

# CORE HOUSES



Projects of the Rice Building Workshop  
In Collaboration with Project Row Houses

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Editors: Danny Samuels & Nonya Grenader

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## AT THE CORE

When you deal with really old buildings, such as the ones you find in Houston's Third Ward, building owners, if they had their druthers would choose to bulldoze – after all everything must change – even if the structure is still fine but everything else is a bit worn and frequently broken or poorly jerryed to work a bit longer. When buildings of this type appear on the 'drawing boards' at the Rice Building Workshop (RBW) the attitude is radically different and the bulldozer is nowhere to be seen. The two directors Danny Samuels and Nonya Grenader and architecture students of RBW practice what economist Kenneth Boulding theorized. As H. Jarrett, editor of *Environmental Quality in a Growing Economy*, writes:

*Boulding suggested that the current "cowboy" economy, defined by the wasteful use of nonrenewable resources, must ultimately be replaced by a "spaceship" economy powered by renewable energy and characterized by efficient recycling of materials.*

Kenneth Boulding's book *The Image: Knowledge in Life and Society* (1956) supplied my first opening to open systems. Clearly the Third Ward is one such system. Here matter, energy and information circulate to general consternation. The spaceship metaphor is not prevalent while the work of RBW is beginning to

slip this type of circularity into the general conversation – not in words but in deeds. Writing about the two economies in a short text of 1966 Boulding notes:

*All human societies have ... been open systems. They receive inputs from the earth, the atmosphere, and the waters, and they give outputs into these reservoirs; they also produce inputs internally in the shape of babies and outputs in the shape of corpses. Given a capacity to draw upon inputs and to get rid of outputs, an open system of this kind can persist indefinitely.*

Buildings have a peculiarly demonstrative power since “we see objects passing from the noneconomic into the economic set in the process of production, and we similarly see products passing out of the economic set as their value becomes zero.” This is particularly true when RBW is presented with a derelict Shotgun House, still standing but barely blinking in the rude light of urban economics in whose perspective its value is zero (while the land still holds some promise).

The first time I encountered the Shotgun House was in John Michael Vlach's superb *Back of the Big House: The Architecture of Plantation Slavery*. Here he suggests that the roots of the long narrow house, consisting of an enfilade of rooms, probably stems from West Africa. Maybe most interestingly this array of interconnected rooms may have an effect on the life of its inhabitants now being rediscovered in the modern loft – the concerted attack on compartmentalization and an appeal to communality, both of which may have strengthened the resilience of the slaves in their quite successful attempts to build a secret world in the back of the big house. While it is not wise for us to forget, obviously there is absolutely no reason to have any nostalgia for those sad days. Thus the bulldozer solution may be the best way to erase any physical reference to this sordid history, unless we see a new

life possible in the loft-like qualities of those old houses. If you combine this recognition of qualities, a bit of respect for the social powers of the old enfilade now awakened by a modern life style, you have RBW's mission in a nutshell.

The formation of this attitude began when we first chose to work in and around Project Row House, clearly inspired by its director Rick Lowe. The old southern building culture manifested in the first row of shotguns has a peculiarly mesmerizing draw on us, not just in the simple organization of each house, but in the regimented agglomeration of a series of houses, their stoic whiteness, the suggestive porches and their peculiar solitude. The rest is history, yet looking back over the production of RBW we can but admire the directors' enthusiasm, the students' commitment, the support by Rice University and the cooperation with Rick Lowe and his team.

In the case of RBW the challenge is taken in great modesty – much is left to do. The venerable Dr. Boulding eloquently summarizes the task at hand, already in 1966 – fifty years ago. But it is also a challenge of enormous complexity. Buildings play a significant role in this economy.

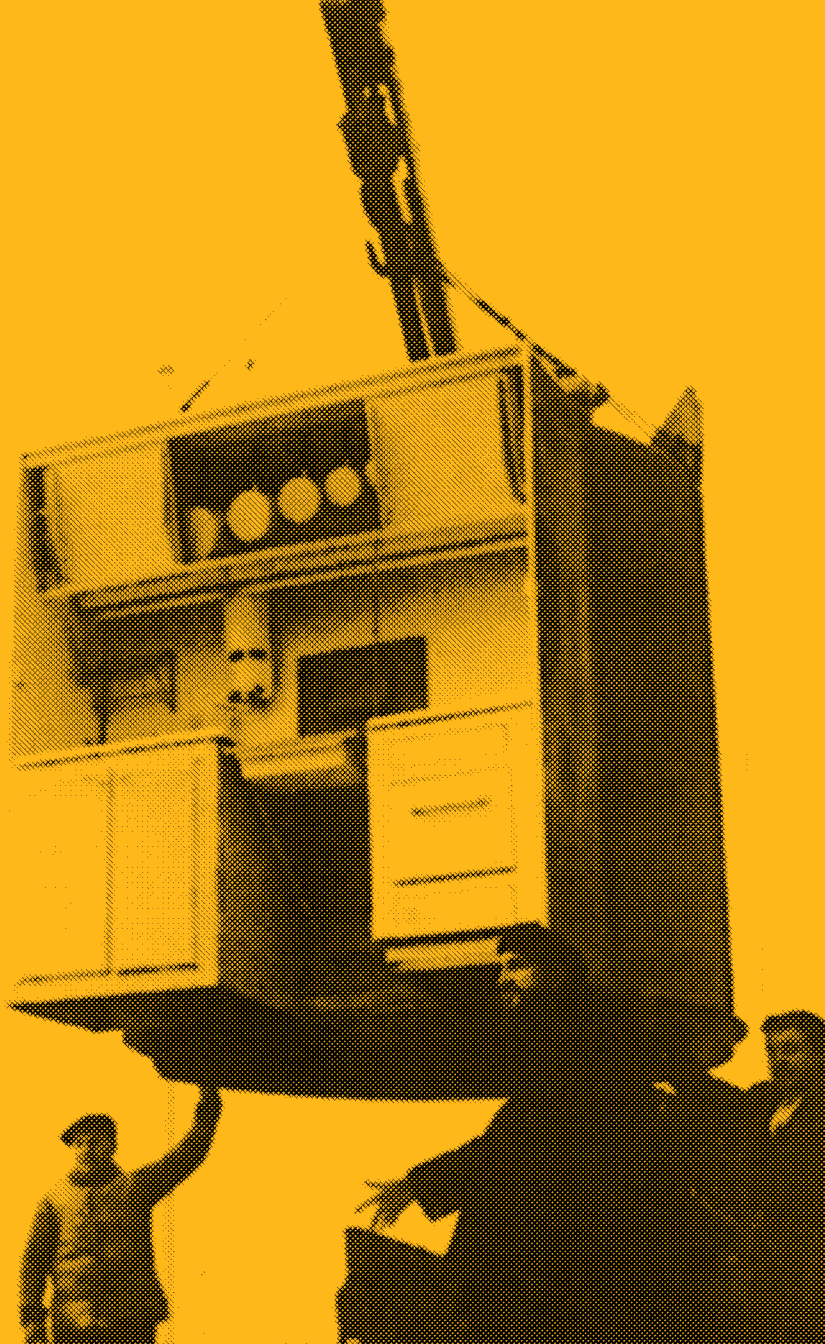
*Agriculture, a few solar machines, and waterpower use the current available energy income [directly from the sun]. In advanced societies this is supplemented very extensively by the use of fossil fuels, which represent as it were a capital stock of stored-up sunshine. Because of this capital stock of energy, we have been able to maintain an energy input into the system, particularly over the last two centuries, much larger than we would have been able to do with existing techniques if we had to rely on the current input of available energy from the sun or the earth itself. This supplementary input, however, is by its very nature exhaustible.*

But just as the purported butterfly with its modest flutter, tsunamis may result. Thus when RBW reams an old shotgun to get “at the core,” to remove it and replace it with a new shining one – poking through the outer wall to remind us – this too may have climatic effects in the building culture of the city, not exactly known for its reverence for the past. Having served as the butterfly for the RBW I look in amazement at the fleet of space vehicles set down in the old ward...

— Lars Lerup

Harry K. and Albert K. Smith Professor in Architecture  
Dean Emeritus, Rice School of Architecture





## CORE HOUSES

Projects by the Rice Building Workshop (RBW)

In a 1938 *Architectural Forum* article, Frank Lloyd Wright observed, "Notwithstanding all efforts to improve the product, the American small house is still a pressing, needy, hungry, confused issue." He was developing his Usonian houses in response to the challenges of affordability and material shortages following the Depression. Seventy five years later, the urgent need for affordable and innovative housing remains, and architects continue to be challenged by it. The aspiration to make houses that are attainable at a lower cost has often led to dreams of mass production and prefabrication. If only, the thinking goes, less expensive means of producing houses were available, the dream of home ownership could be extended to many more.

And there have been many noble experiments along the way, some quite successful. Sears, Roebuck and Company sold Sears Modern Homes by mail order from their catalog, kits of pre-cut wood parts shipped by rail to be assembled by owners or their contractors. From 1908 through 1940, 70,000 such homes were sold in 370 permutations, offering the modern technologies of electricity, heating, and indoor plumbing. Many can still be found in towns throughout the midwest, now neatly blended into their neighborhoods.

After World War II, with lessons learned by building military structures all over the world, developers, anticipating the needs of young families, built repetitive small houses on new land outside cities and towns, supported by new automobile and utility infrastructures. The land itself became the field of mass production, with specialized crews moving sequentially down the line. Beginning in 1947, Levitt & Sons built houses at 60' intervals across miles of newly developed Levittowns, to be sold for less than \$10,000, and by 1968, had sold more than 140,000. The Levitts prided themselves on providing state of the art appliances contained in their "9-foot wonder kitchen," as noted prominently in their advertising materials. In the early Levittown models, the kitchen and bathroom were discrete and closed spaces and employed a common plumbing wall which offered both spatial and cost efficiencies. These homes became the model for mass production of low-cost houses all across the country, and remains so to this day.

There have also been aspirations to build houses on factory production lines, and to deliver them completely finished to the site. The mobile and modular home industry responded to the post-war impulse for suburbanization and automobility, but since their products were limited to highway transport with a 14' wide and high roadway envelope, and a practical shipping radius of 250 miles, the resulting sizes and arrangements were somewhat limited. These house types, which continue to be produced in large numbers today, are built of light wood frame construction on a steel chassis, with detachable wheels. As often seen on the nightly news, these structures are vulnerable to high wind conditions, and are discouraged from placement in cities by code requirements that considerably increase their cost.

Architects, too, have dreamed of houses made affordable by mass production and prefabrication. Typically, they have tended to think of the house as a complete system of structure,

enclosure, and sometimes, technical support systems. R. Buckminster Fuller worked on various iterations of the Dymaxion house during 1928–1930, and again in 1945. The Dymaxion was site-assembled from a kit of aluminum parts, suspended from a central steel mast, in a circumferential arrangement. A prefabricated toilet unit, using water-conserving strategies, was a component of Dymaxion, which Fuller later worked on as an independent unit. Sigfried Giedeon in *Mechanization Takes Command* (1948), hailed Fuller's 'mechanical nucleus' as the single most effective contribution of the machine age to the problem of mass housing.

Jean Prouvé designed prototypes in Paris for housing advocate Abbé Pierre in 1955–56. These, as in many of Prouvé's earlier investigations, were sophisticated constructional systems, and included a very compact kitchen and bathroom core unit. Construction photographs show the core being lifted into place with pots and pans hanging at the kitchen cabinets, and standing alone on the floor, awaiting the rest of the structure, which quickly ensued.

At the same time in the U.S., a similar post-war optimism brought inventive solutions to the housing challenge, informing the *Art and Architecture* case-study houses, Strandlund's Lustron all steel houses, Wachsmann's General Panel System, and other efforts. In particular, the Eames House was built from integrated industrial component systems which, according to folklore, were re-arranged on the site during construction. The Eames experimented with manufactured housing systems, but these were not produced.

The federal government also got into the act. Operation Breakthrough was an optimistic 1970s effort of Nixon's HUD to promote the industrialization of affordable housing. Under federal grants, architects and builders looked for the amazing



new material, joint, procedure, or design that would revolutionize the process. Concrete systems, component systems, box systems, on-site and factory systems were conceived and tried. Within a few years, the effort collapsed, with no lasting effects. Trying again in 1998, Clinton's HUD sponsored the Partnership for Advancing Technology in Housing, bringing together manufacturers, builders, code officials, research sponsors, and government agencies to co-ordinate research and development investments. The goals were lofty: reduce monthly housing cost by 20%; cut energy use and environmental impact by 50 percent; improve durability and reduce maintenance costs by 50%. But within two years, the PATH Committee of Oversight and Assessment was able to point out the impossibility of reaching these ambitious goals. Reducing housing costs by 20% solely through new technologies was nearly impossible, noted the committee; since less than half of monthly housing costs are related to construction, construction costs would have to be cut in half.

Dreams of prefabrication continue today. *Dwell* magazine has promoted a market for architect-designed prefabricated houses, with many clever variations on the theme of high-style delivered to your remote site, at a price. IKEA, the Swedish company that has brought modern furniture to the mass market with global manufacture and distribution in the form of flat-pack kits, has also developed prototypes for prefabricated kit houses, recalling Sears Modern Homes.

But none of these efforts to develop new systems of construction has supplanted the old wood frame system, which has proved to be an evolutionary survivor, and has continued to adapt well to the American building environment. If you look at an 1890 photograph of a western boom town under construction, or *Architectural Graphic Standards* from the 1930s, you will see fundamentally the same system still used today. It is strong,

light-weight, low-cost, readily available, generally understood, and easily erected by a small crew with minimal training. If periodically maintained and protected from water, fire, and termites, it is indefinitely durable and sustainable. Over its history, numerous refinements have been introduced: slab on grade, plywood decking and sheathing, engineered trusses and beams, fast grow lumber, metal connectors, high-strength adhesives, aluminum windows, more efficient insulation, and on and on. These advances, along with its inherent advantages, have allowed the wood frame system to dominate the U.S. marketplace for housing.



*Shotguns*, John Biggers, 1987

Our own experiences in the Rice Building Workshop (RBW) have recapitulated the evolutionary history of affordable houses. We started with the powerful influence of the shotgun houses that we found at Project Row Houses, as rediscovered and re-imagined by the artists John Biggers and his student Rick Lowe. These houses

were small, repetitive, and readily constructed by methods that anticipated the suburban production builders of fifty years later. Most importantly, as celebrated in Biggers' paintings, the modest shotgun houses engendered rich family and neighborhood life, enhanced by the relationship of the house and porch to streets and back yards. The simple form, repeated down the streets, made an urban and social whole that was greater than all its parts.

RBW students, inspired and challenged by the example of Project Row Houses, embarked in 1996 on a series of experiments in affordable housing strategies. Before small houses became so prevalent in the press, our first insight was that smaller houses would naturally be more affordable. We designed and built the Six-Square House, 900 square feet and two stories, assembled from wood frame panels that were fabricated off-site. We found that the building frame and envelope went up very quickly, but mechanical, electrical, and mechanical systems, and interior finish-out took much longer.

In developing a sustainable footprint, if small was good, smaller would be better. The XS HOUSE was a modern re-interpretation of the shotgun house, with porches, pitched roof, and openings along an axis. The core makes its first appearance: though XS is constructed with conventional wood frame methods and materials, the technical support elements are grouped into a translucent core, and disposed along a thickened west wall.

At the same time, we realized that the small shotgun house was itself a model of sustainability. In NEW CORE/OLD HOUSE we investigated the use of this older housing stock that would be viable except that its essential services (kitchen, bathroom, mechanical items) were extremely outdated. We designed a new core, and built it in place, delivering modern conveniences to an existing 496 square feet shotgun house. The square core is a piece of furniture, with each millwork face responding to

different domestic uses: living, sleeping, cooking and dressing. The renovation was seen not only as a single solution for this particular house, but as a strategy for updating the many typical shotgun-style houses in the neighborhood.

This idea of a compact, yet well outfitted core became a focus when we were accepted into the 2009 Department of Energy's Solar Decathlon. The goal with ZEROW HOUSE was to pair solar technologies and sustainable strategies with affordability. Additionally, we wanted the house to return to Houston's Third Ward to become part of Project Row Houses, and so the shotgun-style, or row house plan, inspired the layout. The house is organized around two cores: a wet core and a light core. The wet core contains all engineered systems associated with solar water and energy in a compact 8'x10' area. The light core serves as the primary source for day lighting as well as an outdoor extension of interior living space. The shotgun-style view, with an alignment of doors through the house, visually connects public, private, and outdoor spaces.

Since the house was to be transported from Houston to Washington to participate in the Solar Decathlon competition, its design, construction, and logistics raise many issues similar to those found in prefabricated and modular houses. Like a modular house, it is constructed of wood frame on a steel chassis, to be transported with roadway clearances, and placed on foundations. After traveling 3,000 miles on the highway, and four crane lifts, the ZEROW HOUSE returned to the Third Ward, where it has been a home for visiting artists at Project Row Houses. The house's price tag was less than half the cost of the next most affordable house on the National Mall, and in a year-long evaluation, we determined that it met our goal of net-zero energy use.

Finally, after devoting years of design and construction research and development for low cost houses, our findings led to the

surprising conclusion that innovation might now be directed not so much toward the structural and enclosure systems, which have otherwise evolved to a high degree in the marketplace, but to the numerous support systems – electrical, plumbing, HVAC – and fixtures and cabinetworks, which entail the greatest investments of labor and time on any job-site. MODPOD is a pre-fabricated residential core that consolidates major trade-dependent systems and finishes into a single deliverable unit that may be used in new construction or retro-fitted into an existing structure.

In our initial demonstration-of-concept, the MODPOD was designed to be inserted into an existing shotgun house. It consists of and provides the old shell with a new small bathroom, a kitchen, cabinets along two outside wall surfaces, and spaces for an air handler, water heater, and electrical panel. The ModPod intentionally uses conventional technical systems that will be familiar to builders, though solar PV and water heater systems can be accommodated. The 8'-6" x 12'-0" unit was built off-site, as a unit complete with all equipment, fixtures, finishes, cabinets and pots and pans. It was then transported and inserted into an opening pre-cut into the side of the existing house, in a process that took about three hours. The electrical, mechanical, and plumbing systems were coupled to on-site services and branched out to the rest of the residence.

This core delivery investigation will continue into the future, with many other variations to be developed. In other older neighborhoods, where kitchen, bath, and mechanical core systems are in need of significant repair, MODPOD could be installed in a more comprehensive way, with its subtle but visible addition announcing change within the fabric of existing houses.

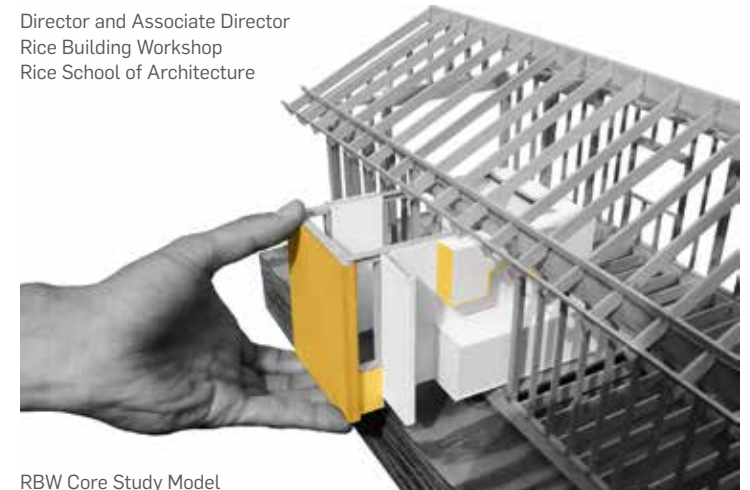
Most importantly, a parallel strategy needs to be developed for new construction, allowing core units to be placed on a slab, acting as structural elements for the framing, and providing

weather protection and jobsite security. As demonstrated by Buckminster Fuller and others, the core's ability to act as a structural, organizational, and protective element has seductive potential to make modern housing more attainable. Larger houses may require separate and differentiated cores, containing various combinations of kitchen, powder room, laundry room, utility closet, and different bathroom configurations. Multi-family structures can have stacked core units, again acting as structural anchors to a framed structure.

Though the new American house grows ever larger, the small dwelling continues to capture our domestic imagination and challenge our design instincts. Whether because of a tight budget, a confined site, a need to build quickly, environmental concerns, or a desire for simplicity, the small house has endured as a distinguished, if humble, form of shelter. If the small house is a dwelling reduced to its essentials, then ingenuity and economy must begin at the core.

— Danny Samuels FAIA & Nonya Grenader FAIA

Director and Associate Director  
Rice Building Workshop  
Rice School of Architecture



RBW Core Study Model



**1.  
EXTRA-SMALL  
(XS) HOUSE  
2003**



**2.  
NEW CORE /  
OLD HOUSE  
2006**

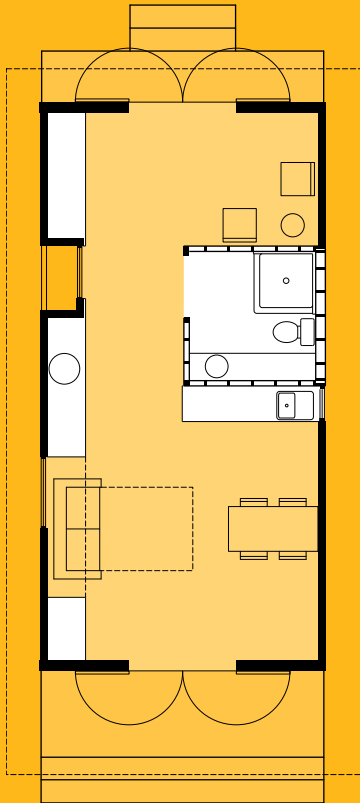


**3.  
ZEROW HOUSE  
2009**



**4.  
MODPOD  
2013**





## EXTRA-SMALL (XS) HOUSE

Completed 2003

In Houston's Third Ward community, many original shotgun-style houses were being torn down and their residents displaced. RBW focused on a segment of the housing market that is often neglected – an extra-small house for one or two people.

The challenge was to design and build a dwelling of modest size (500 square feet) with a small projected budget (\$25,000), while implementing innovative design and construction techniques.

The house is a modern interpretation of the shotgun-style row house, whose features – generous porches, deep overhangs, and aligned openings for greater cross-ventilation – are rendered using modern construction methods and materials. A thickened wall gives additional insulation from the western sun exposure and provides the house with ample space for storage and services. An adjustable footing/foundation system lifts the building off the ground. Cement fiber board walls and metal windows are used in place of wood in order to minimize maintenance and upkeep. The core of the house, which contains the bathroom and accommodates the kitchen along its outer edge, is wrapped in translucent polycarbonate, which distributes light throughout the structure. Porches offer places for gathering, and extend the interior areas into the surrounding community.





XS sections and elevations



XS in context



XS construction



Above: XS exterior; Pages 28–31: XS interior







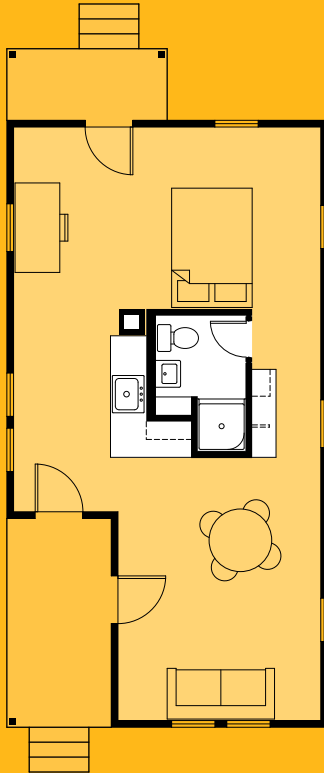


Above: XS exterior – left: Eugene Howard “Brother-In-Law”  
 right: Cleveland Turner “Flower Man”  
 Previous spread: XS interior

*Working on the XS House offered many rewarding experiences. Rice Building Workshop allowed me to work with materials ‘in the real’ and ‘in full scale.’ Not a representation model or drawings, not a mock-up, but what we are trained to ask others to build for us. This process also exposes you to the life of a contractor. You become much more appreciative of what their role is in this relationship. The coordination and choreography of a build-out is a real art that is often overlooked. However, the most rewarding aspect of this project was being involved with the community. It has inspired me to seek future opportunities that will connect both my profession and community involvement. Finally, it has reminded me that my role as an architect is much richer than simply designing projects.*

— Christopher Mechaley, (class of 2004)  
 Interview for *Texas Architect Magazine*, 2005





## NEW CORE / OLD HOUSE

Completed 2006

At Project Row Houses and in the surrounding neighborhood, many shotgun-style houses were solid in structure but had been neglected, their interiors compromised or gutted. With NEW CORE / OLD HOUSE, RBW had the goal of providing modern conveniences by inserting a new core (kitchen, bath, storage, and mechanical systems) into one of the original row houses. Placing the core centrally in the existing 496-square-foot house created public and private zones.

The original markings of former walls on floor and ceiling surfaces were preserved, recalling past inhabitants and their uses. In addition to designing and building the core, the students also fabricated millwork and furniture using remnants from a local woodworking company.

Today, Core House is used by Project Row Houses for their artists in residence program, but in a broader sense, serves as a prototype for the re-use of numerous existing structures through careful intervention in the form of affordable renovation that extends the life of the house.



Existing Row House



Row House before



New Core construction



Above: New Core construction; Next: New Core completed







Top: living; Bottom: sleeping



Kitchen

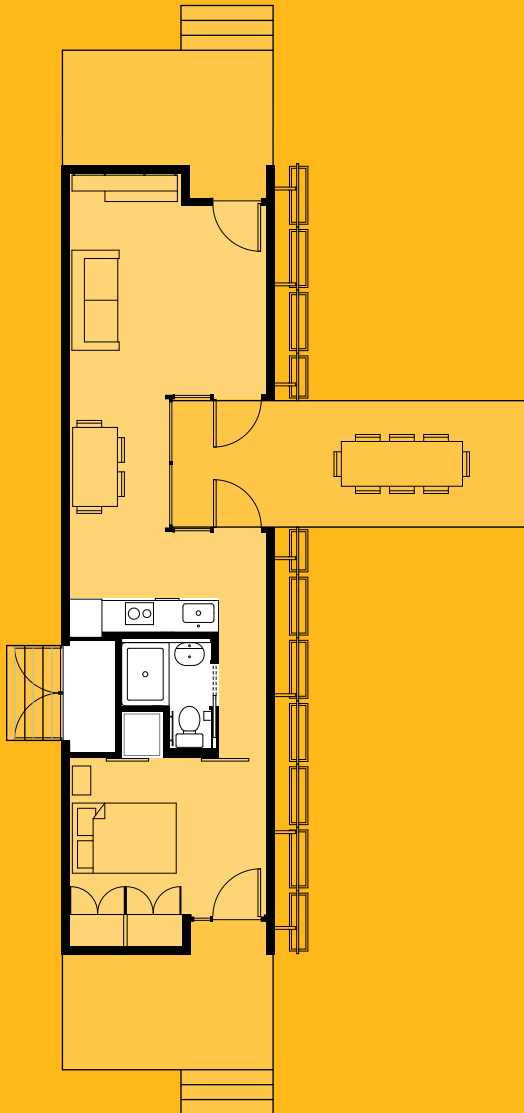




Project Row Houses – Rick Lowe (center) with Danny Samuels and Nonya Grenader

*Of the many collaborations that Project Row Houses has engaged in, the partnership with the Rice Building Workshop has been the most meaningful to our understanding of how to extend the essence of the aged shotgun structure into modern architecture. ...[It] allows us to look deeper into the value and meaning of the design of shotgun houses and communities.*

— Rick Lowe, Founder, Project Row Houses



## ZE-ROW HOUSE

Completed 2009, Washington DC, Solar Decathlon  
Installed 2010, Project Row Houses, Houston TX

The ZeRow house had a two-fold program: it would be designed and built by students for competition in the Department of Energy's Solar Decathlon in Washington DC, and then return to Houston's Third Ward to become part of a vital community of small row houses.

The design of the ZeRow house adopts the shotgun-style row house typology as a primary precedent. The house is organized around two cores: a wet core and a light core. The wet core contains all engineered systems associated with water and energy in a compact 8'x10' area. The light core serves as the primary source for day lighting as well as an outdoor extension of interior living space. With 520 square feet of conditioned space and a 700 square feet overall footprint, the house comfortably provides efficient space for two people. The wood frame sits atop a steel chassis with foundation footings that are located at six points and may be adjusted in response to various sites. Solar panels and a solar hot water system provide energy to run the HVAC, appliances, lighting, as well as hot water for the bathroom, kitchen, and laundry.

The house was viewed on exhibit by over one hundred thousand people and is now an affordable home for a Houston resident.



Top: ZeRow construction; Bottom: Zerow construction



ZeRow construction





Above: project team (partial)

Opposite top: solar array; Opposite bottom: green wall



ZeRow arriving In Washington DC



Above: ZeRow in Washington DC  
Next: Solar Village in Washington DC (*Zero House, top row third from right*)







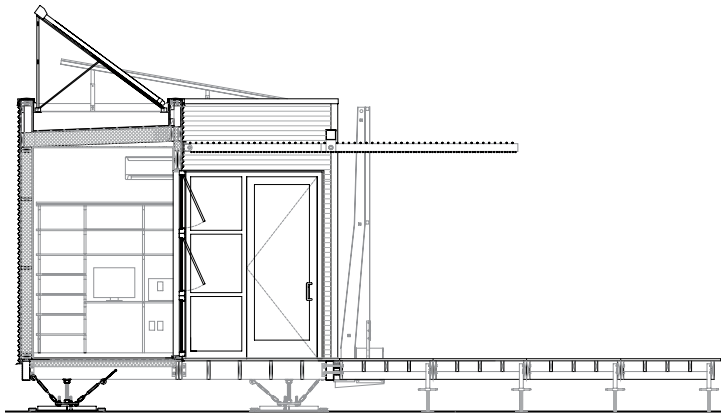
ZeRow on exhibit  
David Dewane (foreground)



*The ZeRow House team delivered a project that sets a remarkable standard for affordability while still meeting the challenge of net zero in a hot humid climate – it is restrained but impressive with a very sincere focus on economics.*

— Dept. of Energy, Solar Decathlon 2009 jury





Above: Zerow section; Opposite: light core





Above: ZeRow green wall elevation  
Opposite: light core, interior







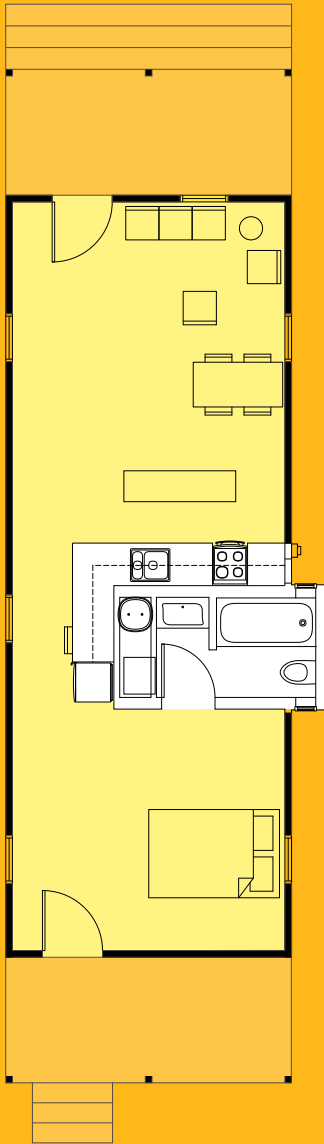


Above: ZeRow installed at Project Row Houses  
Opposite: ZeRow's first resident



*Cities enable you to experience layers of history as they are being made. Communities are never static; architecture in particular expresses the time in which it was made and I think the house will be a very inspiring place to live and work.*

— Steffani Jemison (on moving into the ZeRow House)

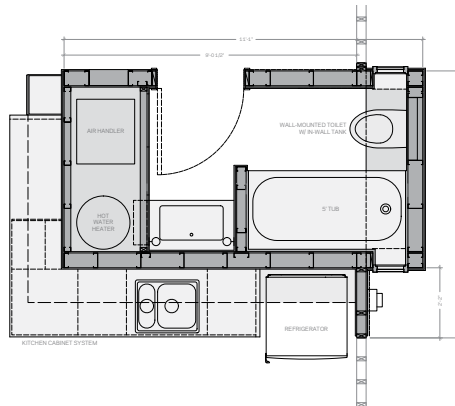
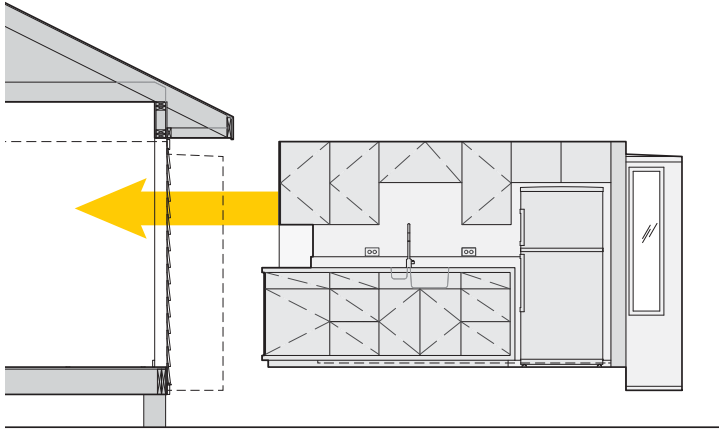


## MODPOD

Completed 2012, Project Row Houses, Houston TX

After implementing the core in various prototypes, RBW research led to the ModPod – a pre-fabricated residential core that consolidates major trade-dependent systems and finishes into a single deliverable unit that may be used in new construction or retro-fitted into an existing structure. While the ModPod has an array of general applications, a “proof of concept” was constructed and inserted into an existing home at Project Row Houses.

ModPod was assembled off-site; upon delivery, it was inserted into an opening that had been cut into the side of an existing house, and the entire structure was then quickly weather-proofed. The electrical, mechanical, and plumbing systems were then coupled to on-site services and branched out to the rest of the house.



*By using an existing structure and existing urban infrastructure, ModPod exhibits an approach to sustainability that relies not on high technology but rather re-use, re-densification, and re-habitation of established neighborhood communities.*

— Andrew Daley, Jason Fleming, Peter Muessig  
(ModPod project team)







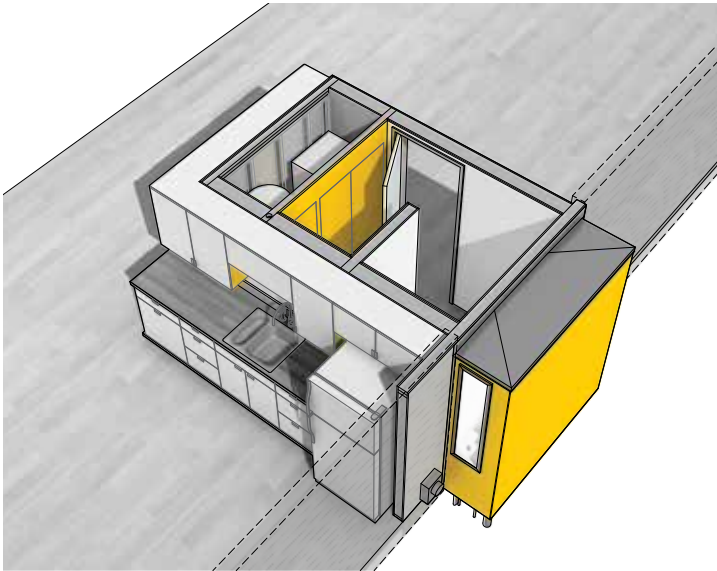
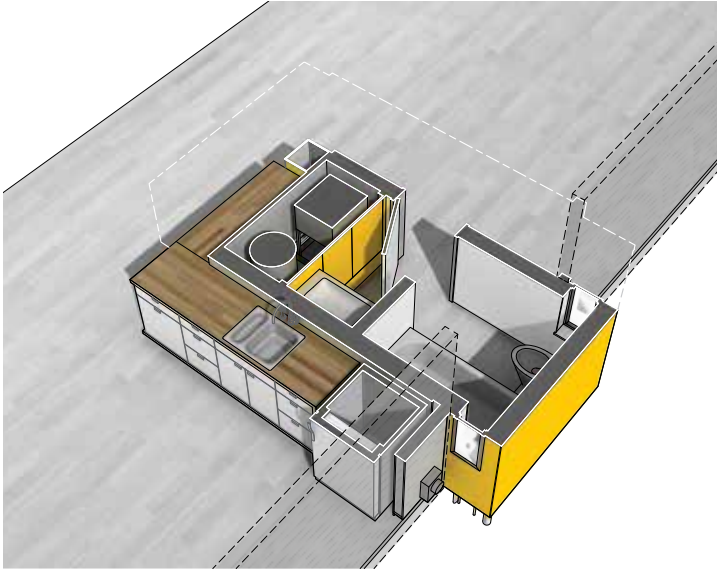
The packaging of the major fixtures, appliances and systems into a bathroom/kitchen unit relocates the work of the major trades to a controlled factory setting, reducing time, money, and material. These savings are put back into the core in the form of higher quality design, finishes, appliances, and construction. While ModPod is being assembled off-site, a rough opening is constructed in the side of an existing house where, upon delivery, the core can be readily inserted and the entire structure quickly weather-proofed. The electrical, mechanical and plumbing systems are then coupled to on-site services and the systems branched out to the rest of the residence. The low-tech construction and flexibility of the core design allow for modest on-site finishing to customize the core to the specific house with which it has been paired.



Project team (left to right): Peter Muessig, Jason Fleming, Andrew Daley







While ModPod is flexible enough to accommodate both new and existing conditions, it was conceptualized as a renewal project. A portion of the core overhangs the rest of the structure accommodating windows and the plumbing for the tub. This move announces the presence of the ModPod to the street and surrounding neighborhood, asserting the houses's contribution to local urban renewal.



Above: ModPod insert exterior; Opposite: ModPod exterior overhang detail









Opposite top: sleeping; Opposite bottom: bathroom; Above: kitchen and desk  
Previous spread: living



Above: kitchen; Opposite: exterior front porch





# RESEARCH LIES AT THE CORE

Research.

It's a word that's at once utterly obvious – *a systematic investigation, a searching into...* – and yet so amorphous. What is *architectural research*?

Universities tend to define research through the precise lenses of the humanities, the social sciences, or the natural sciences/engineering. The now almost quarter century push for universities to embrace interdisciplinarity has chipped away at these three dominant research lenses, but the fact that Word's spellcheck still doesn't recognize "interdisciplinarity" is indicative of how awkward an embrace it's been: promotion and tenure committees still continue to hiccup over work that doesn't fit neatly into one of these areas.

Architecture, the generalist discipline *par excellence*, necessarily runs roughshod across these three divisions, fusing together source material, methodologies, and techniques from a variety of disciplines. While that roughshod route is essential – architecture is obliged to consider simultaneously the *historical* (types, context...), the *social* (economics, politics, program...), and the *technical* (materials, fabrication, structure, detailing...) – mapping an architectural research trajectory can be nearly impossible.

It's easier simply to factualize: to tell the story of what was done when and how. And that's why so many projects in our field get characterized as *work*, rather than *research*.

One might look through *Core Houses* and think that it's all about work – and, for sure, it is filled with beautifully designed and beautifully executed work – but it's also, importantly, evidence of a twenty year research project. Domestic cores provide an intersection for the historical, the social and the technical. *Core Houses* identifies how this technical component of the house has shaped the social life of the domestic interior and how tweaking the core can tweak that domesticity, offering possibilities that previously didn't seem so attainable with such a limited scale and limited means. The XS House uses the core as a *wall* (it divides the 500-square-foot residence into distinct zones), a *light* (it glows like a lantern – the flipside of a courtyard, it's an object that produces light for the whole interior), *furniture* (its walls become shelves at strategic moments), and, of course, as a plumbing *resource* for both bath and kitchen.

Subsequent projects extend this research into how a technical obligation can produce programmatic transformations (changing the space of the interior) and how such an obligation can call into question the assumed division between furniture, or accessory, and architecture. All of this research into redesigning domestic obligations (wet cores, storage, furniture) that can do more with less, and thereby transform living itself, fits into a lineage that recalls Jean Prouvé, Eileen Gray, Buckminster Fuller, and others.

*Research* in architecture means identifying that attribute of a project that makes the project a *project*, and then working that attribute to project new possibilities. The projects in this little book about little houses do just that, in a big way.

— Sarah Whiting

William Ward Watkin Professor of Architecture  
Dean, Rice School of Architecture

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## XS House

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### CONSULTANTS

Karen Rose Surveying and Engineering, Matrix Structural Engineers

### STUDENTS

Amy Adams, Jill Bacon, David Barr, Patrick Battle, Miriam Bentley, Sharen Bidaisee, Dan Burkett, Elizabeth Butman, Lisa Cassidy, Amy Chien, Seth Clarke, Allan Co, Carina Coel, Kelli DesRochers, Joey Favaro, Sharon Floyd, Joseph Gabriel, Anna Goodman, Audrey Handelman, Eric Hartz, CJ Hoogland, Jenny Hoover, Maureen Hull, Julien Jaworski, Laura Johnson, Josh Jones, Chris Kimball, Taryn Kinney, Peter Klein, Jason LaRocca, Lina Lee, Steven Maynard, Christopher Mechaley, Karlene Morgan, Davis Neindorff, Dan Nemec, Chester Nielsen, Jennifer Painter, Jimin Park, Matthew Radune, Bill Rankin, Ben Reavis, Jeremy Richey, Eric Rosprim, Philip Schmunck, Christian Sheridan, Chris Starkey, Michelle Stevenson, Doug Subbiondo, Tara Teter, Gary Tran, Jordan Vexler, Mark Watabe, Sandra Winstead, Soojin Yoo

### VOLUNTEERS

Jeffrey Beer, Joel Gilliam, Jonathan Grenader, Jenny Hoover, Sky Lanigan, Anton Sinkewich

## New Core/Existing Row House

### DONORS

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### STUDENTS

Michael Binick, Lindsey Brigatti, John Carr, Federico Cavazos, Alice Chai, Sohael Chowfla, Emily Clanahan, Robert Crawford, Jason Cross, Linh Dan Do, Lauren Eckberg, Beatrice Eleazer, Cynthia Fishman, Will Garriss, Seth Goodman, Katie Green, Julia Hager, Justin Holdahl, Stephanie Hsieh, Kevin Jones, Tait Kaplan, Mary Jane Kwan, Chad Leahy, Brian Love, Julia Mandell, Brian Meinrath, Brad Naeher, Van-Tuong Nguyen, Benjamin Pollak, Claire Pritchett, Etien Santiago, Sanket Shah, Amanda Slaughter, Kristen Smith, Robert Sproull, Peter Stanley, Florence Tang, Lyon Train, Emily Tseng, Chris White, Adam Williams, Jason Wu, Leming Yang, Kaileen Yen

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## ZeRow House

### DONORS

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**CONSULTANTS**

Christof Spieler, Matrix Engineering, Redding, Linden, Burr Consulting Engineers

**STUDENTS**

David Alf, Diana Ang, Brent Behm, Courtney Benzon, Jinge Chai, Timmie Chan, Anne Chen, Jessica Colangelo, Kelly Cooney, Craig Corcoran, Jason Cross, Osman Dadi, Andrew Daley, Roni Deitz, David Dewane, Rachel Dewane, Linh Dan Do, Michael Dziedziniewicz., Allison Elliott, Sara Freudensprung, Hunter Gilbert, Seth Goodman, Marissa Hebert, Daniel Hedges-Copple, Michael Heisel, Don Hickey, Brantley Highfill, Ashley Hinton, Dana Hoffman, Marcos Hung, Julian Jaworski, North Keeragool, Kurt Kienast, Ryan Lemmo, William Li, Kevin Lin, Michael Lin, Chris Lin, Cassie Lopez, Douglas Ludgin, Jessica Lutz, Travis Martin, Kate McPhillips, Christof Meyer, Cherry Miao, Megan Mills, Erin Morrison, Alex Mrozack, Ali Naghdali, Joe Nash, Kelly Nicholas, Henry Nielson, Naoki Nitta, Kathryn Pakenham, Ronak Patel, Becca Sagastegui, Roque Sanchez, Charles Sharpless, Jon Siani, Rebecca Sibley, Sarah Simpson, Julia Siple, Tim Solberg, Marissa Spears, Kimo Spector, Scott Stark, Judd Swanson, Jay Townsend, Alex Tseng, Emily Tzeng, Antonia Wai, Seanna Walsh, Colin Ward, Amy Westermeyer, Jessy Yang, Aron Yu, Tsvetelina Zdravena

**ModPod**

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**PROJECT TEAM**

Andrew Daley, Jason Fleming, Peter Muessig

**STUDENTS**

RESEARCH: Georgio Angelini, Christopher Ball, Kelly Barlow, Sue Biolsi, Aaron Bush, Edgar Cervantez, Anne Chen, Aaron Cote, Osman Dadi, Andrew Daley, Nick Elliot, Eléna English, Ethan Feuer, Jason Fleming, Carrie Gammell, Mathew Ganster, Alex Gregor, Sara Heib, Joshua Herzstein, Meera Kachhla, Kerim Miskavi, Jason Pierce, Yoni Pressman, Peter Stone, Chuck Swanson, Sam Tannebaum, Lyon Train, Emily Tzeng, Antonia Wai, Karla Wallace, Amy Westermeyer, Jason Wu

CONSTRUCTION: Chukwuemeka Aligbe, Patricia Bacalao, Justin Beckert, Kelly Beckman, Mallory Botsford, Will Crothers, Pawel Czekaj, Lulu Fang, Alicia Hergenroeder, Quinn Lammie, Priscilla Leung, Na Lu, Aya Matsumoto, Claire O'Connor, Shaan Patel, Gina Rodriguez, Luis, Salcedo, Joseph Scherer, Varia Smirnova, Liz Stanfel, Mary Waelder, Colin Ward, Meagan Wyatt, Serge Zotof

**VOLUNTEERS**

Danny Jimenez, Adam Koogler, Bob Fleming, Paul Muessig

**FACULTY ADVISORS ON ALL PROJECTS**

Nonya Grenader, FAIA, Professor in Practice, Rice School of Architecture  
Danny Samuels, FAIA, Professor in Practice, Rice School of Architecture  
Faculty Advisor, Engineering: Christof Spieler, P.E.

**ADDITIONAL FACULTY ADVISOR ON ZEROW HOUSE**

Dr. Brent Houchens, Assistant Professor, Mechanical Engineering and Materials Science

**ASSISTANTS**

Sam Grenader, Scott Key, Sheila Mednick, Ian Searcy, Geoffrey Sorrell

**PHOTO CREDITS**

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- 2003 "Thinking Small" in Continental (September 2003).
- 2003 "Tiny Building, Extra Small house" in the Houston Chronicle/Ultimate Houston (Sept. 14, 2003).

## SELECTED AWARDS

- 2013 Design Corps SEED Awards for Excellence in Public Interest Design, 2013. Honorable Mention: ModPod.
- 2012 AIA National Innovation/Practice in House Design, 2012: ModPod.
- 2012 Rice Design Alliance/Initiatives for Houston, 2012: ModPod.
- 2012 AIA Houston Design Award "On the Boards," 2012: ModPod.
- 2011 ArCH Center Foundation Grant, 2011. For: ModPod.
- 2011 Texas Society of Architects Studio Award: ModPod, A fabricated Residential Core
- 2010-11 Association of Collegiate Schools of Architecture/AIA Excellence in Housing Design Award: Rice Building, Workshop/Core Houses
- 2010-13 Susan Vaughan Foundation Grant: Rice Building Workshop, Core Projects
- 2010 City of Houston, Mayor's Citation: RBW Service to Project Row Houses and Houston's Third Ward
- 2009 Greater Houston Preservation Alliance, Good Brick Award New Core / Existing Row House
- 2009 Department of Energy, Solar Decathlon, 2nd Place, Architecture and 2nd Place, Market Viability: Rice ZeRow House, Washington DC and Houston TX
- 2005 Association of Collegiate Schools of Architecture: Collaborative Practice Award
- 2004 NCARB (National Council of Architectural Registration Boards): NCARB Prize for Creative Integration of Practice and Education in the Academy
- 2003 AIA Houston, Honor Award Extra Small (XS) House at Project Row Houses



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