Lessons Learned

THE GREENWORKS ARCHITECTURAL DESIGN COMPETITION

SANTA FE, NEW MEXICO
JANUARY 23, 2009

A Collaboration of the City of Santa Fe, the Frederick P. Rose Architectural Fellowship, Enterprise Community Partners, and Enterprise GreenCommunities

This booklet was written and edited by Alexandra G. Ladd, AICP from materials compiled from the jury’s scoresheets, interviews with jury members and city staff, independent research, the contest submissions, and follow up comments from the contestants.

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It should be noted that the scores awarded by the jury and comments by City staff regarding the desirability of any of the designs, or specific design elements presented in this booklet do not imply approval by the City of Santa Fe’s development review process. Even winning designs may require modifications to obtain approvals.
The design community did not shrink in the least. What resulted was a consensus by virtue of competition, a kind of variation on Amory Lovins’ maxim that “if it exists it must be possible”. We can do this.

Rather than back off from the enormity of the task - do it better and do it for less - both the City of Santa Fe and the architects and planners who entered the competition, rose to the challenge. The former by refusing to take the easy road and just build more boxes for poor people, the latter by showing how, through intent, expertise, and experimentation, affordable housing could be historically sensitive, environmentally sound, and materially responsive to the very real challenges faced by low-income families in a high cost market.

The GreenWORKS Design Competition is ultimately a statement by a collection of practical optimists -- from City staff to jurors to designers: “let’s do better.” Here’s how. Your turn.

Charles Buki
GreenWORKS Juror
May 5, 2009

“...speaks with equal vigor to the idea that if you set the bar high, you get great results.”

“In addition to generating solutions to a hefty challenge, GreenWORKS also served to generate questions about City policies and regulations. Specifically, how well do they work to give us the kind of development we want - green, affordable and appropriate for our neighborhoods?” - Chris Calvert, GreenWORKS Juror

“As judges, it was important to all of us that the process of selecting the award recipients be as thoughtful and as disciplined as possible. Because of the special diversity of our group, we were able to share our individual perspectives and unique experiences to more fully accomplish the goals set out by the competition. It was a truly rewarding experience.” - Lillian Montoya-Rael, GreenWORKS Juror

“The stringency of the green design criteria, the fact that the contest was for affordable housing, and the fact that it was a project in Santa Fe all contributed to the unusually high quality of the designs submitted. Usually, jurors can reject at least a quarter of entries in a contest of this sort right away because they don’t meet the specifications. That didn’t happen here, making our decisions much more difficult.”

- Mike Pyatok, GreenWORKS Juror
**WHY GreenWORKS?**

The fate of the subject site for the GreenWORKS Architectural Design Competition may have been to languish unnoticed in the scattered inventory of municipally owned lots, had neighbors not approached the City with an offer to purchase it. As the process was initiated, City Councilor Chris Calvert realized that the City would be wasting an opportunity to develop land – with no land cost – that was located near downtown and close to public transportation and community amenities. “It seemed the perfect place for building affordable housing. And the perfect time for making this housing ‘green’.”

Kathy McCormick, the City’s Director of Affordable Housing and Community Development took the idea one step further. “Rather than limit ourselves to one design procured through the public bidding process, my staff and I thought a design competition would really spur innovation. We also hoped to open up the design process to the community and make it fun.” The local office of Enterprise Community Partners jumped on board as a sponsor, bringing along two affiliates – Green Communities and the Rose Architectural Fellowship.

The program parameters were developed with feedback from an advisory group, composed of experts in building, architecture, energy efficiency, and financing. One clear objective for the competition was to combine the requirements of Santa Fe’s newly adopted Green Code, applicable to new residential development, and the Green Communities criteria, which would enable the project to be eligible for funding. The City wanted the development of this lot to be a model, replicable not only in other neighborhoods in Santa Fe, but also in other communities.

“I commend the city on requiring the extensive cost analysis as part of the submission. Many design competitions are mainly “ideas” competitions. While useful in progressing architectural innovation, it is helpful for designers to check their big idea against real world development scenarios. In our case, we did need to make changes along the way to reflect market realities and development costs.”

- Alexander Dzurec, autotroph Design Team

**THE CHALLENGE**

The resulting competition criteria called for designs that incorporate affordability and green building technologies, comply with historic preservation regulations, and reflect the values of the surrounding neighborhood. Furthermore, entrants were required to provide a cost estimate that demonstrated the financial feasibility of their designs including per square foot building cost and a cost/benefit analysis of energy savings.

The design criteria also stipulated that the entries adhere to the City’s Santa Fe Homes Program that requires 30% of the homes built are affordably-priced (max. of $155,000 in this case). Furthermore, the designs must comply with the development regulations pertaining to the site, regarding setbacks, percentage of lot coverage, and open space.

The lot itself posed a challenge. The irregularly shaped site is small (10,910 square feet) and is bisected by a small, steep slope. The allowable density in the neighborhood is 21 homes per acre. At one quarter-acre in size, the subject site can accommodate five homes but six are possible with a density bonus awarded for providing affordably-priced homes. The allowable building footprint is approximately 4,300 square feet, with approximately 3,000 square feet reserved for setbacks from the lot lines. It is located in a historic district called Westside-Guadalupe and is subject to the City’s historic design regulations for that district.
THE RESPONSE

Twenty-four qualified entrants presented their designs. On January 23, 2009, a jury of seven – representing expertise in architecture, community development, police recruitment, economic development and greenbuilding – met all day and evaluated the entries. At the end of the day, the jurors chose to recognize the designs that best met the overall criteria. Two entries were chosen, submitted by: Opticos Design from Berkeley, CA; and WAMO/Needbased Inc./Homewise, a collaboration of three firms from Santa Fe, NM.

Honorable Mentions were awarded to five designers whose entries excelled in a particular category: Macy Architecture, San Francisco, CA; autotroph from Santa Fe, NM; Measured Works Architecture, New York, NY; RTKL Associates Dallas TX; and InterDesign, Indianapolis, IN. A public reception was held in the evening where votes were cast for the “Peoples’ Choice Award,” awarded to Verde Consultants from Santa Fe, NM.

WHAT’S NEXT?

According to Kathy McCormick, “The contest was not just a theoretical exercise – we hope to see this project built.” In the meantime, this book provides an opportunity to share the innovations and architectural elegance presented by these twenty-four designs and to learn from the comments, analysis and evaluation provided by the competition jury, City staff and the entrants themselves.

“Architects and architectural teams around the world are becoming more serious about designing affordable housing that is sustainable. When you ask architects to take seriously all the green issues, they have to be much more focused and technical, and it also forces them to think outside the box. So what you get is more exploratory, but also more rigorous and grounded.”
- Mike Pyatok, GreenWORKS Juror

“Competitions allow designers to get back to designing, creatively and thoughtfully. The intensity of a competition allows an idea to be studied, developed and laid out in short time frame, enabling designers to approach a project holistically. And in the end, competitions can bring many different, innovative solutions for the proposed problem.”
- Opticos Design Team
ALTO STREET
GREENWORKS DESIGN
COMPETITION SITE

Views of the site from Alto Street looking northward toward the Santa Fe River.

Views of the site from Alto Street looking northward toward the Santa Fe River.

Views of the site from Alto Street looking northward toward the Santa Fe River.

Views of the site from the Santa Fe River, looking toward Alto Street.

Site Map
ENTRY 173

Firm Names: WAMO Studio, Needbased Inc., Homewise
Team Members: Vahid Mojarrab, Jonah Stanford
Location: Santa Fe, NM

This six-unit Territorial-style design, “Alto Compound,” was selected by the jury as one of the two Best Overall winners in the competition. The award was based on the project’s success in presenting a high quality, aesthetically pleasing, historically appropriate design that best met the overall criteria presented in the competition. The unit plans are sophisticated and realistically sized, each with a private courtyard. Common open space not only ties the compound together but also links it to the surrounding neighborhood by providing a corridor from Alto Street to the river. Each unit is provided two parking spaces and one unit is fully accessible.

The proposed design was distinct among the entries in that it was the only Territorial style building. Details typical of this style include: overhangs, balustrades, the light patterns on windows, and the painted wood trim. The project fits in appropriately to the neighborhood, providing some diversity to what is otherwise a predominantly Pueblo-style streetscape. A mix of stucco colors is also effective to break up the massing into room blocks and lends a contemporary flair to the design.

According to the project narrative, all of the buildings in the project achieve a Platinum Leadership in Energy and Environmental Design (LEED) rating and a Home Energy Rating System (HERS) score of 49 (51% energy savings over the conventionally built home). This accomplishment is based on a green building strategy that prioritizes: occupant health and happiness; energy efficiency; and environmental footprint reduction. Some of the green features include: solar hot water; in-direct hot water storage; passive solar orientation to further increase energy efficiency and maximize occupant use of outdoor spaces; high efficiency insulation with 80% recycled content; no/low Volatile Organic Compounds (VOC) materials; day lighting; and energy efficient appliances.

In the statement of cost/benefit the designers explain a principle they call “innovation through simplification,” whereby they advocate for investing in the shell of the structure in terms of durability and insulation to respond to heating and cooling demands. They believe this approach provides better returns than high efficiency and expensive systems to operate within the structure. For instance, the use of shared walls reduces the amount of exterior walls that are exposed to ambient air temperatures, (shrinking energy use by an additional 20-25%), while also lowering long term maintenance costs and initial construction costs.

The project was deemed highly practical and economical with a total project cost of slightly less than $1 million and square foot costs averaging $161. The designers propose four affordably-priced units, priced from $126,000 to $155,000 and two market units at $350,000.
This six unit Territorial-style design, “Alto Compound,” was selected by the jury as one of the two Best Overall winners in the competition.

“Responding to the Greenworks criteria required the successful integration of relevant social and economic issues. I think that architecture that addresses singular client programming is no longer sufficient. A “successful” project is one that addresses far more than aesthetics or square footage and must respond to and respect the larger built, social and economic environment in which it resides. These new parameters are not limitations but rather opportunities to contribute to successful communities, not just isolated, successful projects.”
- Jonah Stanford, Needbased, Inc.

“Community input is an important part of any process that impacts the community’s built environment. Though the City of Santa Fe has the responsibility to act on behalf of the residents as a whole, it can also be responsive to or integrate the desires of community members more directly impacted by any given project…. Our strongest recommendation regarding community involvement is that it is integrated very early in the process.”
- Excerpt from project narrative

“Our green building strategy stems from a philosophy of innovation through simplification. All possible gains should be made during a design process that understands the environmental and economic impact of its decisions regarding size, orientation, and configuration. The three dominant categories for the green building strategy are: occupant health, energy efficiency, and environmental footprint reduction.”
- Excerpt from project narrative
The proposed design is a multiple family compound composed of six private residences ranging from small two bedroom/one bath units to larger three bedroom/two bath units. The proposed design integrates one fully assessable unit and two parking spaces per residence. Integrated public open space is provided in a communal corridor that links Alto Street with the Santa Fe River and is fairly contained to facilitate children's outdoor activities and provide the possibility for communal childcare responsibilities. Along with the public open space each residence has private open space with great attention paid during the design process to allow for both private activities

**LOWER ALTO LEVEL**

1. ENTRY
2. LIVING/DINING
3. KITCHEN
4. POWDER
5. COAT
6. BATHROOM
7. BEDROOM
8. MECHANICAL
9. WASHER/DRYER
10. SOLAR PANELS
11. BIKE RACK
12. DECK
13. TECH AREA

**UPPER ALTO LEVEL**

UNIT A: 2 BED / 1 BATH - 870 S.F. (ACCESSIBLE)
UNIT B: 2 BED / 1.5 BATH - 925 S.F.
UNIT C: 3 BED / 2 BATH - 1195 S.F.
UNIT D: 2 BED / 1.5 BATH - 1015 S.F.
UNIT E: 3 BED / 2 BATH - 1200 S.F.
UNIT F: 2 BED / 1.5 BATH - 985 S.F.
process to allow for both private activities and social interaction. The proposed design is compliant with all land use and historic district zoning guidelines. All six residences have been designed to be LEED-Platinum certified by the United State Green Building Council and compliant with the proposed City of Santa Fe Green Building Code. The proposed design is intended to be respectful of the historic Alto streetscape and to contribute the City of Santa Fe as a whole.
ENTRY 14

Firm Name: Opticos Design, Inc.  
Team Members: Jennifer Block, Christopher Janson, John Miki, Daniel Parolek, Karen Parolek, Stefan Pellegrini, Natasha Small, James Stanton  
Location: Berkeley, CA

This design, “Santa Fe Courtyard Housing,” was selected by the jury as one of the two Best Overall winners in the competition. The award was based on the project’s success in presenting a high quality, aesthetically pleasing, historically appropriate design that best met the overall criteria presented in the competition. It achieves a high level of energy efficiency, uses economical and replicable green materials and building techniques and provides two affordably-priced units. Jurors were impressed with the efficient use of space and high quality amenities, particularly in the common space, and applauded the overall sophistication of the presentation.

The design of the six-unit complex is predicated on a network of four courtyards that reinforce a sense of community while providing passive heating and cooling and maximizing natural light. According to the project narrative, the courtyards act as outdoor living space and, “serve as points of entry, places for social gatherings, places for respite and tranquility; spaces to expand the units and promote indoor-outdoor living…” This scheme also offers a community building with a shared kitchen, library, and event space.

The design offers many green features. Buildings are oriented to take advantage of prevailing breezes for passive cooling in the summer; units are one-room deep to maximize ventilation; thermal massing and “living” roofs help to keep the buildings cool in summer and warm in winter; ICF lumber and reclaimed materials (timber, wood, bricks, stone) are used wherever possible; and all interior finishes are made from low/no VOC and sustainable materials. The project also proposes on site energy production, with solar panels supplying 25% of the site’s energy needs and passive solar orientation to further reduce energy consumption and costs.

Reviewers appreciated the flexibility of the floor plans and integration of pueblo design elements. The extruding vigas, the gate set in the wall, the exposed headers are all encouraged by the City’s historic preservation regulation. The only question about the project’s compliance concerned the stone facing of the community building.

This design is one of the more expensive to build, ($2 million for total building cost; $200/sq ft). However, this price estimate erroneously includes the price of the land. Combined with the flexibility of the floor plans and possible removal of the community room, jurors felt that costs could be brought down enough so that the project would be highly feasible to build.
This design, “Santa Fe Courtyard Housing,” was selected by the jury as one of the two Best Overall winners in the competition.

“Our process begins by looking at the site and potential solutions at multiple scales, starting at the city and region, moving in closer to looking at the local and the neighborhood character of building types and styles, to the site specific topography and adjacencies and finally the selection of materials and finishes.” - Excerpt from project narrative

“This courtyard housing design is green, affordable, and rooted in the history and culture of Santa Fe. It shows that affordability and good design can go hand in hand. We are excited about this design because it is an example of how well-designed density can play a role in the evolution of existing neighborhoods to meet the growing market demand for attached housing. This project also demonstrates how cities can rethink their zoning regulations such as parking requirements, setbacks, densities, and other elements that are often obstacles for projects similar to this and replace them with an approach based on reinforcing walkability, a specific, appropriate form, and building types endemic to a region.” - Dan Parolek, Opticos Design Team

“The fundamental basis of sustainable design is a deep understanding of the site and allowing that to drive design decisions….these courtyard-housing units are each unique and are designed according to specific seasonal sun angles, prevailing winds, existing site grade, and other climatic data…..” - Excerpt from project narrative
GreenWORKS PRINCIPLES

PLAN AND LOT DEVELOPMENT
The fundamental basis of sustainable design is a deep understanding of the site from its context to the construction and performance impacts. Once topography and climate is established, design decisions are driven by solar orientation, daylighting, passive cooling, and stormwater management. Close proximity to amenities, services, and friends, ideally within a walk, encourages residents to walk, promoting a healthier lifestyle.

RESOURCE EFFICIENCY
Efficient floor plans means cost savings, while reducing the resources needed, lowering the post-occupancy energy loads. Passive spaces for heating and cooling, along with solar energy collection greatly reduces energy needs. ICF construction creates high R-values and supports low maintenance and longevity for buildings. Rainwater harvesting for roof and reclaimed stones, and bricks for terraces, courts, and exterior walls add to the sustainability while giving the place a sense of authenticity.

ENERGY EFFICIENCY
One upper level, wall, and mass walls, provide opportunities for daylighting and passive cooling through cross ventilation. Solar orientation maximizes passive heating with southern orientation where summer sun angles are blocked with shading devices and appropriately located landscaping that allows low winter sun angles to pass through. Vertical orientation, shade walls, windows, and walls are oriented from direct sunlight, while trees, and courtyards cool the air down. PV panels and living roofs greatly reduce energy needs and reduce the heat island effect of the City. Thermal mass of the roof provides insulation when evaporative cooling lowers interior temperatures.

WATER EFFICIENCY
Pervious surfaces and pavers of paths and courtyards and reduce the City's urban water needs by filtering water before it enters the City's system. The use of rainwater and filtering regulation also supports stormwater regulation. Water is collected from non-pervious roof surfaces and is collected from rain chutes to large pots where it can be used for watering the edible garden.

SUSTAINABLE PRACTICES
Courtyards and shared amenities, such as the community building, mudrooms, and laundry rooms, promote a strong sense of community and ownership. Residents have pride in their homes that encourages a shared responsibility for maintenance and utilities. Outdoor living spaces with fringes and edible gardens promote healthy lifestyles and community programs, such as gardening, eating, and conservation.

COURTYARD HOUSING
SANTA FE, NEW MEXICO
ENTRY 147

Firm Name: Verde Consultants
Team Members: Jay Bush, Jennifer Faust, W. Robert Kreger AIA, Steve Oles, Johnny Rehders, Estevan Trujillo
Location: Santa Fe, NM

This design, focused on “low carbon footprint strategies,” won the Peoples’ Choice Award through a public vote during the GreenWorks reception. It was lauded by reviewers for its green features and the way it steps attractively down the site. Its varied stucco colors give the illusion that the structures were not built all at once, but rather evolved over time as is typical of much of Santa Fe’s historical architecture. A public pathway called “Paso Alto” is planned for linking Alto Street with the Santa Fe River and the Alameda River Park.

The design meets Leadership in Energy and Environmental Design (LEED) Platinum standards. It proposes Optimum Value Engineering (OVE) framing, the use of agrifiber board and salvaged wood for framing and casework when appropriate. Other green features include: rain water catchment to provide 100% landscape watering; active solar hot water in-floor radiant heat; a highly insulated shell; permeable paving; preparation for eventual gray water system; and a high quality and realistic water and energy review.

The project proposes seven units, in excess of the density bonus allowed under the City’s land use code. The design would also require encroaching on the front setback in order to fit in the extra unit. While jurors applauded the efficiency of the extra density, the design would not be approved as such, given the City’s intent for the site to be developed within the standard requirements for the site. In other respects, the project was deemed highly practical.

The four affordably-priced units range in size from 867 to 1,059 square feet and are priced from $100,500 to $155,000. The three market rate units are from 1,014 to 1,374 square feet and range in price from $532,350 to $652,650. The cost estimate reflects per square foot building costs from $116 - $500 for a total project cost of $1.5 million. The top price was considered potentially too expensive for current real estate market values in the neighborhood.
This design, focused on “low carbon footprint strategies,” won the Peoples’ Choice Award through a public vote during the GreenWorks reception.

“Given the competition’s challenging mandate for ‘affordable green’, [we] recognized that traditional expectations (custom finishes and stone countertops), even in the market rate units, become subordinate to low carbon footprint features.”
- Excerpt from project narrative

“By using common affordable residential building materials and systems in a ‘less brown’ (smarter) solution, [we] can demonstrate that a performance-driven design process can share space with historic design criteria...”
- Excerpt from project narrative

“Based on the Team’s collective experience with high-performance residential in and around Santa Fe, [we] guarantee a LEED for homes Platinum Preliminary rating with a HERS rating of 60 or less [40% energy savings] before any active solar applications... and ultimately to acquire a HERS rating of 30 or less [70% energy savings] after photovoltaic and solar-thermal applications. This supports the green revolution’s movement to redefine the word ‘value’ in real estate to include the word ‘sustainable’ before the word ‘value.’
- Excerpt from project narrative
SITE PLAN

PERSPECTIVE LOOKING ACROSS RIVER FROM WEST ALAMEDA