

LEED AND THE DESIGN/BUILD EXPERIENCE: A SHELTER FOR HOMELESS FAMILIES RETURNING TO POST-KATRINA NEW ORLEANS.

Stephen Verderber, Breeze Glazer, and Rodney Dionisio

Abstract

Hurricane Katrina displaced nearly one million citizens from the New Orleans metro region in 2005. Five years after the catastrophe, in August of 2010, more than 150,000 citizens remained scattered across the United States. Katrina was the largest Diaspora in the nation's history. The number of homes damaged or destroyed by Katrina's devastation numbered more than 125,000. An award-winning case study is presented of a unique partnership forged between academia, a local social service agency, professional architectural and engineering firms, and a national humanitarian aid organization whose mission is to provide affordable housing for homeless persons in transition. This collaboration resulted in a sustainable design/build project that originated in a research-based university design studio. The facility is a 38-bed family shelter for homeless mothers and their children seeking to rebuild their lives in post-Katrina New Orleans. The site for this 4,400 facility did not flood when the city's federally built levee system failed in 2005. This case study is presented from its inception, to programming and design, construction, occupancy, and the post-occupancy assessment of the completed building. This facility is the first LEED certified (Silver) building in New Orleans. Project limitations, lessons learned, and recommendations for future initiatives of this type are discussed, particularly in the context of any inner urban community coping with the aftermath of an urban disaster.

Keywords

Design/build; homeless shelter; LEED; research case study.

Introduction

New Orleans' housing crisis had been well underway prior to the morning Hurricane Katrina made landfall on the Louisiana coast near the mouth of the Pearl River, the border separating Louisiana from the state of Mississippi. It is a widely held misnomer that New Orleans' housing crisis occurred only after Katrina. Prior to the unprecedented destruction inflicted by Katrina, when more than 125,000 homes were damaged or destroyed and 1,800 persons lost their lives in the Great Flood, nearly 16,000 housing units already sat in decay and abandonment across the city (Verderber, 2009a). This was despite a local homeless population in New Orleans that numbered in the thousands (Sturgis, 2006; Verderber, 2009b). Many could have been rehabilitated, however, had the city not been so thoroughly dysfunctional with regard to its poorly run housing reclamation program. Compounding

matters, many of the least inhabitable housing units had been federally built, rent-assisted housing projects dating from the 1930s through 1950s period. In Katrina's aftermath the federal, state, and local governmental response was dysfunctional at best, with the response effort led by the ill-prepared Federal Emergency Management Agency (FEMA). Some retuning families who had been homeless before the hurricane were placed in poorly built temporary travel trailers (Verderber, 2008). As of August of 2010, five years later, nearly 125,000 persons remained internally displaced within the United States.

The Design/Build Movement

In 2002, in the aftermath of 9/11, an entity called the Rapid Response Studio (RRS) had been initiated within the Tulane University's School of Architecture (Verderber 2003; 2005). It consisted of a curricular structure whereby an upper level design studio was devoted annually to addressing pressing social problems in the local community. This community outreach studio had undertaken, prior to Katrina, a series of urban issues including transportable medical facilities for use in disaster mitigation contexts, and affordable pre-manufactured housing prototypes for application in post-disaster contexts. In 2005, a research-based design project to aid homeless women and their children in post-Katrina New Orleans was formulated. The initial project team consisted of fourteen architecture students working under the guidance of the first author. From the outset, this research-based design experience was to function as a vehicle for a design-build studio experience for architecture students in sustainable site planning and design. Its aim was to provide transitional housing for a

segment of the city's large, returning homeless population.

The RRS was inspired by the Rural Studio at Auburn University, founded by the late Samuel Mockbee in 1992 (Dean, et al., 2002). Numerous schools of architecture in recent years had carried out the design and construction of small-scale interventions in the name of social engagement. These include projects at the University of Arkansas (Hueter, 2005), the University of Newcastle in the UK (Kellett, 2006), and at MIT (Campbell, 2005). Byran Bell's edited book on community engagement in architecture (2003) contained a number of case studies in schools of architecture. Sustainability would soon be added to the equation. The University of Kansas' Studio 804 would be the first to complete a LEED certified private residence in the U.S. (University of Kansas, 2010). The Duke Home Depot Smart Home Project, completed in 2007, resulted in the construction of a 10-student dormitory that received LEED Platinum certification (USGBC, 2009). While the aforementioned interventions were small in scale, they symbolized a larger movement that captured the attention of the mainstream architectural press in the U.S. (Ivy, 2005). This attention was accompanied by the simultaneous appearance of more books on the topic of community engagement (Palleroni and Merkelbach, 2004; Sinclair and Stohr, 2006) and articles that appeared in the popular media, including on the work of the Architecture for Humanity organization (Hales, 2005).

The growing design/build movement in the U.S. countered, in effect, what Sarah Goldhagen (2003) had characterized only a few years earlier as the noticeable collective disinterest in any meaningful degree of social engagement. She

argued, persuasively, that most architects had been caught off guard in the aftermath of 9/11. Moreover, Goldhagen's timely call to societal arms echoed that of a seminal 1996 report on the dubious overall condition and mission of U.S. based professional training programs in architecture precisely because they had become so disengaged from their constituencies and from the general public (Boyer and Mitgang, 1996).

Research Objectives

The three core research-based design objectives of the project reported were, first, to explore through the RRS the design-build educational model vis-à-vis a LEED-certifiable building. LEED stands for Leadership in Energy Efficient Environmental Design, and is operated under the aegis of the United States Green Building Council, a quasi-governmental organization based in Washington, D.C. LEED rates a building's reduction in carbon dioxide emission, energy savings, improved environmental quality, and water efficiency. LEED certification can be earned at the silver level or higher (LEED buildings are silver, gold, or platinum, based on a predetermined point-based system of performance assessment with 100 the highest number of possible points). The second research objective was to carefully document every phase of the project from outset to the early post occupancy phase. This database would then be available to others seeking to replicate the research-based design protocol. The third objective was to construct a framework for working closely with professionals in the local community, in a genuine partnership.

Methodology

The New Orleans Mission's (NOM) urgent need to provide a facility for returning homeless women and their children became the sole focus of the Rapid Response Studio in 2005. The NOM was the largest provider of services to the homeless in the city. The research-based design process consisted of the following six steps:

1. Pre-design Site and Architectural Program Analysis. This resulted in a detailed functional space/needs program. The Rapid Response Studio project team developed a detailed space program and site master plan for the campus (Davis, 2004). The campus consisted of a former store and warehouse on Dryades that had been converted in the 1970s to the aforementioned male-only shelter. No organization in the city provided emergency overnight beds for homeless women or children at the time. The project team worked pro bono from start to finish. The team met on (at least) a weekly basis for a year and half. A bi-weekly sustainability audit was conducted to assess project goals in direct relation to progress made.

2. Interviews and Focus Groups. These were conducted with the shelter administration, homeless individuals currently being served by the agency (referred to as clients), and shelter staff members. Team members met in the pre-design phase with the administration, interviewed thirty-two homeless persons at the existing NOM emergency shelter, whose capacity was 180 beds, and interviewed twenty-four day-to-day staff personnel responsible for its operation. This new, transitional facility was to house only homeless mothers and their children for up to six months. The existing emergency shelter was a male-only overnight facility.

3. Historic Resources Inventory. The Central City neighborhood contained a number of so-called “spot designations” of historic structures, many of which fell under the aegis of the city’s Historic District Landmarks Commission (HDLIC) oversight review board. These buildings were scattered throughout the neighborhood. In recent decades the zoning in Central City had been converted to light industrial land uses. By contrast, immediately across the street from the men’s building sat a beautiful 19th century church, the St. John the Baptist Catholic Church (1839-1843). Its gleaming gold leafed spire served as a landmark and at once signified the traditional gateway between Central City and the Central Business District, on the other side of an expressway. In addition to the church, this transitional zone was home to a number of vacant, dilapidated structures that surrounded the NOM site, interspersed with a few buildings in the midst of historic restoration. 1

4. Architectural Design. Services provided by the student-based project team consisted of schematic design, design development, construction documents, materials specifications, and construction administration specifications. A New Orleans-based A/E firm provided expertise from the project’s inception. This firm served as the Architect of Record. It also provided much additional technical support, guidance, and functioned as the key liaison to the client(s), contractor, and sub contractors. This firm provided its technical expertise on a pro bono basis.

5. ANGO Sponsored the Construction. The project team worked closely with the core client (the homeless agency) and a national not-for-profit organization. Four weeks after the hurricane, HomeAid, a not-for profit non-governmental organization (NGO), based in Newport Beach,

California, became a full partner in the project, joining forces with the New Orleans Homeless Mission. This NGO stepped in as an “angel” sponsor” when it appeared that the project would die for lack of funding. Home Aid pledged to provide funding to construct the architecture students’ vision for the homeless family shelter. The scope of the project had been significantly expanded and transformed, as the city’s housing needs for returning homeless families had grown exponentially in Katrina’s aftermath.

6. Post Occupancy Evaluation of Completed Facility. Members of the design/build team conducted an assessment of the completed building. This occurred three months after the building’s initial completion and occupancy. This step was deemed critical from the standpoint of future design/build projects of this type, particularly for those seeking LEED certification by the USGBC.

Urban Context

From a peak population of nearly 600,000 persons in 1960, New Orleans’ population had shrunk to 470,000 by 2005. This had been the result of the widespread suburban “white flight” experienced by cities across the U.S. in the post-WWII decades (Schein, 2006). In the case of New Orleans, residents, white and black alike, had abandoned inner urban neighborhoods that had previously been stable centers of commerce and civic life. Additionally, these communities tended to be situated along what has become known in the aftermath of Katrina as the “Sliver by the River”—the stretch of unflooded “high” land straddling the banks of the Mississippi River in a generally East-West direction and which resulted in an overall crescent shape. One such neighborhood

near to the banks of the river, Central City, had once been a thriving center of the city's Jewish community. Its main commercial artery, Dryades Street, was a once-proud shopping district that catered to both African American and white residents of the surrounding neighborhoods (Campanella, 2006).

This street had been racially integrated as long ago as the 1930s, decades before the integration of the city's main commercial district downtown, widely known as Canal Street. Central City had fallen on hard times—many blocks by the 1990s appeared to be “bombed out”—having been eviscerated though a combination of neglect (and theft) of their once-exquisite architectural inventory of commercial facades, residential Victorian ornamentation, and locally owned mom and pop businesses. Elegant commercial structures, many replete with gargoyles and terra cotta facades, once lined this shopping district. Katrina's floodwaters, while inundating 80% of the city, stopped a few blocks shy of Dryades Street and the heart of this once-vital neighborhood. The residents of Central City fell on hard times in the post-WWII decades, in large part due to inaccess to educational opportunity, jobs, and progressive housing options, in a pattern endemic to many inner urban communities in large U.S. cities today (Sibley, 1995; Nossiter, 2006). Faith-based organizations and other volunteer organizations became directly involved in the city's highly challenging rebuilding process (Silverstein, 2007).

Results—The First LEED Certified Building in New Orleans

From the outset, the design/build team was compelled to design and build a thoroughly

green, i.e. carbon neutralized, building. At the same, this building would be viewed as an example for the future in the design and construction of homeless shelters in the United States. The shelter earned certification in 2010 by the U.S. Green Building Council's (USGBC) Program in Leadership Through Energy Efficient Environmental Design (LEED) at the Silver Level (USGBC, 2010). The LEED certification process itself required an intensive learning curve from all members of the project team. No members of the team had had any prior experience with an actual LEED project that had been built. Despite the myriad obstacles encountered, the effort prevailed. The building's performance—its 32 LEED points—were based on numerous “green” site strategies, materials, and building systems:

- Redevelopment of an historic, inner urban neighborhood.
- Bike rack on-site/close proximity to public transit.
- A sustainable site, i.e. the site did not flood in Hurricane Katrina.
- A geothermal system for the provision of heating and cooling.
- Bamboo flooring/recycled rubber tile flooring.
- Mold and mildew resistant wallboard and related building materials.
- Passive shading and cooling design features, i.e. natural ventilation, operable windows, generous overhangs/sun screens.
- Sustainable site management, i.e. site grading, fencing, materials storage.
- Energy efficient appliances and electrical

system, i.e. kitchen, bathrooms.

- 3-Form panel system as re-locatable room partitions.
- Decay-resistant exterior cladding.
- Low maintenance landscaping/reflective roof surfaces.
- User activated-room HVAC control systems, i.e. smart house technology and low volume plumbing fixtures.

The completed two level shelter is 4,400 square feet, and contains 38 beds, full food service support facilities, a dining room, childrens' activity room, administrative offices, storage, and an apartment. The apartment is occupied by the housemother who resides on-site on a 24/7 basis. Figure 1 illustrates the key site planning and design concepts embedded in the architectural vocabulary of the shelter. The 38 beds are deployed throughout six suites on the second level, with an ADA-compliant suite

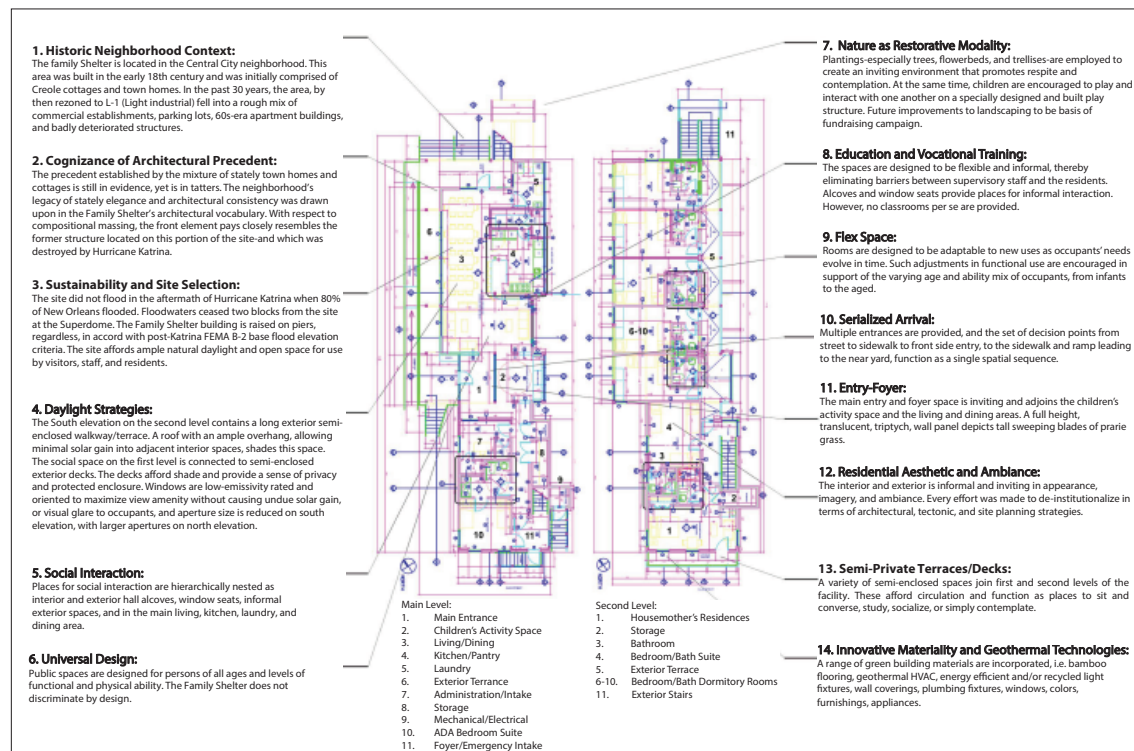


Figure 1: Key Site Planning and Design Concepts (Source: Authors).

provided on the first level. Each bedroom suite contains four to five beds (two bunk beds plus one or two single beds) and is equipped with its own "private" bathroom/shower. The second level suites open onto an open-air terrace that doubles as a space for social interaction among residents. This space contains a seating area and is semi-enclosed. To the rear of the site are a large yard and a side yard that contains a walking path and a garden. The kitchen includes an island and counter seating designed to allow for informal meals. This realm of the shelter also contains a walk-in pantry, stainless steel appliance and counters, tile floors, and track lighting. A laundry room is situated to the rear of facility, adjacent to a commercial-grade kitchen/food prep/pantry. These spaces are adjacent to a rear deck with steps leading to the rear play yard.

Residents are able to stay for up to ninety days. At that point the expectation is for families to relocate to more long term housing in the city as it becomes available. As for the case study itself, many building products were donated to the cause, as it was a case study in sustainable housing. Donors were recognized in all public relations activities during and subsequent to the facility's completion. The New Orleans Mission Family Shelter was first occupied in November of 2007. This case study in sustainable design for the homeless was completed at a total cost of \$1.2 million.

The RRS completed all site prep work, including the demolition of a dilapidated wood frame structure on the site. This work was expedited over a three-week period. This phase consisted of a small-scale archeological dig on the site. The purpose was to identify previous building on the site. It was learned that the first building was

a horse stable. The foundation of this structure was encountered four feet below street grade. At two feet below street grade the remains of a private residence were uncovered. City records research by RRS team members indicated that this structure had been destroyed by fire in 1873. The site recognizance phase of the project occurred over a two-week period of intensive daily activity on the site. This stage of the project is illustrated in Figures 2 and 3.



Figure 2: Site Demolition and Assessment of Building Materials for Re-Use (Source: Authors).



Figure 3: Site Demolition and Materials Re-Use Assessment (Source: Authors).

A project schedule was established and subsequently modified as new issues emerged throughout the project's duration. Construction commenced in the fall of 2005 and work at the project site was expedited to the maximum extent. Any movement forward was considered a significant step given the myriad uncertainties inherent in every construction project at the

time in the hurricane-ravaged city. The design/build team was forced to cope with numerous labor and material shortages, the dramatically escalating costs of building materials, labor costs, skyrocketing insurance costs, and a vast assortment of seemingly insurmountable local regulations and related obstacles. Not surprisingly, this was the only new construction-taking

place in the entire Central City or downtown neighborhoods. Figure 4 and Figure 5 depict the shelter during the framing process. Serialized construction sequence photos were shot from pre-set camera angles over a five-month period in 2005-2006. In addition, the project was beset with periodic weather delays and workstoppage interruptions due to the fact that a total of five different project superintendents were involved across the project's duration. Suffice to say, continuity and even the initial vision of any design/build project is difficult to maintain in such circumstances. These challenges were kept in check, however, due to the aforementioned

weekly meetings of all key representatives of the design/build team—the RRS, the client's funding sponsor (HomeAid), the client (New Orleans Homeless Mission), the A/E firm that served as the Architect of Record (Perez Architects), and the contractor.

From the adjacent Pontchartrain Expressway the structure is viewed within its urban context, and particularly in relation to an adjacent homeless men's dormitory structure (Figure 6). In Figure 6, a pre-Katrina, 16-bed women's shelter is shown. To the right in the Family Shelter is shown, and to the right of the Family Shelter is



Figure 4: Construction 1 (Source: Authors).



Figure 5: Construction 2 (Source: Authors).

the men's shelter and the organization's main administrative and training center. At far right is the aforementioned, historic, St. John the Baptist Catholic Church.

The main arrival is inviting and consists of a staircase and adjoining access ramp. The entire facility is centered on universal design concepts, whereby all features can be readily accessed by children, midlife adults, and the aged, as well as spaces specially suited to persons with physical limitations, including wheelchair restrictiveness. Figure 7 depicts the main entry sequence and the stainless steel exterior handrail system in part

donated by Foms+Surfaces, Inc. It is the first-time installation of this product in New Orleans. The exterior cladding on the first level is fiber composite wood siding; on the second level unpainted (albeit weather treated) corrugated metal cladding references the vocabulary on the exterior of the men's shelter. From the bedrooms, large picture windows afford full views of the CBD and the nearby landmark church to the north of the site. Windows are operable in the bedrooms and in the social-activity areas.



Figure 6: Family Shelter and its Campus Context (Source: Authors).

The dormitory wing is illustrated in Figure 8. The kitchen and laundry room is situated on the main level. Above these spaces is situated the dormitory, consisting of five bedrooms and their bathrooms. The roof is a highly reflective color to minimize solar gain within the building envelope. The glazing on the commercial storefront curtain wall system on the main level is comprised of color tinted low-E tempered glass inset panels, creating a mosaic pattern activated by natural daylight. The corrugated cladding wraps around the second level of the dormitory wing. In order to make maximum use of assignable space, the underside of the stair landing houses trash receptacles and a bike

rack (Figure 8). A commercial grade kitchen is equipped to provide three meals per day for the 16-bed women's shelter next door as well as the 38-bed family shelter (Figure 9). All appliances are high quality stainless steel, with stainless steel countertops and high-grade cabinetry. Donated materials and building components consisted of all appliances, plumbing fixtures, framing wood, exterior frame siding, and landscaping.

The dormitory rooms are equipped with high quality bunk beds and large armoires. The rooms are designed to accommodate multiple bed furnishing layouts as occupancy needs change



Figure 7: Main Arrival Sequence (Source: Authors).



Figure 8: South Elevation of Dormitory Wing (Source: Authors).

(Figure 10). The bedrooms have cathedral ceilings, evoking an increased perception of spaciousness to residents. The students conducted considerable prior research on homeless shelter bedroom configuration options when designing the dormitory spaces, and with respect to all exterior spaces, circulation, social activity spaces, and spaces for personal hygiene.

Post Occupancy Evaluation

At the project's completion a post-occupancy evaluation was conducted to assess the shelter's strengths, limitations, and opportunities for retrofit improvement. Six full time staff personnel, six volunteers, and fifteen residents were interviewed using a pre-set battery of



Figure 9: Family Shelter Kitchen (Source: Authors).

standardized questions presented in a four-page survey questionnaire. Questions on this 4-page survey questionnaire were listed as a series of short response items that followed a lead in statement: "These data were comparatively analyzed vis-à-vis descriptive statistical measures across the two cohorts: the staff respondent cohort (N=12), and the resident respondent cohort (N=15). Due to the relatively



Figure 10: Typical Dormitory Room (Source: Authors).

limited sample size, statistical measures were limited to means and standard deviations.

With respect to strengths identified, residents were highly satisfied with the shelter's aesthetic appearance, its cleanliness, location within the city near to bus routes and its proximity within walking distance of the CBD, the size and layout of the bedrooms and adjoining bathrooms,

the exterior semi-enclosed porches, and the size and appearance of the exterior spaces. Limitations cited in the survey data centered on the need for noise abatement partitions to separate the children's play area from the adjacent living/dayroom areas, the need for improved site security in the shelter's immediate neighborhood environs, crime in the immediate neighborhood, and the need for improved outdoor lighting of the exterior stairways. Accordingly, opportunities for retrofit measures cited by residents in particular centered on the need for improved exterior lighting, better acoustical separation of the children's play zone from the outdoor spaces for adult use, and the need to station a security guard on site during overnight hours and on weekends.

Building in Post-Katrina New Orleans

Despite a long and at times seemingly unattainable road to completion, the project's initial educational and research objectives remained in harmony throughout with those of the local homeless agency and the national NGO sponsor. With this said, even prior to Katrina it had been a serious challenge to build any new building in New Orleans. This was because the city, being very old, therefore had accumulated over the decades (and over 300 years) many preexistent layers of tedious, Byzantine approval processes, oversight agencies, and review committees. This was particularly the case in the city's oldest neighborhoods, including the Central City neighborhood where the shelter was built. On this unflooded site, and considering the rather derelict condition of the immediate neighborhood, the project benefited from a relative lack of NIMBY (not

in my back yard) resistance on the part of the neighborhood. Regardless, even the minutest attempt to accelerate any facet in the building code and inspection approval process required maddening amounts of paperwork and tedious waiting periods for inspection approvals from the local Department of Safety and Permits.

Adding to these delays were complications caused by the contractor, who navigated through a chronic turnover of skilled workers, a lack of prior experience in sustainable architecture and building methods, and difficulty in dealing with the erratic practices of its subcontractors. Collectively, these factors caused the project to require twice as long to complete, and the students' role in the actual construction, especially in the latter stages, became episodic. It had become a greatly modified version of the classic design-build studio model as in aforementioned the Rural Studio. In other words, what would have in "normal" conditions pre-Katrina been a six month construction timetable, with major construction assists from the students, became a nearly fourteen month undertaking. While building "green" remains a challenge anywhere in the U.S. (Sheehan, 2007; Jones, 2007), the situation in New Orleans remains uttering challenging. This struggle was aptly put by the former Mayor of Pittsburgh, Tom Murphy in an essay he authored in the journal *Urban Land* (2007): "Nothing gets built in New Orleans post-Katrina unless it is willed from the ground up." In this case study, the students can take great pride in the fact that it was their design that was built, nearly verbatim—and was subsequently willed from the ground up.

Conclusion

The New Orleans Mission Family Shelter was the first LEED certified building in New Orleans and only 1 of 14 projects statewide that have been certified in Louisiana, at this writing. The project was a collective, collaborative effort of a University-based school of architecture, a partnership with a civic-oriented A/E team, a local not for profit provider of shelter and occupational and life training for the homeless, and a well-known national NGO. Upon its opening there was a two-year waiting list of mothers-with-children in “exile” who urgently sought to return to the city.

The difficulty in constructing this homeless shelter was matched only by the urgent need for housing of this type in a city that is painfully rebuilding from the most costly disaster in U.S. history (Goedert, 2008). New Orleans’ social and racial woes became an open book of sorts for the entire world to witness. At \$48 billion and running, the effects of Hurricane Katrina will be felt for decades. It was at once a wake up call to the profound effects of global warming, of the importance of protecting America’s disappearing Mississippi Delta wetlands, on the social and racial inequities, which persist in America, and on the importance of rebuilding one of America’s most extraordinary cities.

The project team, under the direction of the first author, received the national Collaborative Practice Award from the Association of Collegiate Schools of Architecture in 2008 (ACSA, 2008). Case studies such as this can inspire schools of architecture, in alliance with local chapters of national professional organizations such as the American Institute

of Architects (AIA). It was the students who first visualized LEED certification: their initiative, enthusiasm, and perseverance drove the entire project. In retrospect, frankly, many colleagues and observers saw the team’s goal of LEED Silver Certification as unattainable, a folly, even without the added obstacles created by the largest urban catastrophe in American history. On a cautionary note, it was good, in retrospect, to set such a high goal but it placed excessive pressure on the project team once the wheels were in motion. The combination of diverse organizations and their individual agendas and balkanized internal politics nearly doomed the project more than once. Regardless, the public and the private sectors must continue to search for ways to effectively work together to fund and construct affordable housing in a manner that promotes human dignity, opportunity, and self-empowerment. In this sense, this case study has furthered the track record—and therefore the argument for—further architecturally based social engagement on the part of the schools. This goal was at the center of the aforementioned report on architectural education in North America authored by Boyer and Mitgang more than a decade earlier (1996).³

Homelessness remains an international concern (Laurence, 2007). Samuel Mockbee’s assertion that “the (American) architectural profession has an ethical responsibility to help improve living conditions for the poor” certainly rings true in the case of post-Katrina New Orleans, where the deplorable living conditions of the city’s poor were exposed to the world. The New Orleans-based activist organization ACORN has made it its mission to expose and assist in its grassroots community work in the Lower Ninth Ward and in other devastated neighborhoods

the underlying class and race-based inequities exposed by Katrina (James, et al., 2007).

This has been further highlighted by the work of the Make it Right Foundation. Actor Brad Pitt founded this NGO in 2006 to counter the inactivity he witnessed firsthand in post-Katrina New Orleans. His efforts have been focused on the city's devastated Lower Ninth Ward (Verderber, 2010). As of this writing, twenty houses have been completed. Many of these dwellings have received or are in the process of earning LEED certification by the USGBC. Meanwhile, day-to-day life for the city's burgeoning homeless population continues to worsen (Goldberg, 2006; Philbin, 2007). 4 In the end, the public and private sectors can accomplish much by working together collaboratively to marshal time, expertise, and resources. The need continues to exist for affordable housing partnerships in the coming decade as New Orleans and other communities along the ravaged U.S. Gulf Coast continue to rebuild.

Notes

1. In 2005 this author was approached by the Board of Directors of the New Orleans Homeless Mission to assess the feasibility of building a homeless shelter for women and their children on its campus in the Central City neighborhood. Because of Katrina, communications were abruptly halted. In Katrina's aftermath the aforementioned project team members became scattered across the U.S.

2. The New Orleans Mission Family Shelter earned the Silver rating (LEED NC 2.2). The Global Green Holy Cross Neighborhood Revitalization Plan was the first to earn a Silver rating (LEED ND 1.0). It was not for a building, however, as it consisted of a master plan. Available online. See <http://www.usgbc.org/LEED/Project/Certified/ProjectList.aspx.html> (accessed 25

October 2010).

3. Service-focused organizations with ties to academia include Architects/Planners/Designers for Social Responsibility, Architects Without Borders, Architecture for Humanity, Association for Community Design, Design Corps, Habitat for Humanity International, Public Architecture, and Rebuilding Together. Post-graduate service fellowships are available through Americorps, Blue Moon Urban Fellowship, Peace Corps, and the Rose Architectural Fellowship Program.

4. Federal programs initiated in the aftermath of Katrina and Rita included the U.S. Department of Housing and Urban Development's (HUD) Universities Rebuilding America Partnership (URAP), and the Community Outreach Partnerships Centers Program (COPC).

References

- Association of Collegiate Schools of Architecture (2008). New Orleans mission family shelter. Architectural Education Awards, 2007-2008. Washington, D.C.: ACSA, 26-28.
- Bell, B. (Ed.). (2003). Good deeds, good design: Community service through architecture. New York: Princeton Architectural Press.
- Boyer, E., & Mitgang, L. (1996). Building community: A new future for architectural education and practice. Princeton, NJ: Princeton University Press.
- Campanella, R. (2006). Geographies of New Orleans: Urban fabrics before the storm. Lafayette: The Center for Louisiana Studies.
- Campbell, S. (2005). Architecture students design and build homeless shelters. MIT Tech Talk, 50(4), 4.
- Davis, S. (2004). Designing for the homeless: Architecture that works. Berkeley: University of California Press.
- Dean, A. O., Chua, L., Robinson, C. & Hursley, T.

(2002). Rural studio: Samuel Mockbee and an architecture of decency. New York: John Wiley.

Goedert, J. (2008). Rebuilding New Orleans With affordable, hurricane-resistant residential construction. *Cityscape: A Journal of Policy Development and Research*, 10(3), 167-183.

Goldberg, M. (2006). Homeless again in New Orleans. Retrieved on 15 December 2006 from <http://www.salon.com/news/feature/2006>

Goldhagen, S. W. (2003). Our degraded public realm: The multiple failures of architecture education. *Chronicle of Higher Education*, 10 January 2003, 5.

Hales, L. (2005). Blueprint for building a better world. *The Washington Post*, 6 August 2005, C01.

Hueter, J. (2005). UA students design, build reception area for homeless shelter in Fayetteville. *University of Arkansas Daily Headlines*, 10 August 2005, Retrieved on 15 September 2006 <http://www.dailyheadlines.uark.edu>

Ivy, R. (2005). It's in the air. *Architectural Record*, 96 (5), 2.

James, R. et al. (2007). What lies beneath: Katrina, race, and the state of the nation. Oakland, CA: South End/AK Press.

Jones, N. (2007). Low income housing development wins environmental award: Shows green building can be affordable. *Green Progress*, 19 April 2007, Retrieved on 10 May 2007 <http://www.greenprogress.com>

Kellett, P. (2006). Homes of the homeless. *Newcastle University Newslink*, 1 February 2006, Retrieved on 15 August 2006 <http://www.ncl.ac.uk>

Laurence, R. (2007). Kyohei Sakaguchi: Zero zen house. *Straight*, 10 April 2007, Retrieved on 15 May 2007 <http://www.straight.com>

Nossiter, A. (2006). As life returns to New Orleans, so does crime. *The New York Times*, 30 March 2006, A6.
Palleroni, S., & Merkelbach, C. (2004). Studio at large:

Architecture in service of global communities. Seattle: University of Washington Press.

Peters, T. (2007). New Orleans: Where are the leaders? *Urban Land*, 22(2), 47.

Philbin, W. (2007). Homeless man dies in Duncan plaza encampment. *The Times-Picayune*, 9 November 2007, B2.

Rockhill, D. (2010). Studio 804s Prescott passive house earns LEED platinum. *KU news*, Retrieved on 25 October 2010 <http://www.news.ku.edu/2010/september/14/passivehouse.shtml>

Schein, R. (Ed.). (2006). *Landscape and race in the United States*. London and New York: Routledge.

Sheehan, K. (2007). LEED certified multifamily complex to house formerly homeless. *Multi-Housing News*, 1 October 2007, Retrieved on 14 October 2007 <http://www.multihousingnews.com>

Sibley, D. (1995). *Geographies of exclusion*. New York: Routledge.

Silverstein, E. (2007). PHEWA launches initiative to revitalize dangerous New Orleans neighborhood. *Presbyterian News Service*, 21 August 2007, Retrieved on 10 September 2007 <http://www.wfn.org>

Sinclair, C., & Stohr, K. (2006). Design like you give a damn: Architectural responses to humanitarian crises. New York: Metropolis Books.

Sturgis, S. (2006). Lack of shelter imperils New Orleans homeless. *Facing South*, 20 November 2006, Retrieved 15 December 2006 <http://www.southernstudies.org>

United States Green Building Council (2007). LEED for homes. Washington, D.C.: U.S.G.B.C. Retrieved on 1 November 2007 <http://www.usgbc.org/overview>

United States Green Building Council (2009). Duke University smart home program. Retrieved on 25 October 2010 <http://www.usgbc.org/Display/Page.aspx?cmsPageID=889.html>

Verderber, S. (2003). Compassionism and the design studio in the aftermath of 9/11. *Journal of Architectural Education*, 56(2), 48-62.

Verderber, S. (2005). Compassion in architecture: Evidence-based design for health in Louisiana. Lafayette: The Center for Louisiana Studies.

Verderber, S. (2008). Emergency housing in the aftermath of Hurricane Katrina: An assessment of the FEMA travel trailer program. *Journal of Housing and the Built Environment*, 23(4), 367-381.

Verderber, S. (2009). *Delirious New Orleans: Manifesto for an extraordinary American city*. Austin: University of Texas Press.

Verderber, S. (2009) The unbuilding of historic neighborhoods in post-Katrina New Orleans. *Journal of Urban Design*, 14(93), 257-277.

Verderber, S. (2010). Five years after: Three New Orleans neighborhoods. *Journal of Architectural Education*, 64(1), 107-120.

Stephen Verderber

*Stephen Verderber, Arch.D., is Professor of Architecture, and Adjunct Professor of Public Health Sciences at Clemson University, USA. He is a Registered Architect in the U.S. and a principal of R-2ARCH. His work focuses on the discipline and practice of architecture for health. He holds a doctorate in architecture and environmental psychology from the University of Michigan. He has authored more than seventy-five peer reviewed professional and scholarly publications, received numerous national awards, served as a research-based design principal investigator, and has authored five books, including *Delirious New Orleans: Manifesto for an Extraordinary American City* (2009), and *Innovations in Hospital Architecture* (2010). Dr. Verderber has lectured and written extensively on architecture for health, evidence-based design, post-*

disaster urban reconstruction, and the rebuilding of New Orleans. He can be contacted at sverder@clemson.edu.

Breeze Glazer

Breeze Glazer, M.Arch., is a member of the healthcare design studio at Perkins+Will Architects and Planners, New York City. His work focuses on sustainable planning and design strategies for the firm's global work in the realm of architecture and health, spanning from the scale of master planning to highly specialized housing and healthcare typologies. He is a member of the New York Chapter of the American Institute of Architects, and he holds a Master of Architecture degree from Tulane University, New Orleans, USA. He can be contacted at Breeze.Glazer@perkinswill.com.

Rodney Dionisio

Rodney Dionisio, M.Arch., is principal of Dionisio and Associates, Architects, New Orleans, USA. He specializes in sustainable housing, urban design, and grassroots community advocacy in post-Hurricane Katrina New Orleans. Since Katrina in 2005, he has been active at the neighborhood and citywide level on behalf of homeless and politically underrepresented citizens. He previously was with Perez Architects, LLC, in New Orleans. He holds a Master of Architecture degree from Tulane University. He co-taught a design/build studio at Tulane in 2004-2005. He can be contacted at Rodney.Dionisio@gmail.com.