stud wall framing
 2. Metal channel ceiling framing
 3. Gypsum board and joint treatment
 4. Gypsum sheathing (non-structural)
 5. Cement board underlayment
 6. Textured finish
- B. Related Sections:
1. Division 5 - Cold-Formed Metal Framing
 2. Division 6 - Rough Carpentry
 3. Division 7 - Batt Insulation: Acoustic and Thermal Insulation

1.02 REFERENCES

- A. ASTM International:
1. ASTM C1396 – Standard Specification for Gypsum Board
 2. ASTM C475 - Standard Specification for Joint Compound and Joint Tape for Finishing Gypsum Board
 3. ASTM C514 - Standard Specification for Nails for the Application of Gypsum Board
 4. ASTM C557 - Standard Specification for Adhesives for Fastening Gypsum Wallboard to Wood Framing
 5. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members
 6. ASTM C665 - Standard Specification for Mineral-Fiber Blanket Thermal Insulation for Light Frame Construction and Manufactured Housing
 7. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products
 8. ASTM C840 - Standard Specification for Application and Finishing of Gypsum Board
 9. ASTM C1002 - Standard Specification for Steel Drill Screws for the Application of Gypsum Panel Products or Metal Plaster Bases
 10. ASTM C1280 - Standard Specification for Application of Gypsum Sheathing
 11. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials

12. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
13. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials

B. Gypsum Association:

1. GA 214 - Recommended Levels of Gypsum Board Finish.
2. GA 216 - Application and Finishing of Gypsum Board.
3. GA 600 - Fire Resistance Design Manual Sound Control.

C. Intertek Testing Services (Warnock Hersey Listed):

1. WH - Certification Listings.

D. National Fire Protection Association:

1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.

E. Underwriters Laboratories Inc.:

1. UL - Fire Resistance Directory.
2. UL 723 - Tests for Surface Burning Characteristics of Building Materials.

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's product specifications and installation instructions for systems shown.

B. When fire-rated assemblies are required submit:

1. Certificates: Submit manufacturer's certification of compliance with fire and sound requirements for each system shown. Include name of manufacturer and complete description of door frames, elevator door frames, electrical boxes, and other penetrations included in each tested assembly for each system shown.
2. Proof shall include test results of the selected proprietary assembly), and the primary system components (such as gypsum panels) from an independent agency such as Underwriters Laboratories (UL).

C. All components of an assembly shall be classified by the same agency. Only complete tested assemblies shall be accepted

1.04 QUALITY ASSURANCE

A. When building envelope is not completely closed prior to start of gypsum board installation, provide and install moisture- and mold resistant glass-mat gypsum wallboard products with moisture-resistant surfaces complying with ASTM C1658 in all locations. Paper-faced gypsum board installed prior to closing of building envelope shall be removed

- B. Fire-Resistance Rating: Where systems with fire resistance ratings are indicated or required, provide materials and installations which are identical with those of applicable assemblies tested per ASTM E 119 by fire testing laboratories acceptable to authorities having jurisdiction.
- C. Single Source Responsibility for shaft wall assemblies: Provide steel framing, gypsum boards, insulation, fasteners, joint treatments, and other materials in the assembly or assemblies from the single manufacturer which has utilized these materials in recognized fire containment and sound tests.
- D. Levels of Gypsum Board Finish: GA-214-90

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in original packages, containers or bundles bearing brand name and identification of manufacturer or supplier.
- B. Store materials inside under cover and in manner to keep them dry, protected from weather, direct sunlight, surface contamination, corrosion and damage from construction traffic and other causes. Neatly stack gypsum boards flat to prevent sagging.
- C. Handle materials to prevent damage to edges, ends or surfaces. Protect metal corner beads and trim from being bent or damaged.

1.06 PROJECT CONDITIONS

- A. Environmental Requirements, General: Comply with requirements of referenced gypsum board application standards and recommendations of gypsum board manufacturer, for environmental conditions before, during, and after application of gypsum board.
- B. Cold Weather Protection: When ambient outdoor temperatures are below 55 degrees F (13 degrees C), maintain continuous, uniform, comfortable building working temperatures of not less than 55 degrees F (13 degrees C) for a minimum period of 48 hours prior to, during, and following application of gypsum board and joint treatment materials or bonding of adhesives.
- C. Ventilation: Ventilate building spaces as required to remove water in excess of that required for drying of joint treatment material immediately after its application. Avoid drafts during dry, hot weather to prevent too rapid dry

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Celotex Building Products
- B. Certainteed
- C. Georgia Pacific
- D. National Gypsum Co
- E. United States Gypsum Co

2.02 METAL SUPPORT MATERIALS

- A. Metal Studs: Review structural and architectural drawings. If not scheduled or noted on the drawings, provide minimum 25 ga. and 20 ga. or having equivalent structural properties. In partitions less than full height, provide 14 ga.
- B. Metal Tracks and Headers: Minimum 25 ga. and 20 ga. or having equivalent structural properties.
- C. Cold-rolled Channels: 60 ga., 1-1/2 inch.
- D. Furring Channels: 26 ga., roll-formed, hat-shaped.
- E. Furring Channel Clips: To attach furring channels to 1-1/2 inch channels in ceilings.
- F. Fasteners: ASTM C1002
 - 1. Self-drilling or self-tapping screws
 - 2. Power actuated
 - 3. Drilled expansion bolts
 - 4. Screws with sleeves
- G. Hanger Wire: 8 ga.
- H. Tie Wire: 16 ga.
- I. Optional Furring System: Fire Front 650 System per Chicago Metallic Corporation.
- J. Lateral Bracing: As required by IBC to meet Seismic Requirements.

2.03 GYPSUM BOARD

- A. Interior Fire Rated Gypsum Board:
 - 1. ASTM C 1396; fire resistive type, UL or WH rated
 - 2. 5/8 inch thick, maximum available length
 - 3. ends square cut, tapered edges

- B. Fire Rated Water-Resistant Gypsum Board:
 - 1. ASTM C 1396, Type X.
 - 2. Gypsum core panel with enhanced fire-resistance and water resistance core.
 - 3. 5/8 inch thick, maximum available length
 - 4. ends square cut, tapered edges.

- C. Exterior Gypsum Soffit Board:
 - 1. ASTM C931/C931M.
 - 2. Fire rated type 5/8 inch thick, maximum available length.
 - 3. Ends square cut, tapered edges.
 - 4. Sag- and warp-resistant.
 - 5. Gypsum board core w/water repellent face and back paper.

- D. Exterior Sheathing Board:
 - 1. Refer to Structural Drawings.

- E. Moisture and Mold Resistant Wallboard: ASTM C1178 glass mat gypsum substrate for use as in moisture-prone areas and as tile backer, approved for use by the Tile Council of America (TCA) Handbook for Ceramic Tile Installation
 - 1. Product: Georgia-Pacific Corporation DensShield Fireguard Type X
 - 2. Thickness: 5/8"
 - 3. Composition: Water-resistant treated core with glass mat moisture protectant coating and embedded glass mats, both sides. Face side surfaced with heat-cured copolymer water.
 - 4. Fire Resistance when tested in accordance with ASTM E119, UL Classified.
 - 5. Provide 2 inch wide, coated glass fiber tape for joints and corners

2.04 CEMENT BOARD

- A. Underlayment:
 - 1. Cementitious, water durable, board; surfaced with fiberglass reinforcing mesh on front and back; long edges wrapped;
 - 2. Complying with ANSI A118.9 and ASTM C 1325
 - 3. Thickness: 1/4 in.
 - 4. Width: 4 ft.
 - 5. Length: 4 ft.
 - 6. Edges: Tapered.

7. Compressive Strength: Not less than 2250 lbs. per sq. in. when tested in accordance with ASTM D 2394.
 8. Water Absorption: Not greater than 8 percent when tested for 24 hours in accordance with ASTM C 473.
- B. Fasteners:
1. Nails: 1-1/2-in. long, hot dipped galvanized, and in accordance with FS FF-N-105B, Type 2, Style 20.
 2. Screws: Hi-Lo thread screws (No. 8) wafer head, corrosion-resistant, 1-1/4 in. or 1-5/8 in. long, and complying with ASTM C 1002.
- C. Joint Treatment: Tape: Alkali-resistant fiberglass mesh tape intended for use with cement board.

2.05 TRIM ACCESSORIES

- A. General: Provide manufacturer's standard trim accessories of types indicated for drywall work, formed of galvanized steel unless otherwise indicated, with either knurled and perforated or expanded flanges for nailing or stapling, and beaded for concealment of flanges in joint compound. Provide corner beads, L-type edge trim beads, U-type edge trim beads, special L-kerf-type edge trim beads, and one-piece control joint beads.

2.06 JOINT TREATMENT MATERIALS

- A. General: ASTM C475; type recommended by the manufacturer for the application indicated, except as otherwise indicated.
- B. Joint Tape:
1. Paper reinforcing tape for gypsum board.
 2. 2" wide 10x10 glass mesh tape for glass backer board.
- C. Interior Joint Compound: On interior work, provide chemical-hardening type for bedding and filling, and ready-mixed vinyl-type or vinyl-type powder-type for topping.
1. Grade: A single multi-purpose grade for entire application.
- D. Water-Resistant Joint Compound: Special water-resistant type for treatment of joints, fastener heads and cut edges of water-resistant backing board.
1. Product: Subject to compliance with requirements, provide Sheetrock Brand W/R Compound; United States Gypsum Company.

2.07 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials for gypsum drywall work of the type and grade recommended by the manufacturer of the gypsum board.
- B. Gypsum Board Screws: Comply with ASTM C646.
- C. Wall Texture: Unaggregated texture coating designed for application over properly prepared interior surfaces.

2.08 GRID SUSPENSION SYSTEM FOR INTERIOR SUSPENDED GYPSUM BOARD CEILINGS

- A. ASTM C645 Direct Hung System Of Main Beams And Cross Furring Members That Interlock.
- B. Products By:
 - 1. Armstrong
 - 2. Chicago Metallic
 - 3. USG Interiors, Inc.

PART 3 EXECUTION

3.01 ERECTION TOLERANCES

- A. Maximum Variation From Indicated Position: 1/8 inch in 10 feet
- B. Maximum Variation From Plumb: 1/8 inch in 10 feet

3.02 INSTALLATION OF PARTITION FRAMING - METAL

- A. Align all partitions accurately according to the partition layout. Attach floor and ceiling runners 24' o.c. to concrete slabs with concrete stud nails or power driven anchors
- B. Position studs plumb in ceiling and floor runners and securely attach with not less than one suitable screw with flat bearing surface on each side of stud ends. At Contractor's option, a crimping tool which is scissors shaped and manually operated can be used to rigidly attach metal studs to drywall ceiling and floor runners. Space studs no further apart than 16" o.c. Anchor all studs located adjacent to doors and window frames, partition intersections and corners to runner flanges with USG Metal Lock Fastener or by positive screw engagement with 3/8" Type S, pan head screws through each stud flange and runner flanges. Stud splicing not permissible.
- C. Fabricate corners using minimum of three studs.
- D. Brace stud framing system rigid.

- E. Locate studs no more than 2” from all door frame jambs, abutting partitions, partition corners and other construction. Provide two continuous studs each side of door frames. Securely anchor studs to the jamb and head anchor clips of each door or borrowed light frame by bolt or screw attachment. Over metal door and borrowed light frames install a cut-to-length section of runners with the flanges slit and web bent to allow flanges to overlap adjacent vertical studs and securely screw-attach to adjacent studs.
- F. Door Frames: Abut with metal stud reinforcing consisting of boxed double studs with gypsum panels screw-attached 8” o.c. to both studs. For standard doors, install boxed standard metal studs. For solid-core doors and doors 36” to 48” inclusive, install one standard and one 20 gauge stud with 20 gauge stud next to jamb anchor clip. For double doors, install two 20 gauge studs. Screw-attach stud reinforcing to jamb anchor clips.

3.03 INSTALLATION OF PARTITION FRAMING - WOOD

- A. Install supplementary framing, blocking, and bracing at terminations in the work and for support of fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, and similar work to comply with details indicated or if not otherwise indicated, to comply with applicable published recommendations of gypsum board manufacturer, or if not available, the “Gypsum Construction” handbook published by United States Gypsum Company.
- B. Install wood nailer at ceilings and where gypsum drywall system abuts other work, except as otherwise indicated.
- C. Extend partition stud system through acoustical ceilings and elsewhere as indicated to the structural or substrate above the ceiling.
- D. Terminate partition and system at ceilings, except where indicated to be extended to structural support or substrate above.
- E. Space studs 16” o.c. unless otherwise indicated.
- F. Frame opening other than door openings to comply with details.

3.04 INSTALLATION OF WALL FURRING:

- A. Erect wall furring for direct attachment walls.
 - 1. Erect furring channels horizontally; space as noted on the drawings, not more than 4 inches from floor and ceiling lines.
 - 2. Secure in place on alternate channel flanges at maximum 24 inches on center.

3.05 INSTALLATION OF CEILING SUPPORT SYSTEMS

- A. Space eight gauge hangers not over 4'-0" in the direction of the 1-1/2" main runner channels and within 6 inches of the ends of main runner runs, and of boundary walls, girders or similar interruption of ceiling continuity.
- B. Place main runners not over 4'-0" o.c. properly positioned, leveled, and saddle tie hangers along runner.
- C. Do not let main runners into nor bring in contact with abutting walls. Locate runner channels within 6" of the walls to support the ends of the furring channels.
- D. Space furring channels 16" o.c. and securely clip with furring channel clips or saddle tie with two strands of 16 gauge tie wire to main runners or main support members. Do not let into or bring in contact with abutting walls. Provide end splices by nesting channels or studs no less than 8" and securely wire tying.
- E. Install metal furring channel clips on alternate sides of the main runner channel. Wire-tie metal furring channel to 1-1/2" channel when clips cannot be altered and to main support members.
- F. At light troffers or any openings that interrupt the main runner or furring channels, install additional cross reinforcing.
- G. In ceilings, spacing of hangers and channels is designed to support only the dead load. Independently support heavy concentrated load.

3.06 INSTALLATION OF GYPSUM BOARD

- A. Gypsum Board Application and Finishing Standards: ASTM C840 and GA216.
- B. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1'-0" in alternate courses of board.
- C. Install ceiling boards in the direction and manner which will minimize the number of end-butt joints, and which will avoid end joints in the central area of each ceiling. Stagger end joints at least 1'0".
- D. Install wall/partition boards horizontally with as long as possible sheets to minimize joints with end joints staggered over studs.
- E. Install exposed gypsum board with face side out. Do not install imperfect, damaged, or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.

- F. Locate either edge or end joints over supports, except in horizontal applications or where intermediate supports or gypsum board back-blocking is provided behind end joints. Position boards so that like edges abut, tapered edges against tapered edges and mill-cut or field-cut ends against mill-cut or field-cut ends. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs on opposite sides of partitions.
- G. Attach gypsum board to supplementary framing and blocking provided for additional support at openings and cutouts.
- H. Cover both faces of stud partition framing with gypsum board in concealed spaces (above ceilings, etc.), except in chase walls which are properly braced internally.
 - 1. Except where concealed application is required for sound, fire, air or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. area, and be limited to 50% of full coverage.
- I. Space fasteners in gypsum boards in accordance with referenced standards and manufacturer's recommendations, except as otherwise indicated.

3.07 METHODS OF GYPSUM DRYWALL APPLICATION

- A. Single-Layer Application: Install gypsum wallboard.
 - 1. On ceilings, apply gypsum board prior to wall/partition board application to the greatest extent possible.
 - 2. On partitions/walls, apply gypsum board horizontally (perpendicular). Use maximum length sheets possible to minimize end joints.
- B. Single Layer Fastening Methods: Apply gypsum boards to supports as follows:
 - 1. Fasten with screws.

3.08 INSTALLATION OF DRYWALL TRIM ACCESSORIES

- A. General: Where feasible, use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports. Otherwise, fasten flanges by screwing or stapling in accordance with manufacturer's instructions and recommendations.
- B. Install metal corner beads at external corners of drywall work.
- C. Install metal edge trim whenever edge of gypsum board would otherwise be exposed or semi-exposed. Provide type with face flange to receive joint compound.
 - 1. Install curved or radius outside corner bead.
 - 2. Install L-type trim where work is tightly abutted to other work.

3.09 INSTALLATION OF DRYWALL FINISHING

- A. General: Apply treatment at gypsum board joints (both directions), flanges of trim accessories, penetrations, fastener heads, surface defects, and elsewhere as required to prepare work for decoration. Prefill open joints and rounded or beveled edges, if any, using type of compound recommended by manufacturer.
- B. Apply joint tape at joints between gypsum boards, except where a trim accessory is indicated.
- C. Level 1 Finish:
 - 1. Apply in plenum areas above ceilings, in attics, in areas where the assembly is concealed; however, in areas where fire-resistance rating is required for the gypsum board assembly, details of finish must be in accordance with reports of fire tests of assemblies that have met the fire-rating requirements.
 - 2. Apply the first embedding coat of joint compound to joint and to inside corners.
- D. Level 2 Finish:
 - 1. Apply where water-resistant gypsum backing board is used as a substrate for tile; in garages, warehouse storage and similar areas where surface appearance is not a primary concern.
 - 2. Apply the first embedding coat and second fill coat of joint compound to inside corners and one coat of joint compound over all fasteners, metal bead and trim.
- E. Level 3 Finish:
 - 1. Apply in appearance areas that are to receive heavy texture or medium texture (spray or hand applied) finishes before final painting, or where heavy grade wall coverings are to be applied as the final decoration. Do not use this level of finish in areas that require a smooth painted finish, or where medium weight wall coverings are to be applied as the final decoration.
 - 2. Apply the first embedding coat, second fill coat and third finish coat of joint compound to joints and inside corners. Apply 3 coats of joint compound over all fasteners, metal bead and trim.
- F. Level 4 Finish:
 - 1. Apply where light texture and flat paint is to be used as the final finish decoration. Do not apply this level of finish where gloss, semi-gloss or enamel paint has been specified
 - 2. Apply the first embedding coat, second fill coat and third finish coat of joint compound to joints and inside corners. Apply 3 coats of joint compound over all fasteners, metal bead and trim sanding after each of three coats.
- G. Level 5 Finish:
 - 1. Apply where gloss, semi-gloss, enamel or non-textured flat paint is to be used as the final finish decoration.

2. Apply to provide a uniform surface.
3. Apply the first embedding coat, second fill coat and third finish coat of joint compound to joints and inside corners. Apply 3 coats of joint compound over all fasteners, metal bead and trim sanding after each of three coats. Apply a thin skim coat over the entire surface.

3.10 APPLICATION OF TEXTURE FINISH

- A. Surface Preparation and Primer: Prepare and prime drywall and other surfaces in strict accordance with texture finish manufacturer's instructions. Apply primer to all surfaces to achieve texture finish.
- B. Finish Application: Mix and apply finish to drywall and other surface indicated to receive finish in strict accordance with manufacturer's instructions to produce a uniform texture without starved spots or other evidence of thin application, and free of application patterns.
- C. Texture shall be an to match existing adjacent construction.
 1. Remove any texture droppings or overspray from door frames, windows, and other adjoining work.

3.11 PROTECTION OF WORK

- A. Provide final protection and maintain conditions, in a manner suitable to installer, which ensures gypsum drywall work being without damage or deterioration at times of substantial completion.

3.12 SCHEDULE

- A. Cementitious backer board for use as tile backer board. Tile where noted on the drawings

END OF SECTION

SECTION 09 24 00

STUCCO SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide three-coat stucco system including cementitious color coat.
- B. The types of stucco basecoat assembly include:
 - 1. Factory blended fiber-reinforced cement plaster basecoat for jobsite mixing to provide scratch and brown coats to receive cement colored stucco finish.
- C. Products installed but not supplied under this section:
 - 1. Joint Sealant: Refer to Division 7 Joint Treatment (Sealants) Section.

1.02 DESCRIPTION

- A. Scratch and Brown Concentrate fiber reinforced stucco that is a factory blended formulation of portland cement, lime, fibers and proprietary ingredients for use with jobsite added ASTM C 897 stucco sand and clean potable water.
- B. Substrate Conditions:
 - 1. Sheathing substrates shall be sound, dry and free of dust, dirt, and other contaminants.
 - 2. Substrate Dimensional Tolerances: Flat with 1/4 inch within any 4 foot radius to maintain a uniform thickness of basecoat material.
 - 3. Maximum deflection of substrate assembly under positive or negative design loads shall not exceed L/360 of span.
- C. Expansion Joints:
 - 1. Continuous expansion joints shall be installed at all areas of dissimilar materials, multiple story plate lines or existing engineered through wall expansion joints.
 - 2. Per ASTM C 1063, inch Expansion and or contraction joints shall be installed in walls not more than 144 ft² in area and not more than areas of 100 ft² for all horizontal applications. The distance between joints shall not exceed 18 ft in either direction or a length-to-width ratio of 2-1/2 to 1 inch.
 - 3. Location and frequency of control joints greater than that listed above is shown on the drawings.

1.03 QUALITY ASSURANCE

- A. Requirements of Regulatory Agencies: Install stucco basecoat system to comply with all applicable codes and standards and with requirements of local agencies having jurisdiction.

- B. Applicator Qualifications: Applicators specializing in the installation of exterior stucco systems with a minimum of 5 years experience in work similar to that required by this section. Provide at least one person who shall be present at all times during execution of this work, and who is familiar with these types of materials and with the best installation methods. All applicators must be approved by the system manufacturer.
- C. Allowable Tolerances: Maximum deviation from true plane of 1/8 inch in five feet as measured by straight edge placed at any location on surface.
- D. Job Mock-up, including Finish Coat System:
 - 1. 4' x 4' sample panel of same materials on same substrates as for project.
 - 2. Show color, texture and workmanship of finish work.
 - 3. Do not proceed with work until sample is reviewed and approved by A/E.
 - 4. Maintain sample panel on project site for duration of project for comparison purposes.
 - 5. Remove sample upon project completion, or when directed by A/E.
- E. Single Source Responsibility: All system materials shall be from a single manufacturing source or one that is approved by the system manufacturer.

1.04 SUBMITTALS

- A. Manufacturer's technical information including installation instructions and recommendations.
- B. Manufacturer's verification that products meet specification requirements.
- C. Color samples from which A/E will make a selection.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver manufactured materials in original unopened packages or containers, with manufacturer's labels intact and legible.
- B. Keep materials dry, stored off ground, under cover and away from damp surfaces.
- C. Remove wet or deteriorated materials from site.

1.06 JOB CONDITIONS

- A. Environmental Requirements (Cold Weather):
 - 1. Do not use frozen materials in cement plaster mixes.
 - 2. Do not apply cement plaster to frozen surfaces or surfaces containing frost.
 - 3. Do not apply cement plaster when ambient temperature is forecast to be less than 40 deg. F. within a 48 hour period following application.

- B. Environmental Requirements (Hot Weather):
 1. Protect cement plaster from uneven and excessive evaporation during hot, dry weather.
 2. Do not apply cement plaster when ambient temperature is above 100 deg. F.
- C. Protection:
 1. Protect finish surfaces installed prior to plastering.
 2. Maintain protection in place until completion of work.
 3. Protect finished work when stopping for the day or when completing an area from water penetration.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. El Rey Stucco by ParexLahabra, Inc; Albuquerque, NM
- B. Other manufacturer's products when submitted and approved by the A/E in accordance with Product Substitutions, Section 01 60 00.

2.02 MATERIALS

- A. Fiber-47 Concentrate as manufactured by El Rey Stucco Co., Inc or manufacturer's equivalent factory blended, stucco basecoat concentrate consisting of Portland Cement, lime, alkali resistant fiberglass and acrylic fibers.
- B. Sand:
 1. Comply with all requirements of ASTM C 897.
 2. Gradation:

<u>US Standard Sieve</u>	<u>Weight Retained</u>
No. 4	0%
No. 8	0 - 10%
No. 16	10 - 40%
No. 30	30 - 65%
No. 50	70 - 90%
No. 100	95 - 100%

- C. Water: Potable.
- D. Bonding Agent: For direct bond to masonry or existing stucco applications
 1. Superior Bond 100, Acrylic polymer bonding agent.
- E. Finish Coat – Cement Based Colored Stucco Finish:
 1. El Rey Stucco Co, Inc Premium Stucco Finish or manufacturer's equivalent cement based colored stucco finish coat consisting of cement, lime, properly graded aggregate and colorant.

2. Color as selected by the A/E.

F. Accessories:

1. Weather Resistant Barrier: 1 layer of grade “D” 15 pound building felt over substrates of exterior gypsum sheathing at framed walls.
2. Metal Accessories: Manufacturer’s standard steel products unless otherwise indicated as Zinc Alloy.
 - a. Exterior Components: Hot dip galvanized finish, Minimum of a 17 Gauge Self-Furred Stucco Netting over all areas to receive scratch, brown and finish coat system unless direct bond method to masonry is used.
 - b. Terminations: J-Metal or Stucco stop, general purpose type with expanded or perforated flanges. Not required at masonry walls.
 - c. Cornerite: Manufacturer’s standard preformed interior corner reinforcement made from 2.5 lbs./square yard of diamond mesh lath. (Interior Corners).
 - d. Bullnose Corner Beads: Expanded or flanged to suite application.(Exterior Corners)
 - e. Control Joints: No. XJ15-3 control joint with 1/4” slot, and 1” grounds, or equal. Control joints must be wire tied to the lath and not nailed or screwed to substrate.
 - f. Expansion Joints: Two piece adjustable expansion joints, free floating adjustments from 1/4 inch (6.35mm) to 5/8 inch.
 - g. Fascia Drip: Extruded aluminum drip screed.
 - h. Weep Screeds: Foundation weep screed, with perforations and minimum 3-1/2 inch (88.9mm) vertical attachment flange.
 - i. Fasteners: (Steel Stud Applications) Screws, galvanized steel of type and length suitable for at least a 1/2” penetration of the steel stud system.
 - j. Fasteners: (CMU Applications), Galvanized steel of furring type and length suitable for at least 1/2” penetration of the block substrate.

2.03 MIXES

A. General:

1. Accurately proportion materials for each plaster batch with measuring devices of known volume.
2. Size batches for complete use within maximum of one hour after mixing.
3. Retemper plaster stiffened from evaporation, but do not use or retemper partially hydrated cement plaster.
4. Do not use frozen, caked or lumpy materials, and remove such materials from jobsite immediately.
5. Mix factory prepared cement plaster in accordance with manufacturer’s written instructions and recommendations.
6. Use moist, loose sand in proportions recommended by basecoat concentrate manufacturer.

B. Mechanical Mixing:

1. Clean mixer of set or hardened materials before loading new batch.

2. Maintain mixer in continuous operation while adding materials.
3. Conform to mixing sequence, cycle of operations, and time recommended by the manufacturer of the basecoat/finish coat mix materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that surfaces to be plastered are free of dust, loose particles, oil and other deleterious materials which would affect bond or proper hydration of cement plaster.
- B. Substrate Examination: Examine prior to Fiber-47 installation as follows:
 1. Substrate shall be of a type listed in IBC 2003 or as required by local codes and agency's having jurisdiction. Code-conforming wood-based sheathings must be gapped 1/8 inch (3 mm) between panels.
 2. Substrate shall be examined for soundness, and/or other harmful conditions.
 3. Substrate shall be free of dust, dirt, efflorescence, and other harmful contaminants.
 4. Notify contractor of discrepancies preventing installation of the stucco assembly.
 5. Verify that weather resistive barrier and flashing are installed in compliance with requirements of applicable codes, regulations, and agencies having jurisdiction.
 6. Verify that lath is tight, properly secured, and that all accessories are properly set.
 7. Isolation: Where lath and metal support assembly abuts building structure horizontally, and where partition wall work abuts the overhead structure, isolate work from structure movements. Install expansion or control joints to absorb deflections but maintain lateral support. Frame both sides of expansion and control joints separately and do not bridge joints with furring or lath.
 8. Examine substrates, grounds and accessories to insure that finished stucco work will be true to line, plane, level and plumb.

3.02 EXAMINATION FOR DIRECT BOND APPLICATIONS OVER MASONRY SUBSTRATES

- A. All bases should be straight and in-line with no variation greater than 1/4 inch in ten feet.
- B. Surfaces must be cleaned and inspected for any substance that will act as a bond-breaker.
- C. Concrete masonry units must be fully grouted, open-textured with joints cut flush, not tooled.
- D. Substrates should be fully cured, dry and carrying the design dead load prior to the application of the stucco.

3.03 PREPARATION FOR DIRECT BOND APPLICATIONS OVER MASONRY SUBSTRATES

- A. Conform to preparation requirements of ASTM C926.
- B. Verify that masonry surfaces to receive direct bond applications of stucco basecoats are rough, free from form release agents and otherwise properly prepared to provide for adequate bond.
- C. Apply metal lath when form oil, paint or other bond breaking material is present
- D. Apply a uniform coating of the acrylic bonding agent in accordance with manufacturer's recommendations and instructions.
- E. Apply a "dash bond" coat to CMU surface prior to the leveling coat to achieve sufficient mechanical bond.
- F. Apply Portland cement plaster to walls in two coats, a 1/2" minimum, 5/8" maximum, consisting of a 3/8" basecoat and a 1/8" finish coat for CMU.
- G. Foundation weep screeds are not required in masonry work.
- H. Provide "back-to-back" casing beads with backer rod and sealant where structural joints occur in a masonry wall.

3.04 APPLICATION

- A. General:
 - 1. Apply stucco basecoat systems in accordance with manufacturer's instructions and recommendations, and in compliance with requirements of applicable codes, regulations and agencies having jurisdiction.
 - 2. Interrupt or delay plaster application only at junctions of plaster planes, at openings, or at control joints.
- B. Basecoat:
 - 1. Wet absorptive surfaces with a fine spray of water to produce a uniformly moist condition.
 - 2. Scratch Coat:
 - a. Apply scratch coat to a minimum thickness of 3/8", using sufficient trowel pressure to key plaster into lath or to create bond to substrates as applicable.
 - b. Prior to initial set, scratch horizontally to provide key for bond of brown coat.
 - 3. Brown Coat:
 - a. Apply brown coat to a minimum thickness of 3/8", using sufficient trowel pressure to key plaster into scratch coat.
 - b. Darby, then rod surface to true plane.
 - c. Float or lightly broom surface to provide for bond with stucco finish coat.

- d. Tool brown coat to provide a V-joint at intersection of plaster with frames or other items of metal, wood, or plastic which act as plaster grounds.

C. Cement Based Finish Coat:

1. Apply finish coat to thickness recommended by manufacturer using sufficient trowel pressure or spray velocity to bond finish coat to basecoat.
2. Apply finish in number of coats and consistency required to achieve texture to match approved sample.
3. Fog Coat: As needed, apply sufficient coats to ensure uniform color and consistency. Let dry, then mist with water 2 times a day for 2 days.

D. Curing:

1. Moist cure each coat of stucco basecoat system with fog spray of clear water with sufficiently frequent applications to maintain plaster uniformly moist for a minimum of 48 hours following application.
2. After moist curing, prime CMU walls as recommended by the system manufacturer to reduce mortar joint telegraphing.
3. Wet Cure cement based finish coat, by misting with water continuously for 2 days.

3.05 ADJUST AND CLEAN

- A. Upon completion, point up finish coat around trim and other locations where finish coat terminates or meets dissimilar materials.
- B. Cut out and replace defective or damaged exterior wall finish coat.
- C. Match pointing and patches to surrounding finish coat in form and texture.
- D. Remove finish and protective materials from perimeter trim and adjacent surfaces.
- E. Remove all excess materials from the project site.
- F. Maintenance Kit: Shall include enough materials for repair 20 square feet. Containers of liquids shall be unopened.

END OF SECTION

SECTION 09 30 00

TILING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes:
 - 1. Porcelain tile, setting materials, grouting materials and methods of installation for a complete and proper installation.
- B. Extent of Work is indicated on Drawings and schedules.

1.02 RELATED WORK

- A. Division 9: Gypsum Drywall Systems - Tile Backer Board

1.03 REFERENCES

- A. ANSI A108 Series - American National Standard Specifications for Installation of Ceramic Tile.
- B. ANSI A108.1A Installation of Ceramic Tile in the Wet Set Method with Portland Cement Mortar.
- C. ANSI A108.10 Installation of Grout in Tilework.
- D. A108.11 Specifications for the Installation of Cementitious Backer Units.
- E. ANSI A118.4 Specifications for Latex-Portland Cement Mortar
- F. ANSI A118.6 Specifications for Ceramic Tile Grouts.
- G. ANSI A118.7 Polymer Modified Cement Grouts.
- H. ANSI A118.9 Specifications for Test Methods and Specifications for Cementitious Backer Units
- I. ASTM (American Society for Testing and Materials)
- J. TCA "Handbook for Ceramic Tile Installation"; Tile Council of America.

1.04 QUALITY ASSURANCE

- A. Source of Materials: Provide materials obtained from one source for each type and color of tile, grout, and setting materials
- B. Installation System Manufacturer: Ability for single source responsibility and specializing in installation systems/ adhesives/ mortars/ grouts with ten (10) years minimum experience.
- C. Installer Qualifications: Company specializing in installation of ceramic tile, mosaics, natural stone and trim units with (5) years documented experience with installations of similar scope, materials and design.
 - 1. The A/E has the right to request references on which to base acceptance of the installer selected.
- D. Mock-ups: Provide mock-up panel using materials specified for final work. Construct mock-up as directed, and of full thickness. Obtain A/E's acceptance of visual qualities of the sample panel. Sample materials may be incorporated into the work.

1.05 WARRANTY

- A. Contractor warrants ceramic tile to be free from faults and defects in materials and workmanship for a period of 5 years. This special warranty extends the period of limitations contained in General Conditions.
 - 1. Countersign warranty by installer and manufacturer.
 - 2. Manufacturer shall replace any such defective material at no additional cost to the Owner.
- B. Manufacturer of installation systems, adhesives, grouts and mortars shall provide a comprehensive non pro-rated written ten (10) year warrantee against defective products which covers replacement materials and labor costs for demolition, tile accessories, and installation systems.

1.06 SUBMITTALS

- A. Product Data: Submit manufacturer's technical information and installation instructions for materials required, except bulk materials.
- B. Product Data for Mortars, Grouts, and Adhesives:
 - 1. Submit manufacturer's product data demonstrating compliance with specified requirements.
 - 2. Submit manufacturer's instructions for use.
 - 3. Submit manufacturer's certification that materials are suitable for the intended use.
 - 4. Samples: Submit samples of each type and color of grouting material.

- 5. Submit proof of warranty
 - C. Tile Samples:
 - 1. Submit manufacturer's samples verifying colors, finishes and patterns for each type of tile required.
 - D. Maintenance: Submit recommended maintenance and cleaning methods.
- 1.07 EXTRA MATERIALS STOCK
- A. Upon completion, furnish 5% minimum additional tile and trim shape of each type, color, pattern and size used. Furnish extra stock of installation mortar, grouts, adhesives and accessories.
- 1.08 PRE-INSTALLATION CONFERENCE
- A. Per Section 01 31 00, schedule a Pre-Installation conference to convene one week prior to commencing work.
 - B. Contractor, tile installer, A/E and Owner's Representative to be present.
- 1.09 DELIVERY, STORAGE, AND HANDLING
- A. Provide heated and dry storage facilities on site.
 - B. Deliver and store all materials on site a minimum of 24 hours before usage.
 - C. Deliver and store tile and packaged materials in original containers with seals unbroken and labels intact until time of use. Prevent damage to materials such as chipping, breakage, freezing, or excessive heat. Prevent contamination by water, moisture, foreign matter, or other causes.
- 1.10 PROJECT CONDITIONS
- A. Maintain environmental conditions and protect work during and after installation to comply with referenced standards and manufacturer's printed recommendations.
 - B. Maintain temperature at 50°F minimum during tilework and for 7 days after completion, unless higher temperatures required by referenced installation standard or manufacturer's instructions.
 - C. Vent temporary heaters to outside to avoid carbon dioxide damage to new tilework.
 - D. Provide adequate lighting for good grouting and clean-up.

PART 2 PRODUCTS

2.01 GENERAL

- A. The design has been based upon those products listed herein. Other manufacturers' products may be accepted, provided sufficient product samples and information are submitted to allow the A/E to determine that products proposed as substitutions are equivalent with respect to type, function, dimension, shape, appearance, color, material, and quality to those named.

2.02 TILE

- A. Ceramic Mosaic Tile for Floor Applications:
1. Manufacturer: Daltile
 2. **Tile 1:** Keystones Mosaic Colorbody Porcelain
 - a. Mosaic Blend: Windmill DK20, 1" x 1" Black and 2" x 1" Biscuit
 - b. Thickness: 3/8"
- B. Porcelain tile for infill floor applications, where construction has been demolished and existing flooring is damaged, larger than 12" x 12" areas; also new walls in tiled areas requiring wall base. For smaller areas, refer to Natural Stone tile below.
1. Manufacturer: Daltile
 2. Infill Tile: City view Colorbody Porcelain
 - a. Nom Size: 12" x 12" x 3/8" and bullnose base 3" x 12"
 - b. Color: Urban Evening CY08
- C. Ceramic Tile for Wall Applications:
1. Manufacturer: Daltile
 2. **Tile 2:** Wall Tile Rittenhouse Square
 - a. Nom Size: 3" x 6" x 5/16" Oblong
 - b. Finish: Semi-Gloss
 - c. Color: Black K111
 3. **Tile 3:** Keystones Shapes Mosaic Colorbody Porcelain
 - a. Nom Size: 2" x 1" x 1/4" Oblong
 - b. Finish: Unglazed
 - c. Color: Black D311
 4. **Tile 4:** Wall & Counter Glazed tile
 - a. Nom Size: 6" x 6" x 5/16" Square
 - b. Finish: Semi-Gloss
 - c. Color: Biscuit K175
 5. **Tile 5:** Keystones Mosaic Colorbody Porcelain
 - a. Nom Size: 2" x 2" x 1/4" Square
 - b. Finish: Unglazed
 - c. Color: Black D311

D. Metal Accent Tile for Wall Applications:

1. Manufacturer: Daltile
2. **Tile 6:** Armor Metal Accent Tile
 - a. Nom Size: 2" x 2"
 - b. Style: Pyramid
 - c. Color: Forged Steel AM30

E. Glass Tile for Wall Applications:

1. Manufactured for Daltile
2. **Tile 7:** Reflections in Glass Tile
 - a. Nom Size: 2" x 2" x 5/16"
 - b. Finish: Glossy
 - c. Color: Almost Aqua

F. Porcelain Tile Accents and Liners:

1. Manufacturer: Precision H₂O
2. **Tile 8:** Lyon Trim
 - a. Nom Size: 2" x 6"
 - b. Part: 9999422174
 - c. Finish: Glazed – gloss
 - d. Color: Daltile Biscuit

2.03 NATURAL STONE

A. Marble as defined by ASTM C-119 for floor and wall applications where minor repair is required.

1. Primary Name: Negro Marquina.
2. Color Range: Black with white veining.
3. Sizes:
 - a. 2 in x 2 in for wall applications.
 - b. 4 in x 4 in for floor applications.
 - c. Heisi strips with tumbled finish for floor and wall applications.

2.04 SETTING AND GROUTING MATERIALS

A. Mortar and Grout Manufacturers:

1. Laticrete
2. Custom Building Products
3. Merkrete

B. Latex fortified setting and grouting materials shall be as recommended by the tile manufacturer for each tile's specific application. Colors shall be selected by the A/E.

PART 3 EXECUTION

3.01 PREPARATION AND ACCEPTABILITY OF SURFACES

- A. Protect surrounding area from damage.
- B. Verify that floor and wall surfaces to be covered with tile, natural stone, trim units or thresholds are level and true to within maximum variations.

Walls

Floors

Thin-Set Mortar 1/8" in 8'

1/8" in 10'

- C. Advise Contractor of surface or substrate conditions requiring correction before tilework commences. Beginning of work constitutes acceptance of substrate or surface conditions.
- D. Verify substrates to receive tile to be sound, solid, well bonded, stripped clean and free of form oil, dust, grease, sealers, curing compounds, loose plaster, paint, scale, wax, and all other contamination which may reduce or prevent adhesion
- E. Seal substrate surface cracks with filler.

3.02 MIXING

- A. Comply with mixing requirements of referenced standards and manufacturers.
 - 1. Accurately proportion materials, water or additive.
 - 2. Use recommended mixing equipment, speeds, containers, mixing time and pot life to produce mortars and grouts of uniform quality with optimum performance characteristics.

3.03 INSTALLATION

- A. General: Install in accordance with ANSI A108 Standard for Ceramic Tile installation and TCA Handbook. Make joints even, straight, plumb and of uniform width to tolerance +/- 1/16" (1.5mm) over 8ft.(2400mm). Install divider strips at junction of flooring and dissimilar materials.
- B. Thin Bed Method: Work mortar/adhesive with notched trowel into good contact with tile substrate. Spread (back-butter) mortar/adhesive onto back of large tiles, rib/button/lug back tiles, or sheet mounted ceramics/mosaics in addition to troweling materials over tile substrate. Fully bed tile by beating with block or rubber mallet to insure full bedding and flatness.
- C. Layout:
 - 1. Determine locations of all movement joints before starting tilework.

2. Lay out all tilework in accordance with drawings.
 3. Locate tile cuts in both walls and floors so as to be least conspicuous.
 4. Lay out tile wainscots to next full tile beyond dimensions shown.
 5. Align all wall joints to give straight uniform grout lines, plumb and level.
 6. Align all floor joints to give straight uniform grout lines, parallel with walls.
- D. Grout/Pointing Joints: Verify grout joints are free of dirt, debris or tile spacers; follow manufacturer recommendations for minimum cure time prior to grouting. Sponge or wipe dust/dirt off tile faces and remove water standing in joints; Apply grout release to face of absorptive, abrasive, non-slip or rough textured ceramic tile, or trim units that are not hot paraffin coated to facilitate cleaning.
1. Latex-Portland cement sanded grout for tile joint widths 1/16in/1.5mm to 3/8in./10mm).
 2. Latex-Portland cement unsanded grout for interior installations of absorbent/non-vitreous type tiles, soft glazed tiles and soft/polished marble tile with tile joints widths 1/8 in./3 mm or less.
 3. Expansion and control joints: Provide control or expansion joints in width and depth as located and detailed on the drawings and conform to architectural details. Locate interior expansion joints a maximum of 24' x 24' (8m x 8m).
 4. Follow the Tile Council of America's detail "EJ-171 Expansion Joints".
- E. Workmanship: Use all products in strict accordance with recommendations and directions of manufacturers.
1. Proportion all mixes in accordance with latest ANSI Standard Specifications.
 2. Smooth all exposed cut tile edges.
 3. Be sure cut tile edges are clean before installing.
 4. Fit tile carefully against trim, around pipes, electric boxes and other built-in fixtures so that escutcheons, plates and collars will completely overlap cut edges.
 5. Be sure all tilework is free of grout film upon completion.

3.04 PROTECTION

- A. Protection from Construction Dirt:
1. Cover all tile floors with heavy-duty, non-staining construction paper, masked in place.
- B. Protection from Traffic:
1. Prohibit all foot and wheel traffic from using newly tiled floors for a minimum of 3 days.
 2. Place large, flat boards in walkways and wheelways for 7 days where use of newly tiled floor is unavoidable.

END OF SECTION

SECTION 09 51 00

ACOUSTICAL CEILINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions -1 Specification sections apply to work of this section.

1.02 SUMMARY

- A. Section Includes:
 - 1. Acoustical ceiling panels.
 - 2. Exposed grid suspension system.
 - 3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings.
- B. Related Sections:
 - 1. Division 9 - Gypsum Drywall Assemblies
 - 2. Division 21 Section – Fire Sprinklers
 - 3. Division 23 Sections - Mechanical Work
 - 4. Division 26 Sections – Electrical Work

1.03 REFERENCES

- A. American Society for Testing and Materials (ASTM):
 - 1. ASTM A 641 - Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
 - 2. ASTM A 653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
 - 3. ASTM A 1008 - Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
 - 4. ASTM C 423 - Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
 - 5. ASTM C 636 - Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
 - 6. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials
 - 7. ASTM E 119 - Standard Test Methods for Fire Tests of Building Construction and Material

8. ASTM E580 - Standard Practice for Application of Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels in Areas Requiring Seismic Restraint
9. ASTM E 1111 - Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
10. ASTM E 1264 - Classification for Acoustical Ceiling Products
11. ASTM E 1414 - Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
12. ASTM E 1477 - Standard Test Method for Luminous Reflectance Factor of Acoustical Materials by Use of Integrating-Sphere Reflectometers
13. ASTM D 3273 - Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber

1.04 SYSTEM DESCRIPTION

- A. Seismic Loads: Design and size components to withstand seismic loads in accordance with the International Building Code, Section 1621.2.5 for Category C.

1.05 SUBMITTALS

- A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
- B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
- C. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards, including but not limited to full scale seismic testing in accordance with ICC Evaluation Services AC156 Acceptance Criteria for Seismic Qualification Testing of Non-structural components.

1.06 QUALITY ASSURANCE

- A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
- B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
 1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 for Class A products.
 - a. Flame Spread: 25 or less
 - b. Smoke Developed: 50 or less

2. Fire Resistance Ratings: As indicated by reference to design designations in UL Fire Resistance Directory, for types of assemblies in which acoustical ceilings function as a fire protective membrane and tested per ASTM E 119.
 - a. Protect lighting fixtures and air ducts to comply with requirements indicated for rated assembly.

- C. Coordination of Work: Coordinate layout and installation of acoustic ceiling units and suspension system components with other work supported by or penetrating through ceiling, including light fixtures, HVAC equipment, sprinklers and gypsum board systems.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.

- B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.

- C. Handle acoustical ceiling units to avoid chipping edges or damaging units.

1.08 WARRANTY

- A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace acoustical panels that fail within the warranty period. Failures include, but are not limited to:
 1. Acoustical Panels: Sagging and warping.
 2. Grid System: Rusting and manufacturer's defects.

- B. Warranty Period:
 1. Humigard Acoustical panels: Ten (10) years from date of substantial completion.
 2. Mineral Fiber Ceilings: One year from date of substantial completion.
 3. Grid: Ten (10) years from date of substantial completion.

1.09 MAINTENANCE

- A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Packaged with protective covering for storage and identified with appropriate labels.
 1. Acoustical Ceiling Units: Furnish quantity of full-size units equal to 5.0 percent of amount installed.

1.10 PROJECT CONDITIONS

- A. Space Enclosure: Do not install interior acoustic ceilings until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings completed, and ambient conditions of temperature and humidity will be continuously maintained at values near those indicated for final occupancy.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Ceiling Panels:
1. Armstrong World Industries, Inc.
 2. USG Ceiling Systems
 3. A/E approved equal
- B. Suspension Systems:
1. Armstrong World Industries, Inc.
 2. Celotex Building Products
 3. USG Ceiling Systems
 4. A/E approved equal

2.02 MATERIALS

- A. Acoustical ceiling tile (ACT) 1 shall be Armstrong Cortega or A/E approved equal: nondirectional fissured pattern:
1. Color: White
 2. Dimension 24 inches x 24 inches x 5/8 inches
 3. Grid Face: 15/16"
 4. Edge Detail: Square Lay-In
 5. Texture: Medium
 6. Fire Resistance: [Class A (UL)] **OR** [Fire Resistive as scheduled on the Drawings].
 7. Dimensional Stability/Sag Resistance: Standard
 8. Substrate: Mineral Fiber
 9. Noise Reduction Coefficient (NRC): 0.55
 10. Ceiling Attenuation Class (CAC): 33–35
 11. Light Reflectance: 0.82
- B. Components: Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with (Flange) type exposed flange design. Exposed surfaces chemically cleansed, capping pre-finished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.

1. Structural Classification: ASTM C 635 Intermediate duty.
 2. Color: match the color of the selected ceiling tile, unless noted otherwise.
- C. Attachment Devices, Wire for Hangers and Ties, Edge Moldings and Trim shall be in accordance with the International Building Code, Section 1621.2.5 for Seismic Category

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations.

3.02 PREPARATION

- A. Coordination: Furnish layouts for inserts, clips, or other supports required to be installed by other trades for support of acoustic ceilings.
- B. Furnish hanger clips and similar devices to other trades for installation well in advance of time needed for coordination of other work.
- C. Measure each ceiling area and establish layout of acoustic units to balance border widths at opposite edges of each ceiling. Avoid use of less-than-half width units at borders, and comply with reflected ceiling plans.

3.03 INSTALLATION

- A. (Category C) Install suspension system and panels in accordance with ASTM E580, the International Building Code, Section 1621.2.5 and with the authorities having jurisdiction.
1. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
 2. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.
 3. Install required stabilizer bars.
 4. Install minimum 7/8" wall molding.
 5. Grid must not be attached to the wall molding.
 6. 3/8" clearance on all sides.
 7. 3/8" overlap of the grid on the wall molding.
 8. Ends of main beams and cross tees must be tied together to prevent their spreading.
 9. No perimeter wires.

- D. Locate system on room axis according to reflected plan.
- E. Install after major above ceiling work is complete. Coordinate location of hangers with other work.

3.04 ACOUSTIC UNITS

- A. Fit acoustic units in place, free from damaged edges or other defects detrimental to appearance and function.
- B. Install acoustic units level, in uniform plane, and free from twist, warp, and dents.
- C. Cutting Acoustic Units:
 - 1. Cut to fit irregular grid and perimeter edge trim.
 - 2. Double cut and field paint exposed edges of tegular units.

3.05 ADJUST AND CLEAN

- A. Clean exposed surfaces of acoustic ceilings, including trim, edge moldings, and suspension members; comply with manufacturer's instructions for cleaning and touch-up of minor finish damage. Remove and replace work which cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.
- B. Replace damaged and broken panels.

END OF SECTION

SECTION 09 65 00

RESILIENT FLOORING

PART 1 GENERAL

1.01 WORK INCLUDES

- A. Resilient flooring accessories as shown on Drawings and schedules.

1.02 QUALITY ASSURANCE

- A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.

1.03 SUBMITTALS

- A. Samples: Submit the following samples of each type, color, and pattern of resilient flooring required, showing full-range of color and pattern variations.
 - 1. Rubber Base samples
 - 2. Resilient Transitional Mouldings

1.04 PROJECT CONDITIONS

- A. Maintain minimum temperature of 65 degrees F in spaces to receive resilient flooring for at least 48 hours prior to installation, during installation, and for not less than 48 hours after installation. Store resilient flooring materials in spaces where they will be installed for at least 48 hours before beginning installation. Subsequently, maintain minimum temperature of 55 degrees F in areas where work is completed.
- B. Install resilient flooring and accessories after other finishing operations, including painting, have been completed. Do not install resilient flooring over concrete slabs until the latter have been cured and are sufficiently dry to achieve bond with adhesive as determined by manufacturer's recommended bond and moisture test.

PART 2 PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. Accessories:
 - 1. Armstrong World Industries
 - 2. Roppe Rubber Corporation
 - 3. Johnsonite

4. A/E approved equal

2.02 ACCESSORIES

- A. Rubber Wall Base: Provide rubber base complying with FS SS-W-40a, Type I, with matching end stops and preformed or molded corner units, and as follows:
 1. Heights: As indicated on Drawings
 2. Length: Continuous roll
 3. Thickness: 1/8"
 4. Style: Standard-toe base
 5. Finish: Matte
 6. Color: To be selected from manufacturer's standard palette
- B. Resilient Transitional Mouldings:
 1. Profile designed for a smooth transition between different or same material heights and types.
 2. Undercut to encapsulate both out edges.
 3. Adhesively applied.
 4. Color: To be selected from manufacturer's standard palette.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Apply wall base to walls, columns, pilasters, and other permanent fixtures and cabinets in rooms or areas where base is required. Install base in lengths as long as practicable, with preformed corner units. Tightly bond base to substrate throughout length of each piece, with continuous contact at horizontal and vertical surfaces.
- B. Install transitional moulding at all exposed cut edges and where edges of dissimilar materials abut.

3.02 CLEANING AND PROTECTION

- A. Protect against damage from rolling loads for initial period following installation by covering transition strips with plywood or hardboard. Protect against damage during construction period

END OF SECTION

SECTION 09 68 13

TILE CARPETING AND WALK-OFF

PART 1 GENERAL

1.01 DESCRIPTION

- A. Section includes modular tile carpeting and installation
- B. Related Sections:
 - 1. Division 09: Resilient Flooring: Resilient Base

1.02 REFERENCES

- A. Carpet and Rug Institute:
 - 1. CRI 104 - Standard for Installation of Commercial Carpet.
- B. Consumer Products Safety Commission:
 - 1. CPSC 16 CFR 1630 - Standard for the Surface Flammability of Carpets and Rugs.
- C. National Fire Protection Association:
 - 1. NFPA 253 - Standard Method of Test for Critical Radiant Flux for Floor Covering Systems Using a Radiant Heat Energy Source.

1.03 SUBMITTALS

- A. Product Data: As soon as practical after award of the contract, submit complete materials list of all items proposed to be furnished and installed under this section, including, but not limited to, the following:
 - 1. Manufacturer's specifications and other data required to demonstrate compliance with specified requirements.
 - 2. Shop drawings showing location of joints, layout directions of tiles and location of edge moldings.
 - 3. Samples of selected colors and patterns for verification.
 - 4. Manufacturers recommended installation procedures.
 - 5. The manufacturers recommended installation procedures, when approved by the Architect, will become the basis for inspection and accepting or rejecting actual installation procedures used on the work.
 - 6. Manufacturers recommended maintenance procedures.
 - 7. Manufacturer's written warranties.

- B. Samples: Provide product samples for all products listed. The A/E shall select colors from 2 of the carpet tiles for approval by the Owner and integration into the project

1.04 QUALITY ASSURANCE

- A. Standards: Comply with standards specified herein as listed in “References” Section.
- B. Qualifications of Manufacturer: Products used in the work of this section shall be produced by manufacturers regularly engaged in manufacture of similar items and with a history of successful production acceptable to the Architect.
- C. Qualifications of Installers: Use adequate number of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely with the specified requirements and the methods needed for proper performance of the work of this section.

1.05 QUALIFICATIONS

- A. Manufacturer: Company specializing in manufacturing products specified in this section with minimum three years experience.
- B. Installer: Company specializing in performing work of this section

1.06 PRODUCT HANDLING

- A. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the work and materials of all other trades.
- B. Installation temperature: Maintain in accordance with manufacturer's installation instructions.

1.07 ENVIRONMENTAL REQUIREMENTS

- A. Insure substrate finish is compatible with adhesive.
- B. Installation temperature: Maintain in accordance with manufacturer’s installation instructions.

PART 2 PRODUCTS

2.01 MANUFACUTERS

- A. Basis of Design: Lees

2.02 CARPET TILES

- A. Products: QL 311 Step Up II, QL312 Step In Style II, and Tile, QL315 First Step II Tile
1. Collection: Tuff Stuff II
 2. Brand: Lees
 3. Product Type: Tile – Walk Off
- B. Design:
4. Construction: Tufted
 5. Surface Texture: Textured Performance Cut & Loop or Performance Tip shear
 6. Gauge: 5/32 (25.2 rows per 10 cm)
 7. Density: 6739 - 9500
 8. Weight Density: 223,440 – 361,000
 9. Finished Pile Thickness: .144" (3.66 mm) - .203" (5.15 mm)
 10. Dye Method: Solution Dyed
 11. Backing Material: EcoFlex ICT
 12. Fiber Type: Duracolor® Premium Nylon
 13. Fiber Technology: Duracolor® by LEES Stain Resistant System. Passes GSA requirements for permanent stain resistant carpet.
 14. Face Weight: 30.0 oz per sq. yd. (1017 g/m²) – 38 oz per sq. yd. (1288 g/m²)
 15. Pattern Repeat: Not Applicable
 16. Size/Width: 24" x 24" (.6096 m x .6096 m)
 17. Soil Release Technology: Sentry Soil Protection
 18. Installation Method: As directed by A/E
 19. Foot Traffic Recommendation TARR: Severe
- C. Performance:
1. Static: AATCC-134 Under 3.5 KV
 2. Flammability: ASTM E 648 Class 1 (Glue Down)
 3. Smoke Density: ASTM E 662 Less than 450
- D. Service:
1. Warranties:
 - a. Lifetime Limited Tile Warranty
 - b. Lifetime Duracolor Stain Warranty
- E. Installation Method: Backing Specific Adhesive by carpet manufacturer

2.03 OTHER MATERIALS

- A. Adhesive

PART 3 EXECUTION

3.01 INSPECTION

- A. The lighting to be used by the building occupants must be in service for proper inspection of color and joints.
- B. Installation of carpet tiles should be the last item on the construction schedule.
- C. Examine the areas and conditions under which work of this section will be performed. Correct conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

3.02 SURFACE PREPARATION

- A. Patch or replace any damaged floor panel inserts.
- B. Use an appropriate cleaner to remove any dirt, grease, oil, paint, sealer, adhesive or other materials from floor.

3.03 INSTALLATION

- A. All carpet tiles must be removed from the cartons and allowed to adjust to the job site temperature for 48 hours prior to installation.
- B. Install carpet in accordance with CRI 104
- C. Verify carpet match before cutting to ensure minimal variation between dye lots.
- D. Dry fit (without adhesive) a row of tiles along the entire length of vertical and horizontal center lines. Go all the way to the walls. If necessary, offset either or both center lines to ensure perimeter tiles will be cut no less than half size, or 9.84 inches
- E. Tiles adjacent to fixtures, architectural elements and walls need to be cut. Follow manufacturer's guidelines: Always secure cut tiles with adhesive.

3.04 CLEANING

- A. Clean and vacuum carpet surfaces.

3.05 PROTECTION

- A. Do not permit traffic over unprotected floor surface

- B. Provide a heavy non-staining paper or plastic walkway, taped down, as required over carpeting in direction of foot traffic, maintain intact until carpeted space is accepted by the Owner.

3.06 SCHEDULE

- A. As indicated on the Drawings.

END OF SECTION

SECTION 09 72 00

WALLCOVERINGS

PART 1 GENERAL

1.01 SUMMARY

- A. Provide non-woven acoustical wallcovering made from 74 -100% post consumer recycled fibers. Work includes primers and adhesives recommended by the manufacturer as required for wall conditions
- B. Related Sections:
 - 1. Gypsum Board Assemblies

1.02 SUBMITTALS

- A. Wallcovering Manufacturer's Product Data and printed Installation Instructions.
- B. Color and texture samples from which A/E will make a selection.

1.03 DELIVERY, STORAGE, AND HANDLING

- A. Deliver the material to the site in manufacturer's original wrappings and packages and clearly label with the manufacturer's name, brand name, pattern and color name and number, dye lot number, size, and other related information.
- B. Store in a safe, dry, clean, and well-ventilated area at temperatures not less than 50 degrees F and within a relative humidity range of 30 to 60 percent.
- C. Store wallcovering material in a flat position and protected from damage, soiling, and moisture.
- D. Do not open containers until needed for installation, unless verification inspection is required

1.04 WARRANTY

- A. Free of manufacturer's defects for a period of two years

1.05 EXTRA STOCK

- A. Provide one roll of full-width wallcovering of each pattern and color for each of wallcovering installed.
- B. Provide the same manufacturer, type, pattern, color, and lot number of extra stock as the installed wallcovering. Provide full rolls, packed for storage and marked with content, manufacturer's name, pattern and color name and number and dye lot number.

PART 2 PRODUCTS

2.01 WALLCOVERING MANUFACTURERS/DISTRIBUTORS

- A. Hytex Industries, Inc.:
1. Product Line: Acoustical Eco-ART
 2. Style and Color: To be selected by A/E
 3. Distributor: Commercial Wallcovering Source, Inc; Koroseal Interior Products, Centennial, CO
- B. Source One:
1. Product Line: Acoustic
 2. Style and Color: To be selected the A/E
 3. Distributor: Tri-kes, Inc 11123 Shady Trail, Dallas TX 75229

2.02 MATERIALS

- A. Wallcovering Fabric: Eco-fi
1. Content: Post consumer recycled solution dyed polyester staple fiber. Polyester fiber made from 74% to 100% plastic bottles
 2. Backing: Fused Polyester
 3. Weight: 24 oz/yd
 4. Roll Size: 33 linear yards
 5. Width: 52" min
 6. Abrasion resistance: meets ASTM D4158
 7. Certifications:
 - a. UL Classified - Fire Rating
 - b. NFPA 265 Corner Burn for Textile Wallcovering
 - c. LEED-Contributes toward project certification
 - d. Class A / ASTM E-84
 - e. UL Environmental-Certified recycled content
 8. Sound Absorption: NRC 0.17 - 0.25 over gypsum board per ASTM C-423
 9. Additional Attributes:
 - a. Antimicrobial additives
 - b. Self-healing when used as a tackable surface
 - c. Minimal static-generating propensity
 - d. Reduces noise
- B. Primer and Adhesive:
1. Provide primer and adhesive recommended by the wallcovering manufacturer, containing a non-mercury based mildewcide, and complying with local indoor air quality standards.
 2. Primer shall permit removal of the wallcovering and protect the wall surface during removal. Do not damage gypsum wallboard facing paper during removal of wallcovering.

3. When substrate color variations show through vinyl wallcovering, provide a white pigmented primer as recommended by the wallcovering manufacturer used to conceal the variations.
4. Provide a strippable type adhesive.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Inspect all areas and conditions under which wallcoverings are to be installed. Notify the A/E of any conditions detrimental to the proper and timely completion of the installation. Work will proceed only when conditions have been corrected and accepted by the installer

3.02 PREPARATION

- A. Do not apply wallcovering to surfaces that are rough, that contain stains which will bleed through the wallcovering, or that are otherwise unsuitable for proper installation.
 1. Fill cracks and holes; sand rough spots smooth.
 2. Thoroughly dry surfaces at least 30 days prior to installation of vinyl wallcovering.
- B. Provide interior surfaces of new and existing gypsum wallboard with a wallcovering primer in accordance with the manufacturer's printed instructions. As required, use white primer when substrate color variations are visible through thin or light color wallcovering.
- C. Prime the surfaces of walls as required by the manufacturer's printed instructions to permit ultimate removal of wallcovering from the wall surfaces. Allow primer to completely dry before adhesive application.

3.03 INSTALLATION

- A. Install wallcovering in accordance with the manufacturer's printed installation instructions.
- B. Wallcovering shall be hung with seams vertical and plumb. Seams shall be at least 6 inches away from inside or outside corners.

3.04 CLEAN-UP

- A. Upon completion of the work, clean wallcovering free of dirt, soiling, stain, or residual film. Remove and clean surplus materials, rubbish, and debris resulting from the wallcovering installation.

END OF SECTION

SECTION 10 14 00

SIGNAGE

PART 1 GENERAL

1.01 SUMMARY

- A. This section includes non-illuminated directional, control, and information surface-mounted signage which may include:
 - 1. ADA word and picture signs
 - 2. Directional signs
 - 3. Room identification signs
 - 4. Room number signs

1.02 RELATED WORK

- A. Signs specified in other sections:
 - 1. Illuminated exit signs

1.03 REFERENCES

- A. American National Standards Institute (ANSI).
- B. Department of Justice, Office of the Attorney General, "Americans with Disabilities Act", Public Law 101-336, (ADA).
- C. ANSI A117.1, 2003 edition.

1.04 QUALITY ASSURANCE

- A. Uniformity of Manufacturer: for each sign form and graphic image process indicated furnish products of a single manufacturer.

1.05 SUBMITTALS

- A. Manufacturer's Data: Submit manufacturer's descriptive literature and specifications, including color samples of material for selection, as applicable for selection by the A/E.
- B. Submit shop drawings listing sign styles, lettering and locations, and overall dimensions of each sign.
- C. Manufacturers shall have completed 3 comparable projects within the last 5 years.
- D. Submit manufacturer's standard warranty information.

PART 2 PRODUCTS

2.01 MANUFACTURER

- A. Best Manufacturing Sign Systems
- B. Approved equal

2.02 MATERIALS

- A. Exterior building sign plaques shall consist of fiberglass:
 - 1. Non-corrosive, three-ply laminate with contrasting core color, UV inhibitors, non-glare surface and 20 year life expectancy, warranted for color retention; for exterior use.
 - 2. Material thickness: 1/4"
 - 3. Standard sheet size: Up to 48" x 96"
 - 4. Weight: 1.8 lb./sq. ft.
 - 5. Maximum continuous operating temperature: 180°F (82°C)
 - 6. Flexural strength flat: 22,000 psi
 - 7. Tensile strength: 14,000 psi
- B. Interior sign plaques shall consist of melamine plastic:
 - 1. Two-color, scratch resistant, non-static, fire retardant, washable melamine surface laminate with a non-glare surface and a phenolic core painted a contrasting color after artwork has been carved into the surface; can accommodate raised lettering and braille; for interior use
 - 2. Material thickness: 1/8" (1/4" thick for changeable message modules)
 - 3. Weight: 1 lb./sq. ft. at 1/8" thick
 - 4. Maximum continuous operating temperature: 225°F (107°C)
 - 5. Flexural strength flat: 25,000 psi
 - 6. Tensile strength: 22,000 psi
 - 7. Compressive strength flat: 47,000 psi
 - 8. Shear strength: 16,800 psi
 - 9. Dielectric strength short time (D229 Test): 330 volts/Mil
 - 10. NEMA rated "Self-extinguishing"

2.03 FABRICATED UNITS

- A. Letters and Numbers Shall be as Follows:
 - 1. Lettering style shall be Helvetica or Standard Medium, upper case, or other sans serif or simple serif typeface.
 - 2. Room numbers shall be 5/8" high, minimum.
 - 3. Lettering for room name shall be 5/8" high, minimum.
 - 4. Lettering for restroom identification shall be 5/8" high, corresponding symbols shall be 3" high, minimum.
 - 5. Symbol on symbol only signs shall be a minimum 3-1/2" high.

6. Arrows shall be 4".
 7. Letters and numbers shall be centered on sign.
- B. ADA Sign Components Characteristics:
1. Required tactile (raised), characters/symbols shall be raised 1/32" from sign plate face.
 - a. Signs shall comply with ICC/ANSI A117.1-2003, Chapter 7, Section 703.2
 - b. Signs shall be of one-piece construction; added-on and/or engraved characters are unacceptable.
 2. Grade 2 braille:
 - a. Braille shall comply with ICC/ANSI A117.1-2003, Chapter 7, Section 703.5.
 - b. Braille shall be placed directly below last line of letters or numbers it accompanies, or to the right of copy; on room number signs, it shall be placed directly behind the last number
 3. Pictograms:
 - a. Pictograms shall comply with ICC/ANSI A117.1-2003, Chapter 7, Section 703.6
 - b. Text descriptors for pictograms shall be directly below or adjacent to the pictogram and shall comply with ICC/ANSI A117.1-2003, Chapter 7, Section 703.2
 4. Symbols of Accessibility:
 - a. Symbols of Accessibility shall comply with ICC/ANSI A117.1-2003, Chapter 7, Section 703.7
 - b. The International Symbol of Accessibility (ISA) pictogram shall comply with visual requirements, but is not required to be tactile
 5. All letters, numbers and/or symbols shall contrast with their background, either light characters on a dark background or dark characters on a light background.
 - a. Characters and background shall have matte finish.
- C. Sign Sizes:
- a. ADA word and picture restroom signs shall be 6" x 8".
 - b. Directional signs shall be 6" x 6".
 - c. Room identification signs shall be 8" x 6".
 - d. Room number signs shall be 6" x 2".

PART 3 EXECUTION

3.01 INSTALLATION

- A. General: Locate sign units and accessories where indicated, using mounting methods of the type described and in compliance with the manufacturer's instructions.
1. Install signs level, plumb, and at heights indicated.
 2. Mount interior building signs using vinyl foam tape.
 3. Mount tactile signs so the tactile portion is between 48 and 60 inches above the floor.

4. Mount building signs on wall adjacent to latch side of door with a 2” margin from door jam. Placement of ADA sign can go on either side wall of double doors.
5. Installation shall conform to Section 4.30.6 in Title III of the Americans with Disabilities Act.

3.02 CLEAN

- A. Clean exposed in accord with manufacturer’s written cleaning instructions.

3.03 SCHEDULE

- A. Provide the following signage:

3.04 SCHEDULE

QTY	“WORDING” and/or PICTOGRAM	LOCATIONS
	“EXIT” also in Braille	Doors 101A, 101B, 104, 114B, 124, 125, 142
1	“Men” with male ISA pictogram and Braille	Door 139A
1	“Women” with female ISA pictogram and Braille	Door 139B

END OF SECTION

SECTION 10 28 00

TOILET ACCESSORIES

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Toilet and washroom accessories.
- B. Related Sections:
 - 1. 10 28 13 Commercial Hand Dryers

1.02 REFERENCES

- A. ASTM International:
 - 1. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
 - 2. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware.
 - 3. ASTM A269 - Standard Specification for Seamless and Welded Austenitic Stainless Steel Tubing for General Service.
 - 4. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 5. ASTM A666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - 6. ASTM B456 - Standard Specification for Electrodeposited Coatings of Copper Plus Nickel Plus Chromium and Nickel Plus Chromium.
 - 7. ASTM C1036 - Standard Specification for Flat Glass.

1.03 SUBMITTALS

- A. Manufacturer's catalog cuts and data sheets, complete parts list, and installation requirements for each accessory item specified.
- B. Manufacturer's service and parts manual, maintenance data, operating instructions and keys required.

1.04 QUALITY ASSURANCE

- A. Grab bars, shower seats and dressing room bench systems shall be designed to resist a single concentrated load of 300 pounds applied in any direction at any point, and have

attachment devices and supporting structure to transfer this loading to appropriate structural elements of the building.

- B. Coordinate the Work with placement of internal wall reinforcement and reinforcement of toilet partitions to receive anchor attachments.

1.05 PRODUCT HANDLING

- A. Deliver materials and products in original containers with seals unbroken and labels intact until time of use. Label shall identify accessory, catalog number, and finish.
- B. Store delivered products in clean, safe, dry area.
- C. Protection: Use all means necessary to protect the materials of this section before, during, and after installation and to protect the work and materials of all other trades.
- D. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.06 WARRANTY

- A. Mirrors: Furnish manufacturer's 15 year limited warranty against silver spoilage for first quality glass mirrors, which are triple-silvered and electro-copper, plated with baked enamel backing.

1.07 JOB CONDITIONS

- A. Coordinate as required with work of other trades to ensure proper backing.
- B. Sequencing and scheduling: Do not install accessories until after completion of finish painting.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Bradley Corporation - Basis of Design
- B. A&J Washroom Accessories
- C. American Specialties, Inc
- D. Bobrick Washroom Equipment, Inc.

E. Koala Corp

2.02 MATERIALS

- A. Stainless Steel: ASTM A167 Type 304 (18-8); satin finish exposed surfaces unless otherwise specified.
1. Provide corrosion resistant fasteners and attachment devices, and other fittings necessary to assure function and operation of accessories.
 2. Units shall be neatly and rigidly assembled, uniformly finished, and free from burrs and rough edges.
- B. Design, quality, capacity, and function shall conform to manufacturer's descriptions corresponding to product numbers cited in schedule.
1. Doors shall be mounted to cabinet bodies by heavy duty stainless steel piano hinges.
 2. Recessed cabinets shall have one-piece face trim with no miters or welds and shall return ¼" to wall.
 3. All doors provided with tumbler locks shall be keyed alike.
- C. Barrier Free Design:
1. Access to paper towels shall be located at 15 inches to 48 inches above finish floor. Hinged panels covering waste receptacle openings shall not require more than 5 pounds of force to open.
 2. Surface mounted accessories shall not be mounted above grab bars.
 3. Buttons and knobs shall be operable with one hand and without tight grasping, pinching, or twisting of the wrist.
 4. Operation of pull knobs shall not require more than 5 pounds of force.
 5. Operation of soap valves when unit has been filled completely, shall not require more than 5 pounds of force. Units located over lavatories or counters must be of design to allow push button mechanism to be located a maximum of 44 inches above the finish floor.
 6. Mirrors shall be of a design that allows the bottom edge of the reflective surface to be mounted no higher than 40 inches above the finish floor.
- D. Keys: Furnish 3 keys for each accessory to Owner

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify that internal reinforcement for 300 pound point loading has been installed in areas of wall attached grab bars, shower seats, hardware and fittings to transfer loading from those accessories to appropriate structural elements of the building.

- B. Verify substrates and blocking for attachment of other wall-mounted accessories are ready for installation of accessories.
- C. Examine areas to receive toilet or bath accessories and verify that:
 - 1. Surfaces are dry, clean, free from foreign matter, and otherwise proper for installation.
 - 2. Toilet compartments to receive accessories have been properly installed and correctly prepared.
- D. In the event of discrepancy, immediately notify the A/E and do not proceed in areas of discrepancy until all such discrepancies have been fully resolved.

3.02 INSTALLATION

- A. Install accessories in accordance with manufacturer's instructions. Install plumb, level, and rigidly anchored to substrates.
- B. Install accessories in accordance with applicable regulations for Barrier-Free Design.

3.03 ADJUSTING AND CLEANING

- A. Protect accessories from damage due to construction. Remove protective coverings when no longer required.
- B. Test accessories and adjust for proper operation.
 - 1. Clean exposed surfaces.

3.04 SCHEDULE

- A. Grab Bars (GB):
 - 1. Bradley Model 812: 1½" O.D. heavy duty stainless steel grab bar with concealed mounting, shall be fabricated of satin finish stainless steel with concealed mounting flanges in sizes and configurations as indicated on the drawings. Install with Mounting Kits as required to meet this specification.
- B. Waste Receptacle (WR):
 - 1. Bradley Model 377-37: Freestanding waste receptacle shall be fabricated of heavy gauge stainless steel with exposed surfaces in satin finish. Capacity 13 gal., height: 22"
- C. Circular Waste Chute (CWC):
 - 1. Bradley Model P10-696: Circular Waste Chute shall be fabricated of stainless steel of drawn seamless construction and bright polished finish. Overall dimensions: 6¾" diameter x 3½"D

- D. Channel Framed Mirror:
1. Bradley Model 781-2436 (24" x 36"): Mirror shall be framed with one-piece, roll-formed stainless steel with $\frac{3}{4}$ " face and neatly mitered corners. Double - strength continuous integral stiffener on all sides. Back of unit shall be galvanized steel. Separate brackets for concealed mounting. Mirror shall be of first quality $\frac{1}{4}$ " polished float glass, guaranteed for 15 years against silver spoilage and protected by shock-absorbing, neoprene tubing with Poly-Glaze protective finish.
- E. Sanitary Product Disposal Unit (SPD):
1. Bradley Diplomat Model 4A00-10: Wall-mounted, single-sided semi-recessed napkin/tampon disposal unit with self-trimming flange, with face formed with contemporary contours, radii, and finish matching related accessories in manufacturer's designer series. Capacity 1.5 gal (0.2 cu. ft.). Equipped with push flap door with concealed hinges, hinged drop-down service door with keyed tumbler lock, and removable waste container. Universal keying. Formed from stainless steel sheet with satin finish on exposed surfaces, fully welded, with seamless corners and burr-free edges: cabinet, flange, and waste container 0.030-inch / 22-ga. thick; door 0.036-inch / 20-ga. Thick
- F. Soap Dispenser (SD):
1. Bradley Diplomat Model 6A00-11: Surface-mounted tank type vertical automatic soap dispenser, with face formed with contemporary contours, radii, and finish matching related accessories in manufacturer's designer series. Capacity 27 oz (800 ml). Equipped with hinged cover and completely concealed mounting plate. Vandal resistant filler hole cover and sight gauge. Corrosion-resistant liquid soap valve; peristaltic tube with self contained valve/nozzle.
- G. Toilet Tissue Dispensers (TTD):
1. Bradley Model 5424: Surface-mounted jumbo roll toilet tissue dispenser shall be satin finish stainless steel. Unit shall dispense one 10" diameter toilet tissue roll with $1\frac{1}{2}$ ", $2\frac{1}{8}$ " or 3" diameter core. Door shall be secured with a tumbler lock and shall have a refill indicator viewing slot.
- H. Baby Changing Station for use in Commercial Facilities:
1. Bradley Stainless Steel Baby Changing Station Model 962-11: Surface mounted changing station, bacterial-resistant polyethylene body with brushed 20 gauge stainless steel exterior, rated to support static load of 250 lbs, tested to 390 lbs, with pneumatic gas shock mechanism to ensure smooth, safe open and close motions; molded dual liner dispenser holds approx. 50 per dispenser (liners sold separately) and a safety belt with cam-buckle, adjustable with one hand.

END OF SECTION

SECTION 10 28 13

COMMERCIAL HAND DRYERS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Electric hand dryers for commercial use.

1.02 RELATED SECTIONS

- A. 10 28 00: Toilet Accessories
- B. Division 26 - Electrical: Electrical systems and components.

1.03 SUBMITTALS

- A. Product Data: Provide construction details, dimensions, anchoring and mounting requirements, material and finish descriptions, electrical requirements, and manufacturer's warranty.
- B. Operation and Maintenance Data: Provide for electric hand dryers to include in maintenance manuals.
- C. Warranty: Provide sample of manufacturer's standard warranty for parts and labor.

1.04 QUALITY ASSURANCE

- A. Product Certification: ETL listed in accordance with UL 507. National Sanitation Foundation (NSF) Protocol P335 "Hygienic Commercial Hand Dryers" compliant.
- B. Electrical Components, Devices, and Accessories: Listed and labeled in accordance with NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle electric hand dryers in manufacturer's protective packaging.
- B. Store electric hand dryers off of ground, under cover, and in a dry location. Handle according to manufacturer's written recommendations to prevent damage, deterioration, or soiling.

1.06 COORDINATION

- A. Coordinate locations of electric hand dryers with other work to prevent interference with clearances required for access, and for proper installation, adjustment, operation, cleaning, and servicing of electric hand dryers.

1.07 WARRANTY

- A. Manufacturer's Standard Warranty: Manufacturer's standard form in which manufacturer agrees to repair, restore, or replace defective electric hand dryer components and labor within specified warranty period.
 - 1. Warranty Period: Five (5) years limited for labor and five (5) years for parts.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Dyson Airblade V Electric Hand Dryers manufactured by Dyson Inc., 600 W. Chicago Avenue, Suite 275, Chicago, IL 60610; 888-397-6622, <http://airblade.dyson.com/> or comparable product acceptable to the Architect.
- B. Substitutions will be considered under provisions of Section 01 25 00.

2.02 ELECTRIC HAND DRYERS

- A. Electric Hand Dryers: Dyson Airblade V Electric Hand Dryer Model AB12; Item No. 25887-01
 - 1. Mounting: Surface mounted on ABS/PBT plastic backplate/mounting bracket; protrudes four inches from wall, no recessing required; ADA compliant.
 - 2. Construction: Polycarbonate casing with anti-microbial additive in paint. Anti-microbially integrated external plastics and seals. Anti-tamper M4 exterior pin-hex screws. Water ingress protection to IP24.
 - 3. Color Finish: Sprayed nickel finish.
 - 4. Filtration: 99.97 percent particulate efficiency HEPA filter with anti-microbial coating.
 - 5. Operation: Touch-free infra-red activation.
 - a. Hand dry time: 12 seconds
 - b. Airspeed at nozzle: 420 mph
 - c. Operating Airflow: Up to 28 l/s.
 - d. Rated Operating Noise Power: 84 db(A)
 - 6. Motor: Dyson Digital Motor (DDM), V4 switched reluctance brushless DC type; 92,000 rpm motor speed; less than 0.5 watt standby power consumption.
 - 7. Electrical Requirements: 110-120 V AC, 12 A, 1400 W.
 - 8. Operating Temperature Range: 0 - 40 degrees C.
 - 9. Standby Power Consumption: Less than 0.5 W.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify availability and characteristics of electrical power. Drill minimum two (2) inch diameter holes for electrical service entrance through backplate.
- B. Do not begin installation until substrates are complete and ready for installation of electric hand dryers.

3.02 INSTALLATION

- A. Locate and install mounting bracket in accordance with manufacturer's written instructions. Use minimum 0.25-inch anchors to mount bracket. Mount electric hand dryer at height above finished floor recommended by manufacturer.
- B. Install electric hand dryer in accordance with manufacturer's written instructions, using fasteners appropriate to substrate indicated and recommended by manufacturer. Install electric hand dryers level, plumb, and firmly anchored in locations and at heights indicated.

3.03 CLEANING AND PROTECTION

- A. Adjust electric hand dryers for smooth operation. Replace damaged or defective components.
- B. Remove protective coverings from finished surfaces.
- C. Clean exposed surfaces using materials and methods recommended by manufacturer.

END OF SECTION

SECTION 12 22 00

WINDOW SHADES

PART 1 GENERAL

1.01 SUMMARY

- A. Provide manually operated, roll-up fabric window shades including mounting and operating hardware.

1.02 SUBMITTALS

- A. Manufacturer's installation and maintenance instructions.
- B. Product Data.
- C. Submit Color Samples from which A/E will make selections.

1.03 DELIVERY, STORAGE AND HANDLING

- A. Product to be delivered in manufacturer's original packaging.
- B. Do not deliver window shades until building is enclosed and construction within spaces where shades will be installed is substantially complete.
- C. Products to be handled and stored to prevent damage to materials, finishes and operating mechanisms. Store in a clean, dry area, laid flat to prevent sagging and twisting of packaging.
- D. Label containers and shades according to Window Shade Schedule.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Draper, Inc., 411 South Pearl Street, Spiceland, Indiana 47385-0425; 765-987-7999
- B. Springs Window Fashions
- C. Substitutions Request: Submit for approval under provisions of Section 01 25 00.

2.02 MANUALLY OPERATED WINDOW SHADES

- A. Fabric Shades - Basis of Design: FlexShade as manufactured by Draper, Inc.
- B. Provide manually operated, vertical roll-up, fabric window shades and mounting and operating components necessary for complete installation.

- C. Method of Installation: Mounted to wall and overlapping window opening.
- D. Operation: Bead chain and clutch operating mechanism allowing shade to stop when chain is released. Designed never to need adjustment or lubrication.
 - 1. Provide preset limit stops to prevent shade from being raised or lowered too far.
 - 2. Clutch mechanism: Fabricated from high carbon steel and molded fiberglass reinforced polyester or injected molded nylon.
 - 3. Control loop: Stainless steel bead chain hanging at side of window.
- E. Roller: Fabricated from extruded aluminum, galvanized steel, or enameled steel. Diameter, wall thickness, and material selected by manufacturer to accommodate shade type and size. Provide roller idler assembly of molded nylon and zinc-plated steel pin. Sliding pin to allow easy installation and removal of roller.
 - 1. Roll Orientation: Standard will be fabric coming from backside of tube closest to window.
 - 2. Fascia: L shaped aluminum extrusion, 0.06 inch minimum wall thickness, to conceal shade roller and hardware. Attachment: Snaps onto endcaps.
 - 3. Endcaps: Stamped steel with universal design suitable for mounting to wall and jamb. Provide size compatible with roller size and fasteners appropriate for installation conditions. Finish to be selected from standard powder coat colors offered.
 - 4. Provide endcap covers for outside mounting. Covers shall match fascia finish.
 - 5. Bottom Bar: Minimum 1/8 by 1 inch aluminum slat encased in heat seamed hem.
- F. Fabrics:
 - 1. Light Filtering Fabric 1: Sheer Weave Series 2703 by Phifer
 - a. Duplex twill fabric, light outer panel color combined with dark interior color for thermal comfort and view-through.
 - b. Flame retardant per NFPA 701.
 - c. Bacteria and Fungi Resistant per ASTM E2180.
 - d. Openness Factor 3 percent in accordance with ASHRAE 74.
 - e. Thickness: 0.028 inches
 - f. Weight: 14 oz./sq. yd.
 - g. Color will be selected by A/E.

2.03 FABRICATION

- A. Prior to fabrication, verify actual opening dimensions by on-site measurement. Calculate blind dimensions to fit within specified tolerances.

PART 3 EXECUTION

3.01 INSPECTION

- A. Verify that the area in which the blinds are to be installed is free of conditions that interfere with blind installation and operations. Begin blind installation only when unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Field verify window dimensions prior to fabrication.
- B. Coordinate requirements for blocking and structural supports to ensure adequate means for installation of window shades.

3.03 INSTALLATION

- A. Install blinds in accordance with manufacturer's instructions except as otherwise specified herein.
- B. Install blinds with adequate clearance to permit smooth operation of the blinds.
- C. Install fascia and endcaps to conceal roller and operating mechanism for outside mounting. Do not use exposed fasteners.
- D. Demonstrate blinds to be in smooth, uniform working order.

3.04 MAINTENANCE, CLEANING AND PROTECTION

- A. Maintain and clean blinds in accordance with manufacturer's instructions.
- B. Protect from damage from construction operations. If damage occurs, remove and replace damaged components or entire unit as required to provide units in their original, undamaged condition.

END OF SECTION

SECTION 14 90 00

BAGGAGE HANDLING CONVEYOR SYSTEMS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Provide material handling conveyor system for Airport Baggage consisting of motor driven horizontal belt conveyor and gravity driven roller bed conveyors linked together to provide a continuous flow.
- B. Dimensions of system and location are shown on the Drawings.

1.02 RELATED WORK

- A. Division 1: General Requirements
- B. Division 10: Building Signage
- C. Division 26: Electrical

1.03 QUALITY ASSURANCE

- A. Installer's Qualifications:
 - 1. Regularly engaged in materials handling systems installation.
 - 2. Acceptable to manufacturer.
- B. Reference Standards:
 - 1. OSHA Standards – 29 CFR: Cranes, Derricks, Hoists, Elevators, and Conveyors
- C. Standardization: All material handling system components shall be supplied by a single manufacturer unless otherwise specifically approved in writing by A/E.

1.04 WARRANTY

- A. Provide manufacturer's warranty that conveyor system will be free from defects in material and workmanship for a period of two (2) years from the date of substantial completion.
- B. Manufacturer shall be obligated to repair or replace, at manufacturer's option, any part or goods proving defective within the terms and period of the warranty.

- C. Installer shall bear responsibility for the cost of labor and other charges from removal of defective parts or goods and installation of the replacement parts or goods during the warranty period.

1.05 SUBMITTALS

- A. Product Data:
 - 1. Sufficient data to verify compliance with specifications
 - 2. Data describing materials used, parts, devices, rails, stops, and other accessories
- B. Shop Drawings:
 - 1. Outline and installation drawings
 - 2. Schematic wiring diagrams
- C. Operation and Maintenance Manuals

1.06 COORDINATION

- A. Coordinate with the work of other trades furnishing services to be incorporated into the work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Acceptable Manufacturers and Distributors:
 - 1. Hytrol Conveyor Company, Inc., Jonesboro, AR
 - 2. Omni Metalcraft Corp, Alpena, MI
 - 3. Gilmore-Kramer Co, Providence, RI

2.02 MATERIALS

- A. Each component of the material handling system shall be identified with a part number.
- B. Part numbers will be matched to a manufacturer's installation diagram.
- C. Horizontal Belt Conveyor:
 - 1. Standard Duty Slider Bed:
 - a. 24 inch overall width, 21 inch between rail width with black friction belt surface both sides, clipper unibar lacing.
 - b. Nip point guard.
 - c. 4 inch deep x 12 Ga. formed powder-coated steel bed in 10 foot long section.

2. Capacity:
 - a. 75 lbs. maximum distributed live load per foot of frame.
 - b. 636 lb. load with 1 hp motor distributed over 10 feet.
3. Floor Supports:
 - a. Stationary with holes in feet for lagging to floor.
 - b. Support at both ends of conveyor.
 - c. Adjustable from 15-5/8 to 21-5/8 inches.
4. Tail pulley:
 - a. 4 inch diameter with 1 inch diameter shaft at sealed, prelubricated, self-aligning, ball bearings, machine crowned and fully lagged.
 - b. 4 inches of belt take-up.
 - c. 3-bolt flange bearing, 1 inch bore.
5. Center Drive Assembly:
 - a. Motor: 3/4 HP 208 volt 3 phase, 60 Hz, totally enclosed fan cooled C-face.
 - b. Drive pulley: 4 inch diameter with 1 inch diameter shaft at sealed, prelubricated, self-aligning, ball bearings.
 - c. 3-bolt flange bearing, 1 inch bore.
 - d. Front and back chain guard plates.
 - e. Snub idler: adjustable 2-1/8 inch diameter.
 - f. Return idler: adjustable 1.9inch diameter.
 - g. Belt speed constant at 65 feet per minute.
6. Electrical Controls:
 - a. Manual one direction push button switch, reverse drum switch, one direction and reversible magnetic starters, push button stations.
 - b. Provide miscellaneous parts and accessories for electrification and control of motorized components where indicated on Drawings.
7. Solid Side Guards and End Stop:
 - a. Bolt to side of bed frame.
 - b. 6 inch height above belt.
 - c. Powder coated steel with formed or rolled top edge.

D. Gravity Roller Conveyor:

1. Roller Beds:
 - a. 24 inch overall width, 21 inch between rail width with 19 SR 1.9 inch diameter x 16 Ga galvanized steel tubing rollers on 2-1/4 inch centers.
 - b. 3-1/2" deep x 1-1/2" flange x 10 Ga powder-coated formed-steel channel frame in 10 foot long straight sections.
 - c. Bolt-in cross members.
 - d. Bolt-on couplings where bed sections butt together.
 - e. Axles: 7/16 inch spring loaded hex shaft.
2. Capacity:
 - a. 135 lbs maximum distributed live load per foot of frame.
 - b. 210 lbs maximum load per roller.

3. Floor Supports:
 - a. Stationary with holes in feet for lagging to floor.
 - b. Adjustable and at heights to provide decline of ½ inch per foot.
 - c. Supports at ends of conveyor and at 10 foot intervals.
 4. Guard Rails:
 - a. 3-1/2" x 1-1/2" fixed channel powder-coated steel.
- E. Guards and Guarding:
1. When two or more pieces of equipment are interfaced, provide adequate and guarding and safety devices.
 2. All exposed moving machinery parts that present a hazard to persons using the facility, shall be mechanically or electrically guarded, or guarded by location or position.

PART 3 EXECUTION

3.01 ERECTION

- A. Support Installation:
1. Determine primary direction of flow.
 2. Attach supports to both ends of drive section and to one end of intermediate or tail sections.
 3. Adjust elevation to required height.
- B. Conveyor Set-Up:
1. Mark a chalk-line on floor to locate center of the conveyor.
 2. Place the drive section in place.
 3. Install remaining sections placing end without support on extend support of previous section.
 - a. Check match numbers of parts with manufacturer's flow diagram for correct component sequence.
 4. Fasten sections together with splice plates.
 5. Install conveyor level across width and length. Adjust as necessary.
 6. Tighten all splice plates and support mounting bolts and lag to the floor.
 7. Install electrical controls and wire motor.
 8. Install track belt per manufacturer's instructions.
- C. Belt Installation:
1. Thread belt through conveyor as shown in the manufacturer's installation instructions.
 2. Pull ends together and insert lacing.
 3. Adjust belt tension with take-up pulley or tail pulley. Maintain tension so that drive pulley will not slip when carrying the rated load.
 4. Track belt per manufacturer's instructions.

3.02 ELECTRICAL EQUIPMENT

A. General:

1. Electrical controls shall be installed and wired by a qualified electrician.
2. Wiring information for the motor and control are furnished by the equipment manufacturer.
3. All motor controls and wiring shall conform to the National Electrical Code (Article 670 or other applicable articles) as published by the National Fire Protection Association and as approved by the American Standards Institute, Inc.

B. Control Stations:

1. Install control stations where the operation of the equipment is visible from them and clearly marked or label stations to indicate the function controlled.
2. Install a signal to alert persons in the area that the conveyor is about to start.
 - a. Provide an audible device which can be clearly heard at all points along the conveyor where personnel may be present.
 - b. The warning device shall be actuated by the controller device starting the conveyor and shall continue for a required period of time before the conveyor starts.
 - c. A flashing light or similar visual warning will be used in conjunction with the audible device.

C. Safety Devices:

1. Install emergency stops where shown on the Drawings.

3.03 START-UP AND TESTING

A. Do not test until all safety devices and guards have been installed. Notify A/E and Owner 24 hours prior to testing.

B. Before conveyor is turned on, check for foreign objects that may have been left inside conveyor during installation.

C. Perform initial operational load test at 100 percent of rated load of equipment.

D. After conveyor has been turned on and is operating, check motors, reducers, and moving parts to make sure they are working freely.

3.04 TRAINING

A. Train Owner's Personnel:

1. One hour dedicated exclusively to training owner's personnel in the operation and maintenance of the system.
2. Schedule in writing with A/E.

3.05 SCHEDULE

- A. As shown on the Drawings.

END OF SECTION

SECTION 26 00 10

GENERAL CONDITIONS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Labor, equipment, tools, materials, supplies, and operations necessary to install a complete electrical system, including that which may be reasonably implied on the Drawings or in the Specifications as being incidental to the work of Division 26.
- B. Labor, equipment, tools, materials, supplies, and operations required to make a completely electrically operable system of the equipment furnished under other Divisions of this Specification.

1.02 MISCELLANEOUS MATERIALS

- A. The Drawings are not intended to and do not show all equipment such as junction boxes, outlet boxes, conduit, fittings, mounting and miscellaneous hardware, and similar. Even though such items may not be specifically mentioned in the Specifications nor shown on the Drawings, nor noted on Shop Drawings, if they are necessary to make a complete installation, include them in the work required under this Division.

1.03 QUALITY ASSURANCE

- A. Use only thoroughly trained and experienced personnel who are completely familiar with the requirements of this work and with the recommendations of the manufacturer of the specified items to fabricate, install, and test the work of this Division.
- B. Where the Specifications or Drawings call for equipment or methods to be of better quality or higher standards than required by referenced Codes or Standards, the Specifications and Drawings shall prevail.

1.04 SUBSTITUTIONS

- A. When requesting substitution of material for products specified in this Division, comply with Section 01 25 00 – Substitution Procedures. Include as part of the request detailed descriptions and drawings showing all resultant changes to the electrical work.
- B. The design of certain equipment may be related to factors not immediately obvious. Changes in design of equipment may require technical justification, or require changes be made in other equipment to match the proposed changes, or require the

equipment be supplied as specified, or any combination of the above, at no additional cost to the Owner.

1.05 LOCATION OF ELECTRIC EQUIPMENT

- A. The Drawings or other Specification sections define the approximate location of services, cabinets, panelboards, switches, lights, receptacles, and other equipment. Determine the most suitable location by actual measurement during construction. Maintain clearance required by NEC Article 110. Propose final location and obtain approval of the Engineer in advance of installation.
- B. Coordinate location and configuration of electrical work with the work of other trades to avoid interference, to assure convenient access for operation and maintenance of equipment, for optimum luminaire placement, and for neat appearance.

1.06 SIZE AND RATING OF MATERIALS

- A. The size and rating of the conductors, conduits, overcurrent protection devices, disconnect devices, motor starters, and other related equipment used to provide and control electric supply to the various power consuming equipment furnished under this contract have been determined based on the requirements of the specified equipment. If the requirements of the power consuming equipment actually furnished causes a need to change the rating of any of these materials:
 - 1. Consult with the Engineer to determine the changes necessary to provide and control electric supply to the equipment furnished, and
 - 2. Install the agreed upon materials at no increase in the Contract amount or time.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 26 00 20

CODES, PERMITS, AND FINES FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 COMPLIANCE

- A. This Section applies to Division 26 and to Division 40 Section 40 90 00 – Plant Control System, and to Sections referenced therein.
- B. Perform electrical work and provide material and equipment in compliance with the State of New Mexico Electrical Code (NMEC but also referred to as NEC in these specifications for convenience) and other national, state, and local codes, regulations, laws, and ordinances. The Engineer will resolve conflicts between the above and the Specifications or the Drawings.
- C. Without relieving the Contractor from the obligation to comply with all provisions of the NMEC and other codes and standards, attention is directed to the following portion of the NMEC, 2011, 14 NMAC 10.4.11 B. (1) “Section 110.2 Approval.” Only with written permission of the Engineer and of the Authority Having Jurisdiction (AHJ), provide certification of non-labeled equipment or material from a nationally recognized testing laboratory that has been approved by the electrical bureau.

1.02 PERMITS

- A. Obtain electrical permits. This applies whether or not the AHJ requires a permit for the structural/process portion of a project.

1.03 INSPECTIONS AND CERTIFICATES

- A. Arrange and pay for electrical inspections.
- B. Correct deficiencies noted as a result of inspections then arrange for additional inspections.
- C. Furnish properly executed certificates of final electrical inspection and approval from the AHJ at the conclusion of the work and before final acceptance of the work by the Owner.
- D. It is recognized that inspection by the AHJ is intended to determine whether the work is in compliance with applicable codes, not to determine whether the work is in compliance with the Contract Documents.

1.04 PAYMENTS TO THE AHJ

- A. Include in the Bid the cost of permits and initial inspections.
- B. No change in the Contract Amount will be allowed for other costs associated with this Section, such as but not limited to the cost for certification of non-labeled equipment, additional inspections, and fines/penalties levied by the AHJ. Exception: If a Change Order results in charges from the AHJ for an additional permit and/or additional inspections, then itemized, documented costs will be included in the Change Order amount.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 26 00 40

PROJECT RECORD DOCUMENTS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 GENERAL

- A. Except as may be stated below, this Section applies to Division 26 and to Sections referenced therein. It contains minimum requirements; also comply with Section 01 78 39 – Project Record Documents.

1.02 LEGIBILITY

- A. Materials that are not sufficiently legible to the Engineer may be returned without being reviewed.
- B. Materials of marginal legibility may be accepted for preliminary review but rejected for use as final Record Documents.
- C. Minimum text height on project-specific submittal drawings such as schematics, connection diagrams, loop diagrams, and similar: 1/8 inch.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION

3.01 CONTRACT DRAWINGS

- A. Maintain a complete set of Contract Drawings in “Record” condition. Mark, initial, and date changes, modifications, or corrections as they occur.
- B. Show by dimensions and by correct scale the location and burial depth of underground conduits, duct banks, conduit stubouts, and direct buried cables. Show location and depth at each end and at every bend.
- C. Show all differences between electrical and instrumentation design and the actual construction of electrical and instrumentation systems.
- D. Have the Drawings available for inspection by the Engineer during standard work hours at the project site.
- E. Furnish the “Record” Contract Drawings to the Engineer after completing the work and tests.

3.02 SHOP DRAWINGS/SUBMITTALS

- A. Maintain a complete set of Shop Drawings in “Record” condition. Mark, initial and date changes, modifications, or corrections as they occur.
- B. Where required in the equipment sections, return field marked Shop Drawings to the respective manufacturer who shall transfer “Record” markings to the original tracings, stamp the originals “Record” and place the date adjacent to the stamp. Contractor submit.
- C. Where a connection diagram is required as part of the submittals for a Section of these Specifications, whether in Division 26 or Division 40 or not, the Record documents for that section shall include copies of the connection diagrams that show all field interconnection information. Where a wire goes to a field device, such as a STOP pushbutton, the interconnection information may simply say “STOP pushbutton, field.” Where a wire goes to an equipment where it is terminated on a terminal board, show the wire destination by equipment name or abbreviation, then terminal board number, then terminal point number, AFD1-B 6 for example.
- D. Furnish other “Record” Shop Drawings to the Engineer.
- E. Furnish “Record” submittals to the Engineer where specified in individual sections.

END OF SECTION

SECTION 26 00 60

EXTRA MATERIALS FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Extra materials, such as spare parts, maintenance materials, and special tools for Division 26, for Sections referenced therein, and for other Sections as required below.
- B. Marking, packaging, and delivery of extra materials as required in Division 1.

1.02 SUBMITTALS

- A. Include detailed descriptions of extra materials in the submittal materials for specific Sections and show in the Master List as required in Section 01 78 44 – Spare Parts and Maintenance Materials.

PART 2 PRODUCTS

2.01 EXTRA MATERIALS REQUIRED

- A. If the equipment submitted differs from that specified and the manufacturer recommends extra materials which differ from those specified, provide extra materials of equal function to those specified. Also provide additional materials if so recommended in the manufacturer's Operation and Maintenance Manual.
- B. Regardless of the Division/Section in which the equipment is specified, provide spares of every type and rating of fuse used in the project. Provide minimum quantity as shown below but provide more if so specified elsewhere.
 - 1. Fuses of 250 V or less: One standard package or ten, whichever is greater.
 - 2. 600 V fuses: Six.
 - 3. 15 kV fuses: Six refills.
- C. Regardless of the Division/Section in which the equipment is specified, provide spares of every type and rating of pilot lamp used in the project. Provide minimum quantity as shown below but provide more if so specified elsewhere.
 - 1. Incandescent lamps: Two standard packages or twenty, whichever is greater.
 - 2. LED lamps for heavy-duty industrial pilot devices: Two of each color.
- D. As required in specific Sections.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 26 05 19

LOW VOLTAGE WIRE AND CABLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Low voltage wire and cable.

1.02 SYSTEM DESCRIPTION

- A. Furnish wire and cable for all systems except:
 - 1. Where supplied as part of an equipment or system.
 - 2. Where specifically stated otherwise in other parts of the Specifications or on the Drawings.
- B. Install, connect, mark, and test all wire and cable.

1.03 SUBMITTALS

- A. Paragraph 2.01: Not required.
- B. Paragraphs 2.02 through 2.07: Manufacturer's standard literature.

PART 2 PRODUCTS

2.01 600V POWER AND GENERAL PURPOSE WIRE

- A. Meet NEC 310, UL 83, and the ANSI C8 Series.
- B. Conductor: Copper.
- C. NEC Type: THWN/THHN
- D. Minimum wire size unless specifically noted otherwise on the Drawings:
 - 1. 480V: #10 AWG.
 - 2. 120/208/240V: #12 AWG.
 - 3. Control: #14 AWG, stranded.
 - 4. Grounding/bonding conductors: #12, except #14 for control runs.

2.02 SHIELDED CABLE (TWSH)

- A. 90 degree C. operation.

- B. Single Pair: Stranded bare or tinned copper, #16 AWG with 600V insulation, meet NEC 336.
- C. Insulation: Extruded PE, PVC, or PVC/Nylon.
- D. Conductor Identification: Colored pairs.
- E. Pair Construction: Twisted pair, lay 1-1/2 inches to 2-1/2 inches.
- F. Core Tape: Polyester with 25 percent overlap.
- G. Shield: Polyester supported aluminum tape with tinned #18 AWG copper drain wire.
- H. Jacket: Ultraviolet stabilized, flame retardant extruded black PVC with non-hygroscopic rip cord.

2.03 TRAY CABLE (TC)

- A. Meet NEC 336, 501, 725, 727, and 760. UL listed as Type TC. UL listed as suitable for direct burial in sizes #14 AWG and larger.
- B. Flame, moisture, and sunlight resistant. Meet UL 1581 Vertical Tray Flame Test at 70,000 BTU.
- C. Ratings:
 1. 600V.
 2. 90 degrees C. dry locations; 75 degrees C. wet locations.
- D. Construction:
 1. Conductor: Stranded soft annealed copper.
 2. Insulation: Polyvinyl chloride with 5 mil nylon jacket.
 3. Jacket: Polyvinyl chloride.
- E. Conductor Identification:
 1. #8 AWG and larger: ICEA Method 4.
 2. #10 AWG and smaller: ICEA Table K 2, Methods 1 and 4.
 3. As shown on Drawings or Schedules.

2.04 ETHERNET CABLE

- A. Labeled as c(UL)US compliant.
- B. Verified to Category 6e ANSI/TIA/EIA-568-B.2.
- C. Four pair 24 gage with blue jacket.
- D. Use ANSI/TIA/EIA compliant connectors and installation.

2.05 OTHER WIRE AND CABLES

- A. As supplied under other Sections or as required on the Drawings or Schedules.

PART 3 EXECUTION

3.01 COLOR CODING

- A. 600V Power and General Purpose Wire:
 - 1. Neutral and ground as required by NEC. Where two neutrals are run in a conduit, make one white and one grey. For three: one white, one grey, and one white that is field marked with a band of grey tape at each end.
 - 2. 480V Phases: Brown, orange, yellow (A,B,C, respectively).
 - 3. 120/240V: Black and blue.
 - 4. 120/208V: Black, blue, violet (A,B,C, respectively).
 - 5. Motor Control Leads:
 - a. THWN/THHN: Red to field devices with white (grey) neutral.
 - b. Tray Cable: Inherent to cable.
 - 6. THWN/THHN: #14 to #10 AWG: Colored insulation.
 - 7. THWN/THHN: Larger than #0: Tape may be used.
- B. TWSH and TC: Inherent to cable construction.
- C. Color shall be the same from end to end of a run. Do not change conductor color at splices or terminal boards.

3.02 MARKING

- A. Mark all field conductors unless directed otherwise on the Drawings or Schedules.
- B. Text:
 - 1. All lighting circuits and power circuits: Panel designation and circuit number, such as, LP1-12, or PPA-23,25,27.
 - 2. Control Circuits: Terminal board number or wire number shown on schematics and/or submittals.
 - 3. Mark otherwise as specifically shown on the Drawings or Schedules.
- C. Method:
 - 1. Hot marked (embossed, not just surface printed) heat shrink tubing of the proper diameter; Raychem, or
 - 2. Typed or computer printed, wrap-on, cloth adhesive labels held in place with a length of clear heat shrinkable tubing, or
 - 3. Typed or computer printed, wrap-on labels held in place with a wrapped and heat bonded cover, 3M ScotchCode, or
 - 4. Engineer reviewed equivalent.

5. Direct hot marking of wire or labeling methods, which depend solely on adhesive for attachment, are not acceptable.
- D. Location: Install wire markers at every connection point to terminal boards, control stations, indicators, starters, instruments, and similar equipment, and at all splices.

3.03 TAGGING

- A. Tag conductors and cables unless directed otherwise on the Drawings or Schedules.
- B. Text:
1. All lighting circuits and power circuits: Panel designation and circuit number, such as, LP1-12, or PPA-23,25,27.
 2. Control Circuits: Name of equipment being controlled.
 3. Instrumentation: Tag number.
 4. Mark otherwise as specifically shown on the Drawings or Schedules.
- C. Method:
1. Loosely group conductors of same service. Use tie wraps to keep grouped.
 2. Install marking tag as specified in Section 26 05 53.
- D. Location: In pull boxes, handholes, manholes, and other enclosures where accessible but neither terminated nor spliced. It is not necessary to tag conductors in 4 by 4 or smaller boxes, or in conduit bodies.
- E. Mark the cover of 4x4 or smaller boxes with a permanent black felt tip marker to indicate wiring content as required in paragraph 3.03.B above.

3.04 INSTALLATION

- A. Install all wiring in conduit, except where specifically allowed otherwise on the Drawings.
- B. Bending Radii: Not less than permitted by ICEA or as recommended by cable manufacturer, whichever is greater.
- C. Cable in cable trays, open wireway, and trenches:
1. Except for individual THWN grounding conductors, use TC or PLTC only.
 2. Maintain separation between AC and DC cables.
- D. Splicing:
1. Power Circuits:
 - a. Splicing of THWN/THHN conductors is permissible in boxes, enclosures, handholes, manholes or similar accessible and protected locations.
 - b. Splicing in conduit bodies is not permitted.

2. Control circuits and instrument wiring:
 - a. No splicing allowed.
 - b. If intermediate connections are required, provide enclosure and terminal block(s) where allowed by Engineer. Mark conductors as required above in this Section. Mark terminal boards as required in Section 26 27 27.
 3. Direct buried splices allowed only as shown on the Drawings or Schedules.
- E. Shields of TWSH:
1. Ground instrumentation cable shields at the PLC Cabinet.
 2. Cut shield at field end 1/2" shorter than cable pair(s). Install heat shrink tubing over shield to prevent contact with ground.

3.05 UNUSED CONDUCTORS OF TC, PLTC

- A. When a cable has conductors which are not shown to be terminated then fold them back and tape in place. Do not cut short.

3.06 GROUNDING CONDUCTORS

- A. Grounding Electrodes/Grounding Electrode Conductors: Bare copper.
- B. Equipment Grounding Conductors: Insulated as required in 2.01, or as part of a cable. Bare copper where shown thus on the Drawings.

3.07 SCHEDULE

- A. Wire and cable required under this Section for this project: As shown on the Drawings.

END OF SECTION

SECTION 26 05 26

GROUNDING AND BONDING

PART 1 GENERAL

1.01 SYSTEM DESCRIPTION

- A. Furnish, install, connect, and test a complete grounding system for all non-current carrying conductive components and grounded circuit conductors of the wiring system, building structural steel, metallic piping, motor controls and panels, transformer neutrals and cases, motor frames, and other electrical systems and components.
- B. Where grounding systems are not shown on the Drawings, as a minimum, ground in accordance with the NEC.
- C. Where grounding systems are shown on the Drawings and are more stringent than required by the NEC, the Drawings take precedence.

1.02 SUBMITTALS

- A. Literature for electrolytic ground rods.

PART 2 PRODUCTS

2.01 GROUND RODS

- A. High carbon steel rod with minimum 0.01 inch thick electroplated copper coating.
- B. Minimum 5/8" diameter and minimum 10' long; provide larger if so scheduled or shown on the Drawings.
- C. Nehring Electrical Works Company NCC series (NCCS series for sectional rods) or Engineer approved equivalent.

2.02 ELECTROLYTIC GROUND RODS

- A. Manufacturer:
 - 1. Minimum 10 years experience manufacturing electrolytic ground rods.
 - 2. ISO 9002 certified.
- B. Ground Rod:
 - 1. UL listed.

2. 100% self activating/sealed and maintenance free without addition of chemical or water solutions.
3. Operate by hygroscopically extracting moisture from the air to activate the electrolytic process improving performance.
4. 100% copper 2" nominal diameter hollow copper tube with a minimum wall thickness of 0.083 inches.
5. Permanently capped on the top and bottom with air breather holes in the top of the tube and holes in the bottom of the tube for electrolyte drainage into the surrounding soil.
6. Factory filled with non-hazardous Calsolite to enhance grounding performance.
7. Ten feet long unless shown otherwise by schedule or Drawings.
8. Provide a stranded 4/0 AWG Cu ground wire that is bonded to the side of rod by means of heavy-duty exothermic welding process.
9. 25 year manufacturer's warranty.
10. Lyncole XIT or Engineer approved substitution.

C. Backfill Material:

1. Provide manufacturer recommended quantity but minimum 50 pounds per rod.
2. Natural volcanic, non-corrosive form of clay grout backfill material free of polymer sealants, which absorbs approximately 14 gallons of water per 50 pound bag for optimal 30% solids density and which has a pH value of 8-10 with maximum resistivity of 3 ohm-m at 30% solids density.
3. Lynconite II or Engineer approved substitution.

2.03 GROUND ACCESS BOX

A. Composite Box:

1. For non-traffic applications only.
2. Provide snap-lock flush cover with "breather" holes.
3. Nominal twelve inch diameter by ten inches high.
4. Lyncole model XB-12F or Engineer approved substitution.
5. Use only where specifically called for on Drawings.

B. Precast Concrete Access Box, Medium Traffic:

1. Slots for conduit entrances.
2. Minimum size ten inch diameter by twelve inches high.
3. Round cast iron grate flush cover with "breather" slots.
4. Lyncole Model XB-12C or Engineer approved substitution.
5. Unless shown otherwise on the Drawings, use in dirt areas, in sidewalks, and in asphalt dust aprons.

C. Precast Concrete Access Box, Heavy Traffic:

1. Minimum twelve inch diameter by ten inches high.
2. Cast iron frame with lifting sockets.
3. Triangular cast iron cover with breather holes.

4. Lyncole model XB-22 or Engineer approved equal.
5. Unless shown otherwise on the Drawings, use in driveways, parking lots, access aprons, alleys (paved or otherwise), private streets, and public streets.

2.04 GROUND CONDUCTORS AND TAPS

- A. Stranded soft-drawn bare copper.
- B. Conductor Size: NEC Article 250, unless shown larger on Drawings.

2.05 CONNECTIONS

- A. Use heavy duty exothermic welding process (HDEWP) or NEC/UL approved/listed compression connectors for all copper to copper grounding connections and for copper to ground rod connections.
- B. Use NEC/UL approved/listed compression connectors from copper conductor to structural reinforcing rod. Burndy Hyground Hygrid YGL-C or Figure 6 Hytap YGHP-C, or equal.
- C. Connection to power equipment (switchboard, MCC, panelboard, AFD, and similar): Install compression lugs on wire and bolt lugs to equipment ground bus.

PART 3 EXECUTION

3.01 CONDUIT AND RACEWAY SYSTEMS

- A. Conduit Systems at Panels and Boxes: Double locknuts with sealing-type locknut on outside. Use bonding jumpers for conduits installed in concentric or eccentric knockouts and between conduits installed at non-metallic boxes.
- B. Conduit Systems: Install a green insulated grounding conductor in all conduits for the length of the conduit. Size conductor in accordance with the NEC, as a minimum, unless otherwise specified on the Drawings. Use grounding bushing and connectors.
- C. Install a #4/0 (minimum) bare copper grounding conductor under all underground primary power duct banks. No grounding conductor is required in primary conduits.
- D. Install bare copper grounding conductors within or under other duct banks as shown on the Drawings.

3.02 SOLID GROUND RODS

- A. Install in firm soil outside of excavated areas.

- B. Use driving studs or other suitable means to prevent damage to threaded ends of sectional rods.
- C. Unless either excluded or shown otherwise on the Drawings, install access box at each rod. If box will have concrete cast adjacent to it, install one-half inch expansion material around box before pouring concrete. Set box flush with concrete surface.
- D. Depth:
 - 1. Where access box is installed, drive rod so top is 4 inches below finished grade.
 - 2. Where access box is not installed, drive rod so top is 24 inches below finished grade.

3.03 ELECTROLYTIC GROUND RODS

- A. Install according to manufacturer's instructions.
- B. Use for lightning protection grounds, whether specifically differentiated on the Drawings or not.
- C. Use for other grounds where shown on the Drawings.
- D. Install precast concrete access box at each rod. If box will have concrete cast adjacent to it, install ½ inch expansion material around box before pouring concrete. Set box flush with concrete surface.

3.04 STRUCTURE GROUNDING ELECTRODE SYSTEM

- A. Where shown on the Drawings, install bare copper grounding conductor in the concrete of the footing. Braze copper conductor to the tail of a reinforcing rod at minimum 4 places. Bond copper conductor to equipment where shown. Bond copper conductor to building structural steel columns, metallic piping, and similar, whether shown or not.

3.05 MARKING OF GROUND ACCESS BOXES

- A. If called for on the Drawings, mark each ground access box.
- B. Where an access box is surrounded by concrete, stamp the legend "GND" into the concrete adjacent to the box, minimum one inch high letters.
- C. Where an access box is surrounded by asphalt, pour a twenty inch by six inch by twelve inch deep concrete marker in a nearby non-traffic area with the legend "GND BOX ?? FT" and an arrow pointing to the box, minimum one-inch high characters.

- D. Where an access box is surrounded by dirt, pour a six inch by six inch by twelve inch deep concrete marker adjacent to it. Stamp the legend "GND" into the concrete, minimum one inch high letters.

END OF SECTION

SECTION 26 05 29

HANGERS AND SUPPORTS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Strut Systems.
- B. Supports.
- C. Anchors.

1.02 SUBMITTALS

- A. Not required.

PART 2 PRODUCTS

2.01 CORROSION RESISTANT METAL STRUT SYSTEM

- A. Channel:
 - 1. Designed with edges turned in, forming lips which allow special spring loaded nuts to be inserted anywhere along the channel.
 - 2. Material: 6063-T6 aluminum, or 304 stainless steel.
- B. Spring loaded nut and spring:
 - 1. Nut made of 304 stainless steel and designed to provide positive locking in place when tightened.
 - 2. Spring made of zinc chromate plated steel or stainless steel.
- C. Braces, brackets, and structural shapes used in the assembly of metal strut: 6063-T6 aluminum, 5052-H32 aluminum, or 304 stainless steel.
- D. Threaded rod, bolts, and nuts: 304 stainless steel.
- E. All materials by the same manufacturer and designed as a system.
- F. Dimensions and style:
 - 1. Single strut: 1-5/8" by 1-5/8" – 12 gage, solid.
 - 2. Back-to-back strut: 1-5/8" x 3-1/4" – 12 gage, solid.
 - 3. As specifically noted otherwise on Drawings.
- G. Unistrut, B-Line, Superstrut, or Engineer reviewed equivalent.

2.02 FIBERGLASS STRUT SYSTEM

- A. Strut and hanger rod construction: Linear glass strands, continuous mat laminates, and corrosion-resistant polyester resins simultaneously pultruded to form a uniform rigid thermoset shape.
- B. Fiberglass: Self-extinguishing with UL 94 V-O classification.
- C. Hanger rod washers: Stamped from pultruded flat stock.
- D. Hanger rod square nuts: Made from pultruded flat stock.
- E. Hanger rod hex nuts and strut nuts: Injection molded.
- F. Hanger rod beam clamps and pipe straps: Steel, with 15 mil PVC coating and SS bolts.
- G. Deflection versus loading and recommended loading: Equal to or better than that of Rob Roy Industries Rob-Glass Fiberglass Strut Support System.
- H. Single strut: 1.715 by 1.76 by 0.15 wall by length.
- I. Back-to-back strut: 1.715 by 3.52 by 0.15 wall by length.

2.03 METAL STRUT SYSTEM

- A. Same as 2.01 except galvanized or painted steel.
- B. Hardware: Zinc or cadmium plated.

2.04 ANCHORS

- A. Comply with the requirements of Division 5, specifically with Section 05 50 01 – Anchor Bolts and Chemical Anchors. Lead shields with lag bolts: not acceptable. Concrete tapping screws: not acceptable.
- B. Anchors placed in poured concrete: Stainless steel expansion bolts, such as Hilti, Wejit, or equal, or chemical anchors.
- C. Anchors placed in concrete masonry units:
 - 1. Chemical anchors.
 - 2. Toggle bolts may be used in hollow portions of concrete masonry units in Non-Process Indoor Areas.

PART 3 EXECUTION

3.01 ANCHORS

- A. Comply with the installation requirements of Section 05 50 01 – Anchor Bolts and Chemical Anchors.

3.02 SUPPORT OF ALUMINUM CONDUIT AND BOXES

- A. Support with stainless steel bolts, washers, and nuts and aluminum clamps, plates, angles, and/or strut.

3.03 SUPPORT OF OTHER CONDUIT AND BOXES

- A. Support with stainless steel bolts, threaded rod, washers, and nuts and stainless steel clamps, plates, angles and/or stainless steel strut.
- B. As allowed in Paragraph 3.05.

3.04 FLEXIBLE STRAP

- A. Flexible steel and/or copper perforated straps (such as plumber's tape) are not acceptable for support of any electrical item.

3.05 USAGE OF STRUT

- A. Do not install fiberglass strut where exposed to sunlight.
- B. Do not cast fiberglass or aluminum strut in concrete.
- C. Follow manufacturer's recommendation as to maximum loading.
- D. Do not exceed deflection stated in manufacturer's literature.
- E. Unless specifically allowed otherwise on Drawings, use painted Metal Strut Systems (paragraph 2.03), only in Non-Process Indoor Areas.
- F. Unless specifically allowed otherwise on Drawings, use galvanized Metal Strut Systems (paragraph 2.03), only in Non-Process Indoor Areas, and in indoor spaces in which liquid sewage or sludge is not handled, such as a blower room.

END OF SECTION

SECTION 26 05 33.10

ELECTRICAL CONDUIT

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Conduit and accessories.

1.02 SUBMITTALS

- A. Manufacturer's standard literature for conduits and fittings.
- B. Additional Submittals Required for PVC RMC:
 - 1. Copy of ETL or UL Report to show compliance with the requirements of Paragraph 2.02 A.2.
 - 2. Furnish documentation certifying that each installer, who will install PVC RMC on this project, has been trained by the manufacturer in the proper methods and tools for installing PVC RMC.
 - 3. Furnish a certification from the conduit manufacturer that a representative of the manufacturer has inspected the completed installation, found the installation to conform to the Manufacturer's recommendations, and certifies the Manufacturer's Warranty is in effect. Include the ending date of the warranty on the face of the warranty.

PART 2 PRODUCTS

2.01 RIGID METAL CONDUIT (RMC)

- A. Steel RMC:
 - 1. Meet NEC 344 and ANSI C80.1.
 - 2. Listed and labeled under UL6 or CSA recognized.
 - 3. Electro-galvanized on outside, inside, and on threads.
- B. Aluminum RMC:
 - 1. Meet NEC 346, UL 6, and ANSI C80.5.
 - 2. Listed and labeled under UL6 or CSA recognized.

2.02 RIGID NONMETALLIC CONDUIT (RNC)

- A. Might be referred to as RNMC on the Drawings.
- B. Meet NEC 352 and NEMA TC2.

- C. Listed/labeled under UL 651 for use with conductors operating at 90 degrees C.
- D. Ultraviolet resistant.
- E. Schedule 40 Polyvinyl Chloride Except Schedule 80:
 1. Where called for in the schedule.
 2. Where installed exposed, or
 3. Where called for on Drawings.
- F. Glue all Joints Except:
 1. Provide bell and spigot expansion joint with O rings where required for expansion/contraction, and
 2. Provide glue to thread fittings for transition to threaded conduit systems.
- G. Fittings and Cement: By conduit manufacturer.
- H. Carlon Plus 40 (Plus 80), or Engineer reviewed equivalent.

2.03 FIBERGLASS REINFORCED EPOXY CONDUIT (FRE RNC)

- A. Meet NEC 352 and NEMA TC14A.
- B. Listed/labeled under UL 1684 for use with conductors operating at 90 degrees C.
- C. UV resistant.
- D. Trade sizes from 3/4" through 6" which match RMC sizes.
- E. Couple by means of bell and spigot with triple seal gasket or with glued couplers.
- F. Elbows: Factory formed.
- G. Factory assemble couplers onto conduit where adapting to different conduit types.
- H. Two-Part Epoxy: Provided by manufacturer of conduit.
- I. Champion Fiberglass (281-353-5052) or F.R.E. Composites (450-537-3311).

2.04 ELECTRICAL METALLIC TUBING (EMT)

- A. Meet NEC 358. Listed/labeled under UL 797.
- B. Connectors and Couplings:
 1. Steel, not die-cast.
 2. Rain-tight compression type, T&B TC11xA or equivalent.
 3. Neither set screw nor indenter type will be acceptable.

- 2.05 FLEXIBLE METAL CONDUIT (FMC)
- A. Meet NEC 348. Listed/labeled under UL 1.
 - B. Steel.
 - C. Use a single piece for each run. Do not use couplings.
 - D. Connectors: Steel squeeze type, Appleton Catalog Numbers 7480 through 7490, or Engineer approved equivalent.
- 2.06 LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LFMC)
- A. Meet NEC 350.
 - B. Listed/labeled under UL 360 for use in ambient temperatures from –30 degrees C to +80 degrees C, wet.
 - C. Galvanized steel with UV resistant PVC jacket.
 - D. Use a single piece for each run. Do not use couplings.
 - E. Connectors: Appleton ASTM series or Engineer approved equivalent.
- 2.07 LIQUID-TIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC)
- A. Conform to NEC 356.
 - B. Listed/labeled under UL 1660 for use in ambient temperatures up to +80 degrees C, dry; +60 degrees C, wet.
 - C. Sunlight resistant.
 - D. Use a single piece for each run. Do not use couplers.
 - E. Connectors: Appleton ASTM series or Engineer approved equivalent.
- 2.08 OTHER CONDUITS
- A. Meet requirements of appropriate NEC article and applicable UL standard.
 - B. Use only after specific written approval of the Engineer.
- 2.09 CABLE CONNECTOR:
- A. Aluminum liquid tight, strain relief type, T & B 29XXSST series.

- B. Where installed through enclosure wall, also use sealing ring with SS retainer, T & B 5262 series.

PART 3 EXECUTION

3.01 CONDUITS REQUIRED

- A. Many conduits and associated conductors are not shown or are only partially shown on plan views in the Drawings. Install as if fully shown.
- B. In addition to conduits that are shown on plan views in the Drawings:
 1. Install conduits which are shown in the conduit schedules. Schedules are appended to this Section or are included in the Drawings.
 2. An entry in a conduit schedule requires conduits and conductors end-to-end, complete. For example, there is only one entry for a given motor feeder, even though there is actually one conduit and set of conductors from the starter to the local disconnect switch and another from the disconnect switch to the motor.
 3. Install as implied for circuiting, such as where a panelboard circuit number is shown adjacent to a wiring device, and from switches to associated luminaires.
 4. Install as called for in panelboard schedules.
 5. Install as called for in tables shown as part of schematic diagrams.
 6. Install as required for control of process equipment. Pay special attention where recommendations of the manufacturer of the process equipment supplied differ from that shown in the design.
 7. Install as required for a complete system.
 8. Install as called for on the One-Line Diagram.

3.02 INSTALLATION

- A. Conduit Bends:
 1. Factory made or made with a conduit bending machine recommended by the conduit manufacturer.
 2. If EMT is specifically allowed in the matrix of conduit usage then bends in EMT may be made with a hand bender which fully supports the side walls.
- B. Wrench tighten all threaded joints, couplings, fittings, and connectors.
- C. Run conduits concealed in finished areas and where indicated on the Drawings. In many places, such as at motors and surface-mounted wiring devices in pump rooms and electrical rooms, the end of a run may be an exposed vertical riser even though the symbol used for the conduit denotes concealed.
- D. Run exposed conduit either parallel with or perpendicular to structural members of the building or structure except where allowed otherwise by the Engineer.

- E. The only conduit that may be above a roof is conduit that serves equipment on that roof. Locate roof penetrations so no horizontal runs of conduit are required on the roof.
- F. Conduit installed above lay-in ceilings will be considered to be concealed, and need not comply with parallel/perpendicular requirements for exposed conduit. Route to avoid interference with piping, duct work, and luminaries. Locate conduit well above the lay-in ceiling. Support independently of ceiling suspension wires.
- G. Do not install conduit on slabs, decks, sidewalks or floors where it may create a trip hazard. The Engineer or Owner judges what conditions are “trip hazards”. Conduits may be installed on slabs only with written permission from the Engineer or Owner.
- H. Drainage: Avoid pockets in conduit runs. Provide suitable drainage fittings in low spots in exposed conduit. Weep holes not permitted.
- I. Field Cuts and Threads:
 - 1. Cut ends of conduit square. Ream to remove burrs and sharp edges.
 - 2. Non-factory threads: Same effective length, thread dimensions, and taper as factory cut threads.
 - 3. Carefully remove burrs from threads.
 - 4. For steel RMC, paint conduit threads with vinyl repair compound.
- J. Supports:
 - 1. Comply with NEC and Section 26 05 29 – Hangers and Supports.
 - 2. In horizontal conduits runs install one-hole conduit straps with the anchor below the conduit.
- K. Conduit Ends:
 - 1. Where conduits terminate in hand holes, manholes, trenches, floor cavities, or similar, or through concrete into open-bottom enclosures plug spaces between conductors/cables and conduit with duct seal.
 - 2. Protect conduit ends during construction to prevent entrance of foreign material.
 - 3. Install insulated throat grounding bushing on conduit ends and install bonds as specified in Section 26 05 26 – Grounding and Bonding, and as required by the NEC.
 - 4. Where conduits enter an enclosure from underground, whether through concrete or from earth (such as in a transformer), set end of conduit at two to three inches above the surrounding or nearby concrete.
- L. Clean and swab inside by mechanical means to remove foreign materials and moisture before wires or cables are installed, also for spare conduits.
- M. Spare Conduits:
 - 1. Blow a pull string through the conduit.

2. If end is buried or exposed to weather, glue pull string to inside of cap with silicone seal, let set, leave adequate slack, then install cap.
 3. Where not exposed to weather, seal conduit end with duct seal.
- N. Use anti-seize compound on threads of aluminum RMC.
- O. Conduit and Boxes Installed on Guard Rails:
1. Allowed only where shown on the Drawings or where specifically proposed in writing by the Contractor and approved by the Engineer.
 2. If allowed for conduits, mount on the outside of the rail (opposite from the walking surface).
 3. If allowed for enclosures, install strut on the outside of the rail then extend upward to support enclosures.
 4. Where guard rail is removable, provided with a gap and chains, or has a gate, run conduit on the side of the bridge, below the level of the walking surface.
- P. Where shown on Drawings, provide sleeves for conduit penetrations. Where the penetration is through the wall of a process structure which contains water, provide mechanical “link-seals” between the inside of the sleeve and the outside of the conduit. Seal other penetrations with 40-year rated silicone seal.
- Q. Requirements where conduits enter/exit a structure/building below grade:
1. Do not run conduits in/through footings.
 2. Bury conduits larger than 2 inch trade size minimum 12 inches below the bottom of the footing.
 3. Fewer than 5 conduits of 2 inch trade size or less in a loose grouping may penetrate the stem wall.
 4. More than 5 conduits of any size in a grouping:
 - a. Bury minimum 12 inches below the bottom of the footing or
 - b. Submit structural details of blockouts and reinforcing through the stem wall for review by the Engineer. After conduits are installed through a blockout, fill the remaining space with non-exothermic, non-shrink grout.
- R. Expansion Joints: Where conduit spans building expansion joints or in long duct runs, use expansion fittings and bonding jumpers.

3.03 DUCT BANKS

- A. Encase conduits in 4000 PSI concrete. Comply with the requirements of Division 2 for earthwork and of Division 3 for concrete.
- B. Drawings show known interferences but others may exist. Where close to known interferences or where evidence of other interferences is found in the field, hand excavate trench.

- C. Install conduits using plastic spacers. Provide spacers maximum of 8 feet on center, but closer where so shown in the conduit manufacturer's instructions or where required for adequate support at elbows, offsets, or sweeps.
- D. Remove mud and other foreign substances from conduits before pouring of concrete.
- E. Provide minimum 3" of concrete all around the outside of conduits. Provide minimum 3" of concrete between walls of adjacent conduits.
- F. To prevent floating, tie down duct banks with reinforcing bars and steel wire before pouring concrete.
- G. Dye all concrete red. Use seven to eight pounds of Bayferrox CC16 Red dye, or Engineer reviewed equivalent, per cubic yard of concrete mix.
- H. Prevent loose dirt from falling into trench during concrete pouring operations.
- I. Pour each section, i.e. riser to riser, riser to pull box, pull box to pull box, etc., of duct in one operation. If such construction is not feasible, construction joints will be permitted, subject to review of Engineer, provided 40 mil PVC RMC is used a minimum of 5 feet on both sides of joint, and minimum 4 #4 by ten foot reinforcing bars are run through the joint.
- J. Make sure that concrete flows all around all conduits by suitable means, except do not use mechanical concrete vibrators and do not significantly displace conduits.
- K. Duct bank concrete may be poured without forming, provided trench walls are firm and do not cave; otherwise, use forms as specified in Division 3.
- L. After construction of duct banks is complete, pull a mandrel through each duct. Use a mandrel 1/4 inch smaller in diameter than duct unless the manufacturer recommends otherwise. If any obstructions are encountered or if there is evidence of water pocket in duct, locate, remove and replace that section at no cost to Owner.
- M. Where shown on the Drawings, install bare copper ground wire under or in concrete of duct bank. Connect to ground conductors/ground bars at each end.

3.04 APPLICATION

- A. RMC:
 1. Steel RMC is not permitted direct buried.
 2. Aluminum RMC is not permitted:
 - a. In contact with earth.
 - b. Embedded in concrete.
 - c. In contact with concrete below grade, outdoors, or in wet indoor locations.

- B. RNC and FRE RNC:
1. Do not use where exposed to direct sunlight.
 2. Permitted underground or direct buried.
 3. Use where shown on Drawings.
 4. Permitted where shown in matrix of conduit usage.
 5. Do not use RNC elbows for underground installations with conduit sizes 2 inches or greater. Elbows may be FRE RNC or PVC RMC.
- C. EMT:
1. Use only where shown in the matrix of conduit usage.
- D. Flexible Conduits:
1. Use for final connection to luminaires, motors, dry type transformers, HVAC equipment, water heaters, unit heaters, and similar applications.
 2. Do not install within a wall or slab. Do not install as/in a penetration of a wall or slab.
 3. Do not install in lengths of more than 18 inches except:
 - a. For connection of lay-in luminaires.
 - b. For connection of equipment where O&M manual recommends moving it for maintenance, such as certain models of uninterruptible power supply systems.
 - c. For connection of adjustable frequency drives.
 - d. Where proposed in writing case-by-case by the Contractor and specifically allowed by the Engineer. No other exceptions to length restrictions.
 4. LFMC and LFNC: Allowed as a factory component of luminaires and/or process equipment.
 5. FMC: Allowed as a factory component of luminaires.
 6. Use FMC for connections to adjustable equipment and devices in air ducts or plenums.
- E. All Conduits:
1. Use type specifically called for on the matrix of conduit usage. If not shown in the matrix of conduit usage, comply with requirements shown on the Drawings. If not shown in either the matrix of conduit usage or on the Drawings, refer to the matrix of conduit usage for all other work.
 2. No plastic conduit allowed above lay-in ceilings where the cavity functions as an air-handling plenum, regardless of matrix of conduit usage.
 3. Do not install exposed conduits in finished areas, such as laboratories, offices, training rooms, and similar. Clarify any questionable area with the Engineer in the field before installing.
- F. Matrix of Conduit Usage:
1. The matrix of conduit usage is shown on the Drawings.
 2. If multiple columns are marked, any marked type is allowed subject to NEC restrictions and restrictions above, such as but not limited to those concerning buried conduits, elbows, penetrations, exposed installation, and use in cavities.

3. Different parts of a run may be of different type conduit, such as where a flexible connection is required.
4. If a column is marked "C" then use only where concealed in a wall or above a gypsum board or lay-in ceiling.
5. If a column is marked "CA" then use only above a gypsum board or lay-in ceiling.
6. If a column is marked "E" then use only for connections between electrical supply and control equipment, not for connection of utilization equipment and not for connection of field devices such as flow transmitters and hand switches. A marking of "E" is typically intended to be limited to electrical rooms.
7. If a column is marked "H" then use only above 6 feet or directly above equipment where not subject to damage.
8. See matrix of conduit usage for other column marking notes.
9. Where the matrix of conduit usage shows RNC for outdoor use, it is allowed only where protected from direct sun exposure, such as under a bridge or under a digester cover.

3.05 SIZE

- A. The Drawings and/or conduit schedules may show a minimum size for certain conduit runs. Where size is not shown, then comply with paragraph C. below.
- B. If a conduit size has to be increased because a motor or other equipment furnished by the Contractor requires more power (and therefore larger wire and conduit than shown) than the specified motor or equipment, then include the cost of the larger conduit in the Bid.
- C. Minimum Size Requirements:
 1. As required by NEC, but larger if so shown on the Drawings or required below.
 2. Lighting circuits except circuits to HID pole lights: 1/2 inch.
 3. HID pole lighting circuits: 1 inch.
 4. 120/208/240V receptacle circuits:
 - a. Last receptacle in run: 1/2 inch.
 - b. Other runs: 3/4 inch.
 5. 120/208/240V branch circuits to a single load: 1/2 inch.
 6. 208/240V feeders: 3/4 inch.
 7. 480V circuits: 3/4 inch.
 8. 120VAC control circuits: 1/2 inch minimum: 3/4 inch for 10 to 20 #14; 1 inch minimum for more than 20 #14, then by NEC.
 9. Shielded or coaxial cable: 3/4 inch.
 10. Circuits of special systems: As shown on Drawings or as required in the specification section for the respective system.
 11. Other circuits: 3/4 inch.

END OF SECTION

SECTION 26 05 53

ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Nameplates and marking tags.

1.02 SUBMITTALS

- A. Not required.

PART 2 PRODUCTS

2.01 NAMEPLATES (NP)

- A. Minimum Character Height:
 - 1. One-half-inch for the title of a larger piece of equipment such as a primary switch, oil-filled transformer, switchgear, dead-front switchboard, MCC, or PLC enclosure.
 - 2. Three-eighths-inch for the title of a smaller piece of equipment such as a dry transformer, panelboard, individually-mounted starter, or small control panel.
 - 3. One-eighth-inch minimum for other text, but larger as specified below or if called for on the Drawings.
- B. Engraved Nameplates:
 - 1. Black engraving stock with white core, unless shown otherwise, below or on the Drawings.
 - 2. Gravoply, or Engineer approved equivalent.
- C. Printed Nameplates:
 - 1. Vinyl, self-adhesive tape. Provide white, tan (sand), or gray for least contrast with color of surrounding surface.
 - 2. Color of lettering: Black.
 - 3. Brady™ Handimark® printer with Brady B-580 tape or Engineer reviewed equivalent.

2.02 CAUTION AND WARNING NAMEPLATES

- A. Comply with NEC and OSHA requirements.
- B. Engraved Nameplate: Red with white text.

- C. Instead of an engraved or custom-printed label, a standard, off-the-shelf label, such as from Seton, is acceptable.
- D. Character Size: One-quarter-inch minimum height.

2.03 MARKING TAGS

- A. Engraved plate as in paragraph 2.01 with minimum 1/8" character height.
- B. Drill hole for attaching.
- C. Attach with tie wrap.

PART 3 EXECUTION

3.01 NAMEPLATES REQUIRED

- A. Motor Nameplates:
 - 1. Install a red nameplate on each motor or other electrically controlled equipment that has maintained (two-wire), remote, or automatic control.
 - 2. Character size: Caution: One-half-inch characters; balance: 1/4 inch.
 - 3. Text equivalent to "CAUTION. THIS EQUIPMENT MAY START AUTOMATICALLY OR REMOTELY."
 - 4. Instead of an engraved or custom-printed label, a standard, off-the-shelf label, such as from Seton, is acceptable. Comply with NEC and OSHA requirements.
- B. Voltage Warnings: As required by NEC and OSHA.
- C. Where called for in other Sections.
- D. As scheduled.
- E. As required on the Drawings. Generally, a note on a Drawing will call for a nameplate or NP. The type (engraved or printed) is mentioned on the Drawings only if an engraved NP is required in a location in which a printed nameplate might otherwise be allowed in the paragraphs below.

3.02 MOUNTING OF NAMEPLATES

- A. Engraved Nameplates:
 - 1. Use indoors or outdoors.
 - 2. On panel fronts, attach with screws or drive rivets. Elsewhere, attach with 30-year rated silicone seal.
 - 3. Attach with edge parallel to edge of enclosure or device plate.

- B. Printed Nameplates:
1. Use only inside a fully-enclosed and roofed building or structure.
 2. Do not use where exposed to sunlight, precipitation, or freezing temperatures.
 3. Do not use where Drawings call for engraved nameplates.
 4. Self-adhesive.
 5. Attach with edge parallel to edge of enclosure or device plate.

END OF SECTION

SECTION 26 08 00
ELECTRICAL TESTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Electrical testing.

1.02 SUBMITTALS

A. Four copies of megger test reports.

B. Four copies of performance test reports.

PART 2 PRODUCTS

2.01 TEST EQUIPMENT

A. Provide equipment to perform testing.

B. Test equipment shall bear a current calibration sticker which shows performance, when it was calibrated, and when it is next due for calibration.

C. Have calibration performed by a testing laboratory which uses reference instruments whose accuracy is documented and traceable to National Institute for Standards and Technology reference standards.

PART 3 EXECUTION

3.01 MEGGER TESTING

A. Test feeder and branch circuits which will operate at greater than 250V to ground with a 1000V megohm meter.

B. Record test results between phases, phase to neutral, phase to ground, and neutral to ground.

C. Prepare and submit test reports.

D. Tests deemed unsatisfactory by the Engineer:

1. Replace defective conductor and all other conductors which are in the same conduit.
2. Re-test and re-submit.

3.02 PERFORMANCE TEST

- A. Demonstrate to the Engineer the satisfactory performance of all electrical equipment moved, modified, or provided under this Contract, including but not limited to demonstrating that all equipment works properly in HAND and that hardware type automatic control components and systems work properly.
- B. Calibrate plant equipment and instrumentation as required for proper operation.
- C. If testing and/or calibration requirements are shown in Division 40:
 - 1. Perform megger testing as required in this Section.
 - 2. Where more stringent performance testing or more stringent calibration procedures are required in Division 40, follow those more stringent requirements and submit reports as required in Division 40.

3.03 OTHER TESTS

- A. As required in other Sections.

3.04 WITNESS

- A. Notify Engineer minimum three working days before megger testing.
- B. Notify Engineer minimum seven working days before performance testing.
- C. Engineer will either witness the testing or waive the requirement.

END OF SECTION

SECTION 26 22 13.10

LOW-VOLTAGE DRY TYPE TRANSFORMERS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Low voltage transformers dry type transformers for general lighting and power service.

1.02 SUBMITTALS

- A. Complete manufacturer's catalog cuts with ratings.

PART 2 PRODUCTS

2.01 DRY TYPE TRANSFORMERS

- A. UL Listed/Labeled two-winding dry type transformers with voltage, phases, and kVA ratings as shown on Drawings or Schedule.
- B. Copper windings.
- C. Connection: Furnish three phase transformers with delta connection on higher voltage windings and wye connection on lower voltage windings.
- D. Maximum design temperature rise over 40°C ambient:
 - 1. Single phase:
 - a. 2 kVA and less - 80°C.
 - b. 3 kVA through 25 kVA - 115°C.
 - c. Greater than 25 kVA - 150°C.
 - 2. Three phase:
 - a. 45 kVA and less - 115°C.
 - b. Greater than 45 kVA - 150°C.
- E. Furnish transformers rated 30 kVA and less with core and coil resin encapsulated suitable for indoor or outdoor use.
- F. Furnish transformers rated greater than 30 kVA with ventilated enclosure rated NEMA 1 where installed indoors or NEMA 3R where outdoors.
- G. Minimum taps required:
 - 1. Transformers rated 3 kVA or less: No taps.

2. Transformers rated greater than 3 kVA through 30 kVA: Two 2 1/2 % full capacity above normal (FCAN) and two 2 1/2% full capacity below normal (FCBN) taps.
 3. Transformers rated greater than 30 kVA: Two 2 1/2% full capacity above normal (FCAN) and four 2 1/2% full capacity below normal (FCBN) taps.
- H. Furnish transformers with different or other features as shown on Drawings or Schedule, such as but not limited to aluminum windings, different winding connections, additional taps.
- I. Transformers which fall within the scope of the Guide for Determining Energy Efficiency for Distribution Transformers, published by the National Electrical Manufacturers Association® (NEMA® TP-1-2002): Meet Class I Efficiency Levels for distribution transformers specified in Table 4-2 of the Guide.
- J. Cutler-Hammer type EP and DS-3 single phase or type EPT and DT-3 three phase, General Electric type QB, QMS, and QL single phase and type QMS3 and QL three phase, Square D Class 7400, or Engineer reviewed equivalent.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install transformer plumb and level.
- B. Provide clearance around transformer for access and ventilation as recommended by manufacturer.
- C. Use flexible conduit for connections to transformer case. Make conduit connections to transformer enclosure only at locations designated by the manufacturer's installation instructions.
- D. After normal operating load have been energized, measure secondary voltages and adjust tap settings as necessary. Record tap settings on record drawings.

END OF SECTION

SECTION 26 24 16

PANELBOARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Panelboards.

1.02 SUBMITTALS

- A. Summary Sheet showing:
 1. Voltage, phases, and main bus ampacity.
 2. MLO panels: Type of main lugs.
 3. MCB panels: Main breaker rating.
 4. Neutral and ground bar ratings.
 5. Bus material and plating.
 6. Short circuit rating.
 7. Flush or surface mount, enclosure NEMA type, and trim details.
 8. Rating and arrangement of branch circuit breakers.
 9. Description of specified factory assembled modification including, but not limited to, sub-feed breakers, sub-feed lugs, feed-through lugs, and metering transformers.
- B. Panelboard layout showing all circuit breakers, strapping and mounting hardware for future circuit breakers, and space for future strapping and mounting hardware.
- C. If the submitted circuit breaker layout differs from the Drawings then demonstrate that the phase current balance will be substantially the same.

1.03 OPERATIONS AND MAINTENANCE DATA

- A. As-built layout drawing showing location, ampacity, and poles of each breaker.
- B. Copies of all directories.
- C. Settings used for electronic trip units and ground fault relays.

1.04 QUALITY ASSURANCE

- A. Conform to the following:
 1. UL 50 Enclosures for Electrical Equipment.
 2. UL 67 Panelboards.
 3. NFPA 70 National Electrical Code.

4. NEMA PB1 Panelboards.
5. UL 489, "Molded Case Circuit Breakers and Circuit Breaker Enclosures".
6. NEMA AB1, "Molded Case Circuit Breakers".

PART 2 PRODUCTS

2.01 PANELBOARDS – COMMON REQUIREMENTS

- A. Voltage, phases, and current ratings as shown on Drawings.
- B. Minimum branch circuit breaker space as shown on Drawings.
- C. Minimum Box Width:
 1. 14 inches for:
 - a. 100 amp, single phase, flush mounted.
 - b. 100 amp, 208Y/120 volt, three phase, flush mounted.
 2. 20 inches for all others.
- D. Main circuit breaker (MCB) or main lugs only (MLO) as shown on Drawings.
- E. Bus: Tin plated aluminum unless shown otherwise on the Drawings or Schedule.
- F. Ground Bar: Furnish all panelboards with a ground bar having a screw for each pole.
- G. Neutral Bar:
 1. 208Y/120 volt and 120/240 volt single phase panelboards: Provide 100 percent neutral bar with a screw for each pole unless shown otherwise on the Drawings or Schedules.
 2. 480Y/277 volt panelboards which are used as service equipment: Provide 100 percent neutral bar.
 3. 480Y/277 volt panelboards which power 277 volt loads, such as site lighting and UV systems, and elsewhere required on the Drawings: Provide 100 percent neutral bar with a screw for each pole.
 4. 480 volt panelboards which power no 277 volt loads: No neutral bar required.
- H. Furnish sub-feed breakers, sub-feed lugs, feed-through lugs or other factory options as shown on Drawings.
- I. Flush or surface mount as shown on Drawings.
- J. Listed and labeled for service entrance use if used for service entrance equipment or so indicated on Drawings.

- K. Circuit Breakers:
 1. Furnish circuit breakers recommended by the manufacturer of the panelboard for use in the panelboard furnished.
 2. Provide as shown on Drawings or Schedules.

- L. Furnish all required strapping and mounting hardware required for the future installation of a circuit breaker of the frame size shown where "FUTURE" is shown on the Drawings or Schedules.

- M. Furnish a panelboard with the required space for the future installation of strapping, mounting hardware, and circuit breakers where "SPACE" is shown on the Drawings or Schedules."

- N. Circuit Breaker Mounting and Connection:
 1. Connection between line side of circuit breaker and bus by direct bolted connection, or
 2. Connection between line side of circuit breaker and bus by spring tension jaws designed to produce increased contact pressure under fault conditions and entire circuit breaker secured in place with bolt, and
 3. No restriction on ability to mount circuit breakers of different frame size or number of poles opposite each other.

- O. Manufacturers and Types:
 1. Cutler-Hammer: Pow-R-Line 1 and Pow-R-Line 2.
 2. General Electric: AQ, AE, and AD.
 3. Square D: NQOD and NF.
 4. Engineer reviewed equivalent.

2.02 ENCLOSURE AND TRIM

- A. Enclosure rated NEMA 1, NEMA 3R, NEMA 4, NEMA4X SS or NEMA 12 as shown on Drawings or Schedules.

- B. Enclosure constructed of zinc-coated sheet steel for all but NEMA4X SS.

- C. For NEMA 3R, 4, and 12, provide enclosure with exterior surfaces prepared, primed and painted in a light grey, ANSI 49 or similar color, at the factory.

- D. Flush mounted 208Y/120 volt and 120/240 volt single phase panelboards rated 100A: Furnish with decorative trim fastened to the box on four sides with screws or screwdriver operable captive latches and a hinged and latched door to cover access to circuit breaker operating handles but without access to any energized parts.

- E. Flush mounted 208Y/120 volt and 120/240 volt single phase panelboards rated greater than 100A and all flush mounted 480 volt panelboards: Furnish "door-in-door" trim.

1. Inner door with hinges and latch to cover access to circuit breaker operating handles but without access to any energized parts.
 2. Outer door hinged on one side and secured on remaining sides with captive screws or screw driver operated latches. Provide door that provides full access to wiring gutter on all four sides when open.
 3. Provide decorative trim around box to cover the gap between the enclosure and the wall surface.
 4. Provide trim prepared, primed and painted in a light grey, ANSI 49 or similar color, at the factory.
- F. Furnish Surface Mounted Panelboards with “Hinged Trim” Cover:
1. Inner door with hinges and latch to cover access to circuit breaker operating handles but without access to any energized parts.
 2. Trim hinged at one edge of box and secured on remaining sides with captive screws or screw driver operated latches. Provide door that provides full access to wiring gutter on all four sides when open.
 3. Provide trim prepared, primed and painted in a light grey, ANSI 49 or similar color, at the factory.
- G. Furnish latched and lockable door with metal frame cardholder with clear plastic window on inside of door for panel directory.
- H. Provide other features as shown on the Drawings or Schedules.

2.03 OVERCURRENT PROTECTIVE DEVICES

- A. General: Provide circuit breakers as integral components of panelboard with indicated features, ratings, characteristics, and settings.
- B. Future Devices: Equip compartments with mounting brackets, supports, bus connections and necessary appurtenances for future circuit breakers as show on the Drawings or Schedules.
- C. Molded-Case Circuit Breakers:
1. General: UL489, “Molded Case Circuit Breakers and Circuit Breaker Enclosures,” and NEMA AB 1, “Molded Case Circuit Breakers.”
 2. Suitable for use with conductors operating at 75° C.
 3. Characteristics: Frame size, trip rating, number of poles, and short-circuit interrupting capacity rating as shown on the Drawings or Schedules.
 4. Interrupting capacity not less than shown on the Drawings or Schedules. Furnish all circuit breakers with full interrupting capacity. Do not use series ratings.
 5. Tripping Device: Quick-make, quick-break toggle mechanism with inverse-time delay and instantaneous over-current trip protection for each pole.
 6. Adjustable instantaneous trip devices: Front adjustable; factory adjusted to low trip setting.

7. Solid state trip devices: When called for on the Drawings, provide molded case circuit breakers that use solid-state trip devices.
 8. Furnish circuit breakers for lighting circuits that are switching duty rated.
 9. Furnish heating, air conditioning, refrigeration (HACR) rated circuit breakers when called for on the Drawings or Schedules.
 10. Furnish single pole circuit breakers with ground fault interrupting capability when called for on the Drawings or Schedules. When required furnish Class A (6ma.) or Class B (30ma.) as shown on the Drawings or Schedules.
- D. Electronic Circuit Breaker Trip Devices: True RMS sensing, microprocessor based, solid-state overcurrent trip device system that includes one or more integrally mounted current transformer or sensor per phase, a release mechanism, and the following features:
1. Temperature compensation to assure accuracy and calibration stability from minus 20 degree C. to plus 55 degree C.
 2. Time-current tripping functions, field adjustable with the breaker closed and energized, as scheduled or shown on the Drawings, often abbreviated as L, S, I, and G.
 - a. Adjustable long-time pick-up current.
 - b. Adjustable long-time-delay.
 - c. Adjustable short-time pick-up current.
 - d. Adjustable short-time-delay.
 - e. Adjustable instantaneous trip current.
 - f. Adjustable ground-fault pick-up current.
 - g. Adjustable ground-fault-delay.
 - h. Selectable I²t function on short-time-delay.
 - i. Selectable I²t function on ground-fault-delay.
 3. Clear, sealable cover over adjustments.
 4. Other factory options as shown on the Drawings or Schedules.
 5. Trip Indication: Labeled lights or mechanical indicators indicating long-time overload, short-time overload, instantaneous, or ground fault as cause of trip. If lights are used, furnish with integral power source capable of maintaining indication for not less than 48 hours.
 6. Arrangement to permit testing of all functions without removal from panelboard and to permit viewing and adjustment of all functions without removal of any metal panels.
 7. Furnish 80 percent rated circuit breakers unless otherwise shown on the Drawings or Schedules.
- E. Ground Fault Protection Systems: If and as indicated on the Drawings or Schedules, provide zone selectively interlocked ground fault protection system using a single window type rectangular split core current transformer for each circuit and separate relays as specified in Section 26 28 20 – Zone Interlocked Ground Fault Relay Systems.
- F. Other devices as shown on the Drawing or Schedules.

PART 3 EXECUTION

3.01 PANELBOARD INSTALLATION

- A. Install panelboards following manufacturer's instructions.
- B. Mount panelboards plumb and rigid.
- C. Mount flush panelboards so that the trim fits flat against finished wall.
- D. For MLO panelboards, install compression lugs on conductors with press and die recommended by lug manufacturer. Bolt lug to bus.

3.02 IDENTIFICATION

- A. Properly and accurately label panel directories by hand during construction.
- B. Install neatly typed, accurate directories in holders prior to Substantial Completion.
- C. Identify panelboard and its source with a nameplate.

3.03 KEYS

- A. Keep panelboard keys properly marked and identified with panel number and location.
- B. Furnish the Owner at least 2 copies of all panelboard keys, with tag showing identifying number and location of panel.

END OF SECTION

SECTION 26 27 10

ELECTRICAL SERVICE

PART 1 GENERAL

1.01 RELATED SECTIONS

- A. Section 01 21 00 – Allowances

1.02 SYSTEM DESCRIPTION

- A. Arrange with El Paso Electric Company (EPE) for the demolition of the existing overhead service and the installation of the new, padmount, 480V 3 phase service.
- B. Perform all services and furnish all equipment that is identified by EPE as the Owners/Customers responsibility.
- C. Comply with all EPE requirements whether shown on the Drawings or not.
- D. Contact EPE no later than 15 work days after receiving the notice to proceed.
- E. Pay EPE the amount required in order for EPE to begin construction.
- F. Submit to the Engineer detailed documentation related to all EPE charges.
- G. Upon favorable review of EPE charges by the Engineer, make complete payment to EPE then recover the amount of payments made to EPE under the Allowance.
- H. Include at no additional cost to the Owner all effort associated with EPE coordination.

1.03 CONSTRUCTION POWER

- A. Include in the Bid costs associated with arrangement with OTEC to furnish construction power.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 26 27 26

WIRING DEVICES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wiring Devices: Switches, receptacles, covers.

1.02 SUBMITTALS

- A. Complete manufacturer's catalog cuts.

PART 2 PRODUCTS

2.01 TOGGLE SWITCHES

- A. Heavy-duty, "silent" AC type, 20 A, 120 VAC – 277 VAC.
- B. Back and side wiring feature. Positive clamping with screw-activated pressure plate.
- C. Poles and Contact Action: As shown on the Drawings.
- D. Motor Switching Rated:
 - 1. 1-1/2 horsepower at 120 VAC.
 - 2. 2 horsepower at 240 VAC.
- E. Manufacturers:
 - 1. Hubbell HBL1221, HBL1222, HBL1223, HBL1224 series.
 - 2. Pass & Seymour 20AC1, 20AC2, 20AC3, 20AC4 series.
 - 3. Engineer reviewed equivalent.
- F. Other features or switches as shown on the Drawings or Schedules.

2.02 DUPLEX RECEPTACLES

- A. Commercial Grade Duplex Receptacle:
 - 1. NEMA 5-15R.
 - 2. Back and side wiring feature. Positive clamping with screw activated pressure plate.

- B. Specification Grade Duplex Receptacle:
 1. NEMA 5-15R.
 2. Back and side wiring feature. Positive clamping with screw activated pressure plate.
 3. Positive grounding without bonding jumpers.

- C. GFCI Receptacle:
 1. NEMA 5-15R.
 2. Side wired.
 3. Flush polycarbonate face.
 4. Trip level: 4 to 6 mA.
 5. Trip time: .025 sec. nominal.
 6. Operating temperature: -35 degree C. to +66 degree C.
 7. Hubbell GF5252A series, Leviton 6599 series, Pass & Seymour 1591 series, or Engineer reviewed equivalent.

- D. All toggle switches and duplex receptacles: By same manufacturer. Other switches and receptacles by the same manufacturer, except where shown by a different manufacturer in the Schedule or on the Drawings.

2.03 OTHER RECEPTACLES

- A. Other devices as scheduled or as shown on the Drawings.

2.04 DEVICE PLATES

- A. Proper for the device(s) installed.
- B. Use a single plate for multiple devices.
- C. Oversize Polycarbonate or Nylon:
 1. Premium grade.
 2. Match device color.
 3. Use on flush boxes in appropriate areas.
 4. Use standard size plate if oversized plate is not manufactured.
 5. Hubbell PJ series or Engineer reviewed equivalent.

- D. Standard Size Polycarbonate or Nylon:
 1. Premium grade.
 2. Match device color.
 3. Use on surface-mounted boxes in appropriate areas.
 4. Use on flush boxes in appropriate areas if oversized plate is not manufactured.
 5. Same manufacturer, material, and appearance as oversize Polycarbonate or Nylon.

- E. 302/304 Stainless Steel: Hubbell S1, or Engineer reviewed equivalent.

- F. NEMA 7 in hazardous areas.
- G. Telephone Plates: Match material and general appearance of other device plates in the area.
- H. Special Plates: As scheduled or as shown on the Drawings.
- I. Outdoor Toggle Switch Covers: Wet location lift cover, self-closing.
- J. Damp Location Duplex Receptacle Cover and Box:
 - 1. Single horizontal self-closing lid.
 - 2. Die cast aluminum or polycarbonate.
 - 3. UL listed as raintight in the closed position.
 - 4. Meet NEC 406.8 (A).
 - 5. Box: Designed for the specific cover and device combination and recommended by the manufacturer of the cover for use with the particular weatherproof cover.
- K. Wet Location Duplex Receptacle Cover and Box:
 - 1. Single horizontal self-closing.
 - 2. Polycarbonate.
 - 3. Paintable.
 - 4. Other features as shown on the Drawings or Schedules.
 - 5. UL listed as NEMA 3R with a cord connected.
 - 6. Meet NEC 406.8 (B) (1).
 - 7. Unless shown differently on the Drawings or Schedules, furnish Carlon E9UHG, TayMac 60310, or Engineer approved equivalent.
 - 8. Box: Designed for the specific cover and device combination and recommended by the manufacturer of the cover for use with the particular weatherproof cover.

PART 3 EXECUTION

3.01 DEVICE COLOR

- A. Special Colors:
 - 1. Where scheduled.
 - 2. Where called for on the Drawings.
 - 3. Where manufacturer's or industry standard for device, such as orange for isolated ground receptacles and red for emergency power receptacles.
- B. All others: White.

3.02 USAGE OF RECEPTACLES

- A. Furnish GFCI Type Receptacles at Each Location:
 - 1. Where required by NEC or

2. Where scheduled or
 3. Where called for on the Drawings.
- B. Unless shown otherwise on the Drawings or Schedules, use commercial grade receptacles as specified herein.

3.03 COVER TYPE

- A. Wet Location, In-use: Outdoors and in process areas not excepted immediately below.
- B. Damp Location: Indoor, above-grade process areas except spaces, such as blower rooms, that have no piping that carries sewage or sludge.
- C. Stainless Steel: In laboratories, offices, meeting rooms, lobbies and other similar office/commercial type areas.
- D. Standard Size Polycarbonate/Nylon or Galvanized Steel: Indoor surface-mounted device boxes.
- E. Oversize Polycarbonate/Nylon: Indoor flush-mounted device boxes.
- F. As scheduled or as called for on the Drawings.

3.04 INSTALLATION POSITION

- A. Mount toggle switches at 42 inches centerline above finished floor unless shown otherwise on the Drawings.
- B. Indoors: Mount duplex receptacles at 18 inches centerline above finished floor, unless shown otherwise on the Drawings.
- C. Outdoors and In Areas Considered Wet Location: Mount duplex receptacles at 30 inches centerline above finished grade or finished floor unless shown otherwise on the Drawings.

3.05 IDENTIFICATION

- A. Mount nameplate above cover plate of each receptacle and switch.
- B. Text:
 1. Receptacles: Panelboard designation and circuit number(s). For example: "PP3-2, 4, 6" or "LP2IG-17."
 2. Switches: Circuit designation as above and description of lights controlled.
 3. Otherwise as shown on the Drawings or Schedules.

END OF SECTION

SECTION 26 27 27

WIRE CONNECTORS AND ACCESSORIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Wire connectors and accessories.

1.02 SUBMITTALS

- A. If products from manufacturer and of the model shown in Part 2 are to be furnished, submittals are not required and will not be reviewed.
- B. If products from a different manufacturer or of a different model than shown in Part 2 are to be furnished:
 - 1. Submit complete manufacturer's cuts.
 - 2. Furnish other material demonstrating product equivalence as directed by the Engineer.
- C. If a manufacturer and model are not shown in Part 2, furnish complete manufacturer's cuts.

PART 2 PRODUCTS

2.01 600V WIRE NUTS

- A. UL listed and CSA certified for 600V maximum building wire, 1000V maximum fixture wire, 105 degrees C. maximum temperature rating.
- B. Color coded outer shell to identify manufacturer approved wire combinations.
- C. Nylon insulated.
- D. Reusable.
- E. Scotch 3M Ranger 312 or Ranger 512, or Engineer approved equivalent.

2.02 BUTT CONNECTORS

- A. Non-insulated, brazed seam or seamless, compression type.
- B. Insulation: Tubular pre-stretched EPDM rubber cold shrink insulators. 3M 8420 series or Engineer approved equivalent.

PART 3 EXECUTION

3.01 WIRE NUTS

- A. For splices on copper conductors #8 AWG and smaller.
- B. Consult manufacturer's instructions for approved wire nut based on combination of wires being spliced.
- C. Do not use for splices that may become submerged, such as in manholes, handholes, underground pull boxes, and wet wells.
- D. Do not use for control or instrumentation conductors.

3.02 COMPRESSION TYPE CONNECTORS

- A. Use only the tool and die specified by the manufacturer for installation.

3.03 BUTT CONNECTORS

- A. For splices on 120, 240, 480V circuit conductors #6 AWG and larger (except at motors). Use only where specifically required on Drawings.

3.04 MOTOR LEAD CONNECTORS

- A. Solid wire: 600V wire nuts.
- B. Stranded Wire:
 - 1. Install non-insulated, brazed seam or seamless, ring terminal compression lugs on each conductor, then bolt together.
- C. Insulate with Scotch 5300 - 5204 Series pigtail kits, or Engineer approved equivalent.

END OF SECTION

SECTION 26 28 13

LOW VOLTAGE FUSES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Fuses.
- B. Fuse blocks and holders.

1.02 SUBMITTALS

- A. Catalog cuts.
- B. Time-current characteristic curves.
- C. Current limitation curves.
- D. Operating temperature characteristics.
- E. Submit only for the types of fuses, blocks, and holders required by the Drawings.

1.03 EXTRA MATERIALS

- A. Section 26 00 60 – Extra Materials for Electrical Systems

PART 2 PRODUCTS

2.01 CURRENT LIMITING, DUAL-ELEMENT, TIME DELAY FUSES

- A. Time Delay: 10 seconds minimum at 5 times rated current.
- B. Note Well: Overload portion of dual element shall open at a temperature not greater than 300 degrees F.
- C. Interrupting Rating at rated voltage: 300,000A RMS symmetrical.
- D. UL Class RK-5.
- E. 250VAC: Bussmann Fusetron FRN-RK_SP or Engineer approved equivalent.
600VAC: Bussmann Fusetron FRS-RK_SP or Engineer reviewed equivalent.

2.02 FAST CURRENT LIMITING, DUAL-ELEMENT, TIME DELAY FUSES

- A. Time Delay: 10 seconds minimum at 5 times rated current.
- B. Note Well: Overload portion of dual element shall open at a temperature not greater than 300 degrees F.
- C. Interrupting Rating: 300,000A RMS symmetrical.
- D. UL Class RK-1.
- E. 250VAC: Bussmann Low Peak LPN-RK or Engineer reviewed equivalent.
600VAC: Bussmann Low Peak LPS-RK or Engineer reviewed equivalent.

2.03 HIGH AMPACITY, FAST CURRENT LIMITING, TIME DELAY FUSES

- A. Open at 150 percent of rated current within 4 hours.
- B. Time Delay: 4 seconds minimum of 5 times rated current.
- C. Interrupting Rating: 300,000A RMS symmetrical.
- D. U.L. Class L.
- E. 600 VAC: Bussmann Low-Peak KRP-C or Engineer reviewed equivalent.

2.04 CONTROL TRANSFORMER PRIMARY AND INSTRUMENT FUSES

- A. Open at 135 percent of rated current within 1 hour.
- B. Time Delay: 4 seconds minimum at 3 times rated current.
- C. Interrupting Rating: 200,000A RMS symmetrical.
- D. UL Class CC, with rejection feature.
- E. 600 VAC: Bussmann CC-Tron FNQ-R or Engineer reviewed equivalent.

2.05 SMALL DIMENSION CONTROL CIRCUIT FUSES

- A. Bussmann AGC, ABC, MDL, MDQ, MDX, or Engineer approved equivalent, to match current and voltage of circuit. Use dual-element fuses unless recommended otherwise by equipment manufacturer or shown as fast acting on the Drawings.

2.06 REJECTION FUSE BLOCKS FOR 2.01 AND 2.02 FUSES

- A. Base: Phenolic.
- B. Box terminals.
- C. Bussmann Class R Phenolic or Engineer approved equivalent.

2.07 REJECTION FUSE BLOCKS FOR 2.04

- A. Base: Phenolic.
- B. Copper alloy box terminals.
- C. Bussmann BC603-1B, BC603-2B, BC603-3B, or Engineer approved equivalent.

2.08 REJECTION FUSE HOLDERS FOR 2.04

- A. Body: Phenolic, with mounting holes for bolting to panel, and screw knob.
- B. Combination 1/4 inch quick connect/solder terminals.
- C. Bussmann HPF-RR or Engineer approved equivalent.

2.09 FUSEHOLDERS FOR 2.05

- A. Body: Phenolic with bayonet knob.
- B. Voltage Rating: 250V
- C. Maximum fuse size: 20A
- D. Terminals: 1/4" right angle quick connect
- E. Bussmann HTB-48I or Engineer approved equivalent.

PART 3 EXECUTION (NOT USED)

END OF SECTION

SECTION 26 28 16
ENCLOSED SWITCHES

PART 1 GENERAL

1.01 SYSTEM DESCRIPTION

- A. Enclosed switches.
- B. May also be referred to as disconnect switches, safety switches, and/or service disconnects switches.

1.02 SUBMITTALS

- A. Catalog cuts. (required for service disconnect switches only.)

PART 2 PRODUCTS

2.01 ENCLOSED SWITCHES

- A. Type of Enclosure: See paragraph 3.02.
- B. Service Disconnect Switches: 3 pole plus neutral and ground. Other switches: 3 pole plus ground unless neutral is required by the Drawings.
- C. 600 Volt unless shown otherwise on the Drawings.
- D. Ampere Rating: As shown on the Drawings.
- E. Heavy duty, padlockable to the off position.
- F. Switch Mechanism: Positive action quick-make, quick-break, with visible blades.
- G. Non-fusible: Where shown on Drawings.
- H. Fusible:
 - 1. Where shown on Drawings.
 - 2. Fuse clips reject all except Class R current limiting fuses.
- I. Provide electrical interlock kits, as shown in the Drawings, on those switches through which the control circuit wiring is routed. The kit shall have 1 NO and 1 NC contact rated 10 A resistive and 6 A inductive or 2 NO where noted. The contacts, when actuated, shall break the control circuit before the safety switch opens.

- J. Switches with non-metallic NEMA 4X enclosures: Square D Class 3110 Krydon® or Engineer reviewed equivalent.
- K. Switches with NEMA 1, 3R, 12, 4X SS enclosure: General Electric Type TH, Cutler-Hammer DH, Square D Class 3110, or Engineer reviewed equivalent.
- L. Switches with NEMA 7, 8, or 9 enclosure: Crouse Hinds FLS, or Engineer reviewed equivalent.

PART 3 EXECUTION

3.01 MARKING

- A. Furnish engraved nameplate on each switch.
- B. Text as shown on the Drawings, but if not shown, then:
 - 1. Source of power to the switch, example “Fed From MCC1.”
 - 2. Name and Tag Number of equipment served, example “Influent Lift Pump 1, PMP1011.”

3.02 TYPE OF ENCLOSURE

- A. Comply with the matrix which is appended to this Section.
- B. If not shown in matrix, comply with requirements shown on Drawings.
- C. If not shown in either place, then:
 - 1. NEMA 1 in indoor non-process areas, such as: blower rooms, electrical rooms, administration building offices and mechanical rooms.
 - 2. NEMA 4X non-metallic in indoor process areas where there is liquid piping but no open liquid, such as a room with sludge pumps.
 - 3. NEMA 4X SS in indoor process area where there is open liquid, such as a membrane basin.
 - 4. NEMA 3R outdoors in areas more than 100 feet from a primary/secondary process structure. This includes structures containing raw or partially treated sewage but not a UV disinfection structure.
 - 5. Stainless steel NEMA 4X in all other indoor and outdoor areas, including but not limited to areas less than 100 feet from a primary/secondary process structure.
 - 6. Regardless of any/all other requirements above: NEMA 7 in classified (hazardous) areas, whether indoors or outdoors.

END OF SECTION

SECTION 26 43 13

SURGE PROTECTIVE DEVICES FOR LOW VOLTAGE SYSTEMS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Surge protective devices for low voltage electrical power systems.

1.02 SUBMITTALS

- A. Manufacturer's literature, including rating information.

1.03 O&M MANUAL

- A. List of suppressors used on this project with manufacturer's name, SPD type, part (catalog) number, and (for each part so provided) serial number. The use of a generic or typical part number will not be acceptable. Provide the part number which was used to order the part with all choices and options included. If a part number is given on a nameplate on the actual part, then include that number on this list. If the ordering number and the nameplate number differ, include both numbers and explain the difference.

PART 2 PRODUCTS

2.01 SURGE PROTECTIVE DEVICES (SPD): COMMON REQUIREMENTS

- A. Comply with the requirements of:
 - 1. UL 1449 – Third Edition.
 - 2. IEEE C62.41. Location/exposure Categories below refer to this standard.
 - 3. IEEE C62.45 for test methods.
 - 4. ISO 9001: 2000 certified.
- B. Testing:
 - 1. Performed by an independent testing laboratory.
 - 2. Test as a complete unit. Testing of the surge current capacity of a single MOV or SAD and extrapolation of overall rating from that is not acceptable.
- C. Voltage: As shown on the Drawings.
- D. Surge Capacity: As shown on Drawings or Schedule.
- E. Protection modes for units installed at service equipment and at the transformer or first panelboard of a separately derived system: line to neutral and line to ground.

- F. Protection modes for units installed downstream of the above units: Line to neutral, line to ground, and neutral to ground.
- G. Repetitive impulse: 5,000 hits
- H. Response Time: Less than 1 nanosecond.
- I. Voltage Protection Rating, (VPR – 3kA): Not more than shown in the following table using tests as defined in UL1449 – Third Edition.

<u>Voltage</u>	<u>Type</u>	<u>L-N</u>	<u>L-G</u>	<u>N-G</u>	<u>L-L</u>	<u>In</u>	<u>SCCR</u>	<u>MCOV</u>
208/120	1	700	700	700	1000	20kA	200kA	150
480/277	1	1200	1200	1200	1800	20kA	200kA	320
480V Delta	1	-	1800	-	2000	20kA	200kA	550
240/120	2	330	-	330	700	10kA	200kA	150

- J. Environmental:
 - 1. Temperature: Minus 25 degrees C to plus 60 degrees C.
 - 2. Humidity: 0% to 95%, non-condensing.
- K. Internally protected against short-circuit and overload. Suitable for connection to the circuit which it is protecting by means of a molded-case switch.
- L. Warranty:
 - 1. Type 1: Ten-year full replacement warranty.
 - 2. Type 2: Five-year full replacement warranty.
- M. Enclosure as shown on the Drawings.
- N. Hard-wired.
- O. Where sine wave tracking is required in “Type” paragraphs below, provide hybrid design incorporating filters, capacitors, or other technology in addition to MOVs and SADs to remove low voltage high frequency disturbances at any phase angle that will limit the let-through voltage of an A1 Ring Wave voltage relative to the applied 60 Hz. voltage to not more than shown in the following table.
- P. Other Features:
 - 1. LED indication of operational state of suppressor for each phase/mode.
 - 2. Modular plug-in suppressor units for easy replacement.
 - 3. Symmetrically balanced metal oxide varistors (MOV).
 - 4. As required in “Type” paragraphs below.
 - 5. As shown on the Drawings or Schedule.

2.02 TYPE

- A. Surge Capacity of 250kA and greater
 1. High surge current device designed for service equipment and rated for location/exposure Category C3.
 2. Features: Dry form C contact for external alarm indication.
- B. Surge Capacity greater than 100kA and less than 250kA
 1. High surge current device designed for service equipment and rated for location/exposure Category C3.
 2. Features: Dry form C contact for external alarm indication.
 3. Sine wave tracking.
- C. Surge Capacity of 100kA or less
 1. Sine wave tracking.
 2. Dry form C contact for external alarm indication, only if shown on the Drawings or Tag List.

PART 3 EXECUTION

3.01 INSTALLATION OF HARD-WIRED SPD

- A. Plan the installation in advance so that an SPD is installed immediately adjacent to (above, left, right, or below) the protected equipment.
- B. Connect to circuit being protected by means of a molded case switch (non-automatic circuit breaker) or circuit breaker as shown on the Drawings.
- C. Connect SPD with minimum #8 stranded wire or as shown on the Drawings, whichever is greater. If manufacturer recommendation is different, the Engineer will resolve conflicts.
- D. Make connecting conductors as short as practical: Maximum 24 inches. Sharp bends in conductors are not acceptable. If the configuration of the SPD is such that shorter lead length can be achieved by mounting the enclosure rotated 90 or 180 degrees from "normal" then do so if allowed by the manufacturer of the SPD. Do not mount with hinge on bottom.

3.02 SCHEDULE

- A. Type and surge capacity as shown below unless shown otherwise on Drawings.
 1. 480V Switchboards: type 1, 250kA surge capacity.
 2. 480V MCCs: type 1, 150kA surge capacity.
 3. 480V Panelboards: type 1, 150kA surge capacity.
 4. 208/120V Panelboards: Type 2, 80kA surge capacity.
 5. 240/120V Panelboards: Type 2, 80kA surge capacity.

END OF SECTION

SECTION 26 50 10

LED LUMINAIRES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Luminaires, lamps, mounting hardware, and accessories for interior lighting applications as specified and/or as shown in the Luminaire Schedule and/or Drawings.

1.02 SUBMITTALS

- A. For luminaires which are listed by manufacturer and type or catalog number in the specification or on the Drawings, provide a Bill of Material which includes the Type Number; the manufacturer's name and complete catalog number; driver voltage, and manufacturer's name and catalog number; cut sheets for luminaires or lamps. Provide information for only those types shown in the Schedule.
- B. For manufacturers, type, and catalog numbers on in the specifications or shown on the Drawings:
 - 1. Comply with Section 01 25 00 – Substitution Procedures.
 - 2. Unless waived in writing by the Engineer, provide pre-wired sample for Engineer review, which will be returned, or prepare a presentation to engineer on proposed luminaires.
 - a. Pre-wired with 15A, 120VAC plug.
 - 3. LM-79 and LM-80 data.
 - 4. NRTL certification and verification.
 - 5. Lighting layout showing performance of proposed luminaires which shall meet minimum maintained fc levels as shown on the in the Schedule or on Drawings.
 - 6. IES photometric files.
 - 7. Supporting data for L_{70} value with respect to site conditions.

1.03 OPERATION AND MAINTENANCE DATA

- A. Bill of Material, meeting the requirements of 1.02 A., for all luminaires. If some items were allowed as substitutions, add them to the Bill of Material. It is not necessary to provide cut sheets or literature except as required below for replacement parts.
- B. Maintenance data, including replacement parts list. Provide illustrations of parts and their location in the luminaire assembly.

1.04 CATALOG NUMBERS

- A. Recognize that a particular catalog number shown below or in the Schedule may not exactly represent the features required in the description below or in the Schedule, such as:
 - 1. Type of driver for a multi level or diming luminaire.
 - 2. Battery backup provisions.
 - 3. Integral photocell.
 - 4. Integral motion detection.
- B. Provide luminaires having all required features and show complete, detailed catalog numbers and options in the submittal.

PART 2 PRODUCTS

2.01 LED LUMINAIRES

- A. Voltage: 120VAC unless shown otherwise in the Schedule or on the Drawings.
- B. Modular Design. Capable of replacing driver, LED light bars, and accessories independently for failure replacement or upgrades.
- C. Efficiency = 85%
- D. CRI: 70 minimum
- E. Driver Current: 350mA unless shown otherwise in the Schedule or on the Drawings.
- F. Temperature: 4300K unless shown otherwise in the Schedule or on the Drawings.
- G. Foot Candle (FC) Levels: As recommended by IESNA or as shown in the Schedule or on the Drawings, whichever is greater.
- H. Mounting: As shown on the Drawings.
- I. Proper UL listings for dry/damp, wet, and hazardous (wet locations and vapor tight NEMA 4X) locations.
- J. Driver:
 - 1. Power Factor: > .90
 - 2. Total Harmonic Distortion (THD): <20%
 - 3. Integral surge suppression protection in accordance with IEEE C62.41.2 and ANSI 62.41.2.

2.02 BATTERY BACKUP LUMINAIRES

- A. Where shown in the Luminaire Schedule and/or Drawings, furnish self-diagnostic battery system for standby operation.
- B. Provide a minimum 1300 lumens per luminaire of illumination for 90 minutes during a power outage.
- C. Furnished, installed in the driver channel, and wired by luminaire manufacturer. Indicator lights easily visible from below.

2.03 OCCUPANCY SENSOR

- A. Wall-mounted with manual override.
- B. Single-point or 3-way as required on Drawings.
- C. Infrared and ultrasonic motion sensors, plus photocell.
- D. Cooper OSW-DT or Engineer reviewed equivalent.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Install in accordance with manufacturer's recommendations and the Drawings. If not available from the manufacturer of the specific equipment and not shown on the Drawings, install according to the best trade practice.
- B. Furnish fittings, hangers, stems, parts, etc., as required for proper installation.
- C. Securely support luminaires so that they are level and in vertical and horizontal alignment unless specifically shown otherwise on the Drawings.
- D. Clean luminaires, install lamps, and test systems prior to acceptance by the Engineer.

3.02 SCHEDULE

- A. Provide luminaires which comply with the requirements of this Section and with the requirements of the Luminaire Schedule on the Drawings.

END OF SECTION

SECTION 31 22 00

GRADING

PART 1 GENERAL

1.01 WORK INCLUDED

- A. This work shall consist of shaping the apron bed to subgrade preparation to the depths indicated on the Drawings.

1.02 REFERENCE STANDARDS

- A. American Society for Testing and Materials:
 1. ASTM D1556, Density of Soil in Place by the Sand-Cone Method
 2. ASTM D1557, Test for Moisture-Density Relations of Soils Using 10-lb. Hammer and 18-in. Drop.
 3. ASTM D2167, Density of Soil in Place by the Rubber-Balloon Method.
 4. ASTM D2216, Laboratory Determination of Moisture Content of Soil.
 5. ASTM D2922, Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
 6. ASTM D3017, Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).

1.03 QUALITY ASSURANCE

- A. Testing Laboratory:
 1. Contractor will provide material testing for quality control during earthwork operations.

1.04 JOB CONDITIONS

- A. Do not construct embankments when atmospheric temperature is below 35°F.

PART 2 PRODUCTS

2.01 BORROW

- A. Borrow shall consist of materials obtained from approved borrow areas designated by the Engineer for the construction of embankments.
- B. Provide free of vegetation.

2.02 WASTE

- A. Disposal of excess excavation shall be the responsibility of the Contractor. Excess material to be placed in location approved by Engineer.

2.03 EXCAVATION

- A. Includes excavation, removal, backfill, and satisfactory disposal of all materials encountered in the work.

2.04 EMBANKMENT

- A. Embankment construction shall consist of the formation of embankments with suitable material as determined by Engineer.

PART 3 EXECUTION

3.01 GENERAL

- A. Excavation and embankments for the apron shall be finished to the contours, shapes, dimensions, and elevations shown on the Drawings.
- B. No materials shall be wasted without permission from the Engineer.
- C. Perform clearing operations prior to beginning excavation, grading, and embankment operations.

3.02 SUBGRADE PREPARATION

- A. See Section 31 23 13 – Subgrade Preparation.

3.03 GRADING

- A. Provide uniform slopes and rounded changes in slope, free of low spots.
- B. The degree of grade control shall not deviate from true grade and profile more than one-half inch as measured by a ten-foot straightedge.
- C. Drainage:
 - 1. Provide and maintain positive surface water drainage around and away from open excavations.
 - 2. Keep opened excavations dry.
 - 3. Remove free water in excavations promptly.

3.04 EMBANKMENT

- A. Embankments shall meet the compaction requirements specified in Subsection 3.05.
- B. No frozen material, brush, sod, or unsuitable material shall be placed in the embankments.
- C. In the distribution of embankment material, avoid lenses differing substantially from the surrounding material.

- D. Deliver materials to the embankment in such a manner as to result in a well and uniformly compacted embankment.

3.05 EMBANKMENT AND BACKFILL COMPACTION

- A. General:
 1. Compact in eight-inch loose horizontal layers.
 2. Use moistened material when necessary.
 3. Layers shall be uniformly compacted before a succeeding layer is placed.
 4. Add water in sufficient quantity to obtain the specified compaction.
 5. Do not allow free water to stand on an embankment surface.
 6. Compaction shall be accomplished by approved methods and equipment.
- B. Degree of Compaction:
 1. Optimum density will be determined in accordance with ASTM D1557.
 2. Perform compaction as follows:

<u>Description</u>	<u>Percent of Maximum Dry Density to Be Not Less Than</u>	<u>Variation of Optimum Moisture</u>
Embankment and backfill under roads, lift station, or where otherwise scheduled	95	+2
General area grading not included in the above	90	+2

3.06 FIELD QUALITY CONTROL

- A. Field control of density of in-place material will be determined in accordance with any of the following methods:
 1. Nuclear Method, ASTM D2922
 2. Rubber-Balloon Method, ASTM D2167
 3. Sand-Cone Method, ASTM D1556
- B. Field control of moisture content will be determined in accordance with either of the following methods:
 1. Nuclear Method, ASTM D3017
 2. Laboratory Determination, ASTM D2216
- C. In-place density and moisture tests to be taken at intervals to be determined by the Engineer.

END OF SECTION

SECTION 31 23 13

SUBGRADE PREPARATION

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Preparing the completed subgrade prior to placement of subsequent pavement section components to the grade and dimensions indicated on the Drawings. This is inclusive of all processing, shaping, compacting, watering, protecting and any removal and replacement of unsuitable material to prepare the subgrade satisfactorily for completion of the pavement section.

1.02 REFERENCES

- A. American Society for Testing and Materials:
 1. ASTM D1556, Density of Soil in Place by the Sand-Cone Method
 2. ASTM D1557, Test for Moisture-Density Relations of Soils Using 10-lb. Hammer and 18-in. Drop
 3. ASTM D2167, Density of Soil in Place by the Rubber-Balloon Method
 4. ASTM D2216, Laboratory Determination of Moisture Content of Soil
 5. ASTM D2922, Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
 6. ASTM D3017, Moisture Content of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)

1.03 QUALITY ASSURANCE

- A. Testing Laboratory:
 1. Contractor shall provide material testing for quality control during subgrade preparation.

PART 2 PRODUCTS

2.01 SUITABLE MATERIALS

- A. Suitable materials shall consist of materials obtained on site approved by the Engineer for the purpose of subgrade preparation.
- B. Any underlying soft or otherwise unsuitable material shall be removed and replaced with suitable material.
- C. Provide free of vegetation.

2.02 WASTE

- A. Disposal of excavated materials shall be the responsibility of the Contractor. Excess material to be placed in location designated by Owner or Engineer.

PART 3 EXECUTION

3.01 PREPARATION

- A. Excavations and embankments for the roads and site grading shall be finished to the shapes, dimensions, and elevations shown on the Drawings.
- B. Perform clearing operations prior to beginning excavation, grading, and embankment operations.
- C. Processed, watered, and compacted to not less than 90% of modified Proctor density (AASHTO T-180) at optimum moisture content $\pm 2\%$, to a depth of 12" minimum.
- D. Material that cannot be processed satisfactorily to meet these specifications shall be considered unsuitable.

3.02 GRADING

- A. Provide uniform slopes and rounded changes in slope, free of low spots.
- B. The degree of grade control shall not deviate from true grade and profile more than one-half inch as measured by a ten-foot straight edge.
- C. Drainage:
 - 1. Provide and maintain positive surface water drainage around and away from open excavations.
 - 2. Keep opened excavations dry.
 - 3. Remove free water in excavation promptly.

3.03 FIELD QUALITY CONTROL

- A. Sample and Test:
 - 1. At intervals not to exceed 200 feet.
 - 2. At locations designated by the Engineer.

END OF SECTION

SECTION 32 17 23.13

PAINTED PAVEMENT MARKINGS

PART 1 GENERAL

1.01 WORK INCLUDED

- A. Painted pavement striping and marking.

1.02 REFERENCES

- A. Federal Specifications:
 - 1. FS TT-P-1952, Paint, Traffic, and Airfield Marking, Waterborne.

1.03 SUBMITTALS

- A. Section 01 33 23 – Shop Drawings, Product Data, and Samples:
 - 1. Paint: Product data, performance characteristics, application procedures, and MSDS data.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Striping Paint – for asphalt less than one year old, or concrete free of sealers and efflorescence:
 - 1. Composition Type: One component, water-based acrylic latex polymer.
 - 2. VOC, ASTM D3960, excluding water: 0.79 lbs/gallon.
 - 3. Total Solids: 70% solids by weight minimum.
 - 4. Colors Available: White and lead-free yellow.
 - 5. No Pickup Dry Time, ASTM D711: 45 minutes at 50% RH.
 - 6. Reflective Option: Glass beads can be dropped on surface while paint is still wet.
 - 7. Recommended Spreading Rate at 7.5 mils DFT: Approximately 320 lineal feet of 4-inch stripe per gallon.
 - 8. Manufacturer: Sherwin-Williams Setfast® Acrylic Latex Traffic Marking Paint, TM2160/TM2161, or Engineer reviewed equivalent.
- B. Striping Paint – for asphalt at least several months old, asphalt with emulsified coal tar type sealers, or concrete free of sealers and efflorescence:
 - 1. Composition Type: One component, water based 100% acrylic emulsion polymer latex.
 - 2. Conformance: Federal Specification TT-P-1952, Type 1.
 - 3. VOC, ASTM D3960 excluding water: 0.75 lbs/gallon.
 - 4. Total Solids: 73% solids by weight minimum.
 - 5. Colors Available: White and lead free yellow, in conformance with U.S. Bureau of Public Roads.

6. No Pickup Dry Time, ASTM D711: 45 minutes at 50% RH.
7. Reflective Option: Glass beads can be dropped on surface while paint is still wet.
8. Recommended Spreading Rate at 8.5 mils DFT: Approximately 320 lineal feet of 4-inch stripe per gallon.
9. Manufacturer: Sherwin-Williams Setfast® Acrylic Waterborne Traffic Marking Paint, TM226/TM227, or Engineer reviewed equivalent.

PART 3 EXECUTION

3.01 TRAFFIC LANE AND PARKING STALL MARKINGS

- A. Cleaning: Sweep and clean surface to eliminate loose material and dust. Remove sealers and efflorescence from concrete surfaces.
- B. Application: Apply paint with mechanical equipment to produce uniform straight edges. Apply in one (1) or two (2) coats at manufacturer's recommended rates.
- C. Add reflective glass beads where scheduled.

3.02 SCHEDULE

- A. Paint markings on concrete as indicated on Drawings.
- B. Add reflective glass beads to striping.

END OF SECTION

SECTION 32 35 23

ALUMINUM WINDSCREEN SYSTEMS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes Aluminum Windscreen Systems utilizing painted steel embedments which support vertical aluminum posts.
- B. Related Sections include the following:
 - 1. Division 03 – Masonry walls
 - 2. Division 07 - Sealants

1.02 PERFORMANCE REQUIREMENTS

- A. General: In engineering windscreens to withstand structural loads indicated, determine allowable design working stresses of materials based on the following:
 - 1. Aluminum: AA 30, “Specification for Aluminum Structures.”
 - 2. Cold-Formed Structural Steel: AISI SG-673, Part I, “Specification for the Design of Cold-Formed Steel Structural Members.”
 - 3. For fully tempered glass in glass-supported handrails and railings, use a safety factor of 3 applied to the applicable modulus of rupture listed in “Mechanical Properties” in AAMA Aluminum Curtain Wall Series No. 12, “Structural Properties of Glass.”
- B. Structural Performance of Windscreens. Provide windscreens capable of withstanding the following structural loads without exceeding allowable design working stress of materials for windscreens, anchors, and connections:
 - 1. Top of Windscreen: Capable of withstanding the following loads applied as indicated:
 - a. Concentrated load of 200 lb point load applied at any point and in any direction.
 - b. Uniform load of 25 psf on glass panel. per linear foot applied horizontally and concurrently with uniform load of 50 lb on 1sf
 - c. Concentrated and uniform loads above need not be assumed to act concurrently.
 - 2. Infill area of Windscreens: Capable of withstanding a horizontal concentrated load of 50 lb. applied to 1 sq. ft. at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area.
 - a. Load above need not be assumed to act concurrently with loads on top rails in determining stress on windscreen.
- C. Thermal Movements: Provide windscreens that allow for thermal movements resulting form the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, over stressing of components,

failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.

1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.
- D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.03 SUBMITTALS

- A. Product Data: For manufacturer's product lines of windscreens assembled from standard components.
- B. Include Product Data for grout, anchoring cement, and paint products.
- C. Shop Drawings: Show fabrication and installation of windscreens. Include plans, elevations, sections, details, and attachments to other work.
- D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available for products with factory-applied color finishes.
- E. Samples for Initial selection: Short sections of railing or flat sheet metal Samples showing available mechanical finishes.
- F. Samples for Verification: For each type of exposed finish required, prepared on components indicated below and of same thickness and metal indicated for the Work. If finishes involve normal color and texture variations, include sample sets showing the full range of variations expected.
 1. 6-inch-(150-mm-) long sections of each different linear railing member, including posts, bottom rails and stanchions.
 2. Fittings, brackets, and clips.
 3. Assembled Samples of windscreens, made from full-size components, including post, bottom rail, and infill. Show method of finishing members at intersections. Samples need not be full height.
- G. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- H. Product Test Reports: Indicating products comply with requirements, based on comprehensive testing of current products.

1.04 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of railing through one source form a single manufacturer.

1.05 STORAGE

- A. Store handrails and railings in a dry, well-ventilated, weather tight place.

1.06 PROJECT CONDITIONS

- A. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings.
 - 1. Coordinate fabrication schedule with construction progress to avoid delaying the work.

1.07 COORDINATION

- A. Coordinate installation of anchorage for windscreens. Furnish Setting Drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to project site in time for installation.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design:
 - 1. C.R. Laurence Co., Inc., 2503 E. Vernon Ave., Los Angeles, CA. 90058, www.crlaurence.com, email: techsales@crlaurence.com
 - 2. System AWS Aluminum Windscreen System
- B. Subject to compliance with the requirements of this section, manufacturers offering products with similar attributes may be incorporated into the Work

2.02 METALS

- A. General: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.
- B. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than strength and durability properties of alloy and temper designated below for each aluminum form required.
 - 1. Extruded Bar and Tube: ASTM B 221 (ASTM B 221M), alloy 6063-T5/T52.
 - 2. Extruded Structural Pipe and Tube: ASTM B 429, alloy 6063-T6.
 - 3. Drawn Seamless Tube: ASTM B 210 (ASTM B 210M), alloy 6063-T832.
 - 4. Plate and Sheet: ASTM B 209 (ASTM B 209M), alloy 6061-T6.
 - 5. Die and Hand Forgings: ASTM B 247 (ASTM B 247M), alloy 6061-T6.
 - 6. Castings: ASTM B 26/B 26M, alloy A356-T6.

2.03 POSTS

- A. Rectangular Posts:
 - 1. 2" x 2-5/8" endposts and center
 - 2. 2" x 2" 90 degree and 135 degree corner posts
 - 3. Corner posts
- B. Post Cores:
 - 1. Steel stanchions mounted as detailed on the drawings.
- C. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.
 - 1. Provide cast brackets with flange tapped for concealed anchorage to threaded hanger bolt.
 - 2. Provide formed or cast brackets with predrilled hole for exposed bolt anchorage.
 - 3. Provide formed steel brackets with predrilled hole for bolted anchorage and with snap-on cover that matches windscreen finish and conceals bracket base and bolt head.
 - 4. Provide brackets with interlocking pieces that conceal anchorage. Locate screws on bottom of bracket.

2.04 GLASS PRODUCTS AND GLAZING MATERIALS

- A. Tempered Glass: ASTM C 1048, Kind FT (fully tempered), Condition A (uncoated), Type 1 (transparent glass, flat). Quality q3 (glazing select). Provide products complying with requirements indicated below for class, thickness, and manufacturing process that have been tested for surface and edge compression according to ASTM C 1048 and for impact strength according to 16 CFR, Part 1201 for Category II materials.
 - 1. Clear glass: Class I (clear).
 - 2. Thickness: 3/8" unless otherwise noted.
 - 3. Manufacturing Process: Manufacture fully tempered glass as follows:
 - a. By vertical (tong-held) or horizontal (roller-hearth) process, at manufacturers option, except provide horizontal process tongless and free of tong marks.
 - 4. Subject to compliance with requirements, provide safety glass permanently marked with certification label of Safety Glazing Certification Council or another certification agency, acceptable to authorities having jurisdiction.
- B. Glazing Cement and Accessories: Provide glazing cement and related accessories recommended, or supplied by railing manufacturer for bonding glass to metal subrails.

2.05 FASTENERS

- A. Fasteners for Anchoring Handrails and Railings to other Construction: Select fasteners of type, grade and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.
 - 1. Fasteners for Interconnecting Handrail and Railing Components: Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metal that are corrosive or incompatible with material joined.
 - 2. Provide concealed fasteners for interconnecting windscreen components and for attaching them to other Work, unless exposed fasteners are unavoidable or are standard fastening method for handrail and railing indicated.
 - 3. Provide Phillips flat-head machine screws for exposed fasteners, unless otherwise indicated.

- B. Cast-in-Place and Post installed Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by qualified independent testing agency.
 - 1. Cast-in-place anchors.
 - 2. Chemical anchors.
 - 3. Expansion anchors.

2.06 GROUT AND ANCHORING CEMENT

- A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.07 FABRICATION

- A. Assemble windscreens in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

- B. Form changes in direction of windscreen members as detailed.

- C. Mechanical Connections: Fabricate handrails and railings by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.

- D. Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect windscreen members to other construction.

- E. Provide inserts and other anchorage devices to connect handrails and railing to concrete or masonry. Fabricate anchorage device capable of withstanding loads imposed by the windscreen. Coordinate anchorage devices with supporting structure.
- F. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.
- G. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.
- H. Close exposed ends of railing members with prefabricated end fittings.

2.08 GLAZING PANEL FABRICATION

- A. Glass Panels: Cut tempered glass to final size and shape before heat treatment; provide for proper edge clearance and bit on glass. Provide thickness indicated, but not less than that required to support structural loads.
- B. Straight Panels: Provide tempered glass panels for straight sections.

2.09 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.10 ALUMINUM FINISHES

- A. High Performance Organic Coating Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals, Chemical Finish: Acid chromate-fluoride-phosphate conversion coating; Powder Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with manufacturer's written instructions.
 1. Tiger Drylac, Series 39, Polyester Powder Coating, 3 mil. Average film thickness complying with AAMA 2604-98.
 2. Color and Gloss: As selected by Architect from manufacturer's full range of choices for color and gloss, including custom colors.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates, where reinforced to receive anchors, to verify that locations of concealed reinforcements have been clearly marked for Installer. Locate reinforcements and mark locations if not already done.

3.02 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Cutting, Fitting, and Placement: Perform Cutting, drilling, and fitting required for installing windscreens. Set windscreens accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
 - 1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 - 2. Align windscreens so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed ¼ inch in 12 feet.
- C. Corrosion Protection: Coat concealed surfaces of aluminum and copper alloys that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.
- D. Adjust windscreens before anchoring to ensure alignment at abutting joints. Space posts at interval indicated, but not less than that required by structural loads.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing windscreens and for properly transferring loads to in-place construction.

3.03 WINDSCREEN CONNECTIONS

- A. Nonwelded Connections: Use mechanical joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings.

3.04 INSTALLING GLASS PANELS

- A. Glass, Windscreens: Install assembly to comply with railing manufacturer's written instructions. Attach base channel to building structure, then insert and connect factory-fabricated and assembled glass panels.

3.05 CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.

3.06 PROTECTION

- A. Protect finishes of windscreens from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.
- B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in field to shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION

SECTION 33 41 14

STORM SEWER PIPE INSTALLATIONS

PART 1 GENERAL

1.01 SCOPE OF WORK

- A. The construction items specified in this Section are common to storm sewer pipe installation and pipe type culverts.
- B. References:
 - 1. ASTM International (ASTM), American Society for Testing and Materials:
 - a. ASTM C 33 – Concrete Aggregates.
 - b. ASTM C 76 – Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe.
 - c. ASTM C 289 – Potential Alkali-Silica Reactivity of Aggregates (Chemical Method).
 - d. ASTM C 361 – Reinforced Concrete Low-Head Pressure Pipe.
 - e. ASTM C 425 – Compression Joints for Vitrified Clay Pipe and Fittings.
 - f. ASTM C 443 – Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.
 - g. ASTM D 2321 – Underground Installation of Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications.
 - h. ASTM D 3212 – Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
 - i. ASTM D 3350 – Polyethylene Plastics Pipe and Fittings Materials.
 - j. ASTM F 477 – Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
 - k. ASTM F 2306 – 12 to 60 inch Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications.
 - l. ASTM F 2648 – 2 to 60 inch Annular Corrugated Profile Wall Polyethylene (PE) Pipe and Fittings for Land Drainage Applications.
 - 2. AASHTO, American Association of Highway and Transportation Officials:
 - a. AASHTO M 36 – Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains.
 - 3. ACPA, American Concrete Pipe Association:
 - a. ACPA Concrete Pipe Design Manual.

1.02 SUBMITTALS

- A. Section 01 33 23 – Shop Drawings, Product Data, and Samples:
 - 1. Product data.
 - 2. Certification of conformance to referenced standards.
 - 3. Installation instructions.

PART 2 PRODUCTS

2.01 CERTIFICATION

- A. A certification from the manufacturer shall be furnished to the Engineer attesting compliance with appropriate ASTMs. Only pipe manufactured in the United States of America is acceptable.

2.02 CORRUGATED POLYETHYLENE PIPE

- A. Description: Annular corrugated profile wall polyethylene pipe and fittings for gravity drainage applications, smooth inside wall.
- B. Conformance: ASTM F 2648.
- C. Fittings: ASTM F 2306.
- D. Joints: Gasketed bell and spigot in accordance with ASTM D 3212, and meeting watertightness requirements of ASTM F 2306.
- E. Gaskets: Polyisoprene in accordance with ASTM F 477.
- F. Pipe Material: Engineered blend of virgin and recycled high-density polyethylene in accordance with ASTM D 3350, except carbon black content shall not exceed 4%.
 - 1. Cell Classification for 4" to 10" Pipe: 424420C, ((ESCR test condition B).
 - 2. Cell Classification for 12" to 60" Pipe: 435400C, ((ESCR test condition B).
- G. Installation: ASTM D 2321 and manufacturer's published guidelines.
- H. Acceptable Manufacturers and Models: Advanced Drainage Systems (ADS), Hilliard, OH, ADS N-12 WT IB Pipe per ASTM F 2648, or Engineer approved equivalent.

PART 3 EXECUTION

3.01 GENERAL

- A. Pipe and appurtenances shall be new and unused. The type of pipe to be installed shall be as approved by these Specifications or unless otherwise shown on the Drawings. Pipe and appurtenances shall be handled in such a manner as to insure delivery to the trench in sound, undamaged condition. Particular care shall be taken to prevent damage to any pipe coating.
- B. The interior of the pipe shall be thoroughly cleaned of foreign material before being lowered into the trench and shall be kept clean during construction operations. When work is not in progress, the open ends of pipe shall be securely closed so that no foreign materials will enter the pipe. Any section of pipe found to be defective before

or after laying shall be replaced with sound pipe, or repaired in a manner satisfactory to the Engineer, without additional expense to the Owner.

- C. Pipe shall be laid to line and grade as shown on the plans and as staked in the field. The bottom of the trench shall be graded and prepared to provide a firm and uniform bearing throughout the entire length of the pipe barrel. Suitable excavation shall be made to receive the bell of the pipe, and the joint shall not bear upon the bottom of the trench. All adjustment to the line and grade shall be made by scraping away or filling in with pipe zone material under the body of the pipe, and not by wedging or blocking. When connections are to be made to any existing manhole, pipe, or other improvement, the actual elevation or position of which cannot be determined without excavation, the Contractor shall excavate as necessary to expose and locate such potentially conflicting underground improvements prior to laying the new pipe. Any adjustment in line or grade which may be necessary to accomplish the intent of the plans will be made.
- D. Contractor shall submit to the Engineer the proposed method for making connections to existing manholes. Connection methods will be dependent upon manhole size and pipe sizes. Unnecessary damage to the existing manhole shall be avoided.
- E. Pipe shall be laid upgrade in a continuous operation from structure to structure, with the socket or collar ends of the pipe upgrade unless otherwise permitted by the Engineer. Concrete pipe with elliptical reinforcement shall be laid with the minor axis of the reinforcement cage in a vertical position. Corrugated metal pipe shall be laid with the external laps of the circumferential seams toward the inlet end.

3.02 TESTING FOR LEAKAGE

- A. Normally storm sewer lines need not be tested, but if in the opinion of the Engineer, the workmanship or materials do not appear to be satisfactory, the Engineer may require that a section of the storm sewer line be tested in accordance with Section 33 31 01 – Sanitary Sewerage Systems.

3.03 CLEANING AND INSPECTION

- A. Cleaning: No pipe spalls, rocks, dirt, joint compounds, cement mortar, and other trash or obstructions shall be left in a sewer pipe of any size or type. During flushing operations the manhole outlet shall be bagged or plugged so that the debris will not be carried in to an existing active line.
- B. Inspection: Before lines become operational or final acceptance of the installation, small size lines will be inspected by lamping, or Owner may inspect by television camera. Larger size lines will be inspected by walking through the line.

3.04 SCHEDULE

END OF SECTION