

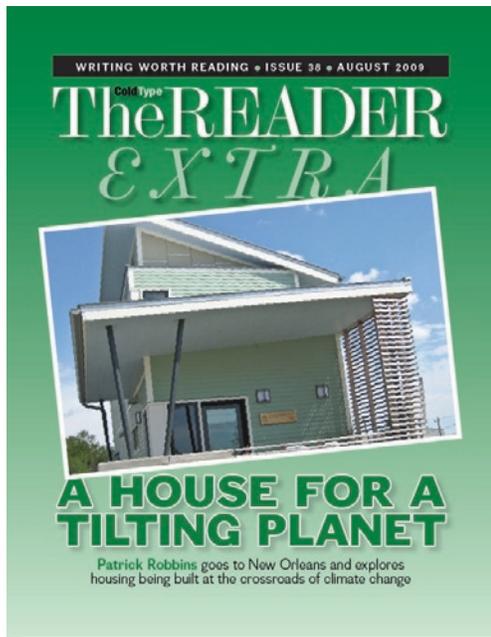
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# A HOUSE FOR A TILTING PLANET

**Patrick Robbins** goes to New Orleans and explores housing being built at the crossroads of climate change



## THE AUTHOR

**Patrick Robbins** is a journalist, researcher and jack-of-all-trades with an interest in politics and the environment. He lives and works in New York City

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# ColdType

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# A HOUSE FOR A TILTING PLANET

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**Y**ou know that saying, ‘it was the best of times, it was the worst of times’? New Orleans is like that all the time.” I was taking a plane from Charlotte, NC to New Orleans, and I had been seated next to a man who had lived in the city of New Orleans for 16 years before moving to Alabama. He had many stories to tell, and most of them were enormously funny: stories about quirky locals or the absurd corruption of local politicians. When I asked him why he had moved away, he suddenly got quiet, and nodded to himself a few times before answering: “Well, after Katrina, I didn’t have any family left for hundreds of miles, and I had job prospects and some family in Alabama.”

This encounter gave me an early taste of something fundamental about life in post-Katrina New Orleans: the way the hurricane’s tragic impacts manifest themselves suddenly, without warning,



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in the most casual of conversations or circumstances. Hurricane Katrina was so far reaching in its impact that, for those living in the city, it simply cannot be ignored for any length of time. But even for those of us who were not directly affected by the disaster, there are at least two reasons – aside from basic human empathy – why post-Katrina New Orleans should remain the focus of our attention. The first is that the circumstances that led to Hurricane Katrina are being reproduced in coastal areas around the world. The second is that, because New Orleans has already been forced to respond to a disaster of this scale, the community response in New Orleans can provide clues as to how communities around the world may respond to the disasters to come. The most physically tangible aspect of this response is housing. Many homes were destroyed by Hurricane Katrina, and after the storm there was a critical need to

rebuild houses. The houses being built in New Orleans' afflicted areas can be seen as artifacts from a near future, and embedded in their physical structure are the strengths and weaknesses of the organizing efforts that created them. By studying one such house – the Global Green housing currently under construction in the Holy Cross Neighborhood – we can get a taste of the pitfalls and possibilities that coastal housing efforts will encounter in the next few decades.

### 1. The Long Road to Andry Street

New Orleans' Holy Cross neighborhood has plenty to teach any community about organizing and rebuilding in the wake of a disaster. For one thing, not surprisingly, it helps if you're already organized beforehand. The residents of Holy Cross had a rich history of working together and rallying for environmental justice long before Hurricane Katrina touched down in 2005. For many years the Army Corps of Engineers has attempted to expand the Industrial Canal, which leads north from the Mississippi River into the 9<sup>th</sup> ward and cuts off a large section of the population from the rest of the city. In 2003, the Holy Cross Neighborhood Association (HCNA) worked to bring a lawsuit against the Army Corps of Engineers for using an outdated environmental impact statement to justify the expansion project. One of the attorneys helping the HCNA with their case against the Corps was Beth Galante, a practicing lawyer who was at the time teaching at Tulane Law School's environmental clinic. Beth became involved with Global Green USA, the American branch of Green Cross International (an international nonprofit established by Mikhail Gorbachev in 1993 to help foster a global value shift toward



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sustainable, ecological living), and when she opened Global Green USA's first office in New Orleans, she already had a history of working with the Holy Cross neighborhood. When Global Green decided to launch a rebuilding initiative in New Orleans, this prior connection to the neighborhood influenced their decision to focus their effort on Holy Cross.

"I knew the players," said Beth, "and I knew they were an organized group who really wanted to rebuild the area sustainably." Beth and I were sitting in the airy, pleasant-smelling dining room of Global Green's first completed house in Holy Cross. The house was completed in May of 2008 and was the result of an intense planning and selection process that began with a design competition in April of 2006. When Global Green announced that they were holding a design competition to build sustainable housing in the Lower 9<sup>th</sup> Ward, the response was impressive. 126 designers sent in submissions, representing every continent in the world. The winning design was subjected to painstaking scrutiny. According to Beth, three different juries had convened to review the design before it went forward, one technical, one oriented toward design and one made up of members of the community. The design eventually became the house we were sitting in: GreeNOLA, a shotgun style two-story house designed by Workshop APD of New York City, located over on Andry Street where the Holy Cross neighborhood meets the levee. Once completed, the house was made into a visitor center and opened to the public.

To visit the house on Andry Street is to see a physical tension between ambition and reality. Global Green's mission is to foster a value shift toward sustainability in human cultures, and efforts to live

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*Above: New Orleans' Holy Cross neighborhood. Below: one of the five single-unit houses the project will complete*

up to this noble directive are evident in every detail of the house's construction. For example, one of the central tenets of sustainability is energy efficiency. To that end, every appliance in the house is EnergyStar certified. The lighting is done with compact fluorescent or LED bulbs. For heating and cooling, the shotgun design of the house allows breezes to pass through, and on those extreme summer days in New Orleans when no combination of open windows and cold drinks will do the job, the house is equipped with a geothermal pump system. In a geothermal system, water circulates through the house and absorbs heat. This water is then pumped into the ground, where it disperses the heat from the house into a network of trenches, which run through the far cooler soil of the field surrounding the house (according to project architect Daniel Winkert, there's a total of about a thousand linear feet of tubing under the field). This cooled water is then run



back through the house, and the cycle continues. Of course, electrical energy is required to run this system. The house is powered by a solar photovoltaic system, which means that the roof is tipped slightly southward to accommodate a total of 28 massive solar panels. The day I visited was particularly sunny, and I

asked if that meant the house was getting more energy than usual. As it turns out, the electrical system is grid-tied, which means that all of the energy absorbed by the solar panels is fed back into the greater power grid. Excess energy generated by the house is not stored, as the house does not have a battery for storing electricity. Instead, excess energy can be redeemed from the grid later on in the form of a credit.

And here we have the tension. Creating green housing within the framework of a wasteful, carbon-emitting socioeconomic system will always involve compromise. If you're of a mind to see the glass as half-empty, you could point out a few aspects of the project that do not meet a strict definition of replicable green housing: attachment to an electrical energy grid that wastes a perverse amount of coal in its conversion process, for example, or the price of the house, which reflects the unfortunate fact that the cost of building places such housing outside what a lower income family can afford (although, as one Global Green employee pointed out, the Holy Cross neighborhood was not a lower income neighborhood to begin with). But when raising these points, it's important to note that none of the house's shortcomings come from the project itself – all of them can be attributed to the greater context in which the house is being built.

If alternative forms of energy were subsidized on a comparable scale with oil and coal, for instance, the shift in the energy market would be seismic, and similar housing initiatives would instantly be much more economically feasible for disaster-stricken areas. One of the great strengths of the project is that it recognizes this context, and has consciously worked to improve the capacity of the



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area to do similar work in the future: for each phase of the project, Global Green deliberately employed separate contractors, and ensured that as many different local building organizations as possible were involved.

This commitment to capacity building is certainly admirable. However, the scale of the danger posed by climate change means that no sector – private, public, nonprofit – can address it alone. The house on Andry street is a reason for hope, certainly, but when you examine the full scale of the problem we're facing, it becomes clear that all sectors of society are going to have to work together to avert it.

## 2. Todos Somos New Orleans

The assertion that New Orleans is a glimpse of the world to come may sound alarmist at first. But to understand how true this is, simply consider the circumstances that led to Katrina. By 2005, New Orleans was particularly vulnerable to disastrous storms and flooding because centuries of holding back the floodwaters of the Mississippi had left the coastal region of Louisiana a full three feet below its original level. This is because the land in delta regions follows a natural cycle of flooding and subsidence. When rivers overflow and flood, they spill collected sediments onto the shore, replenishing the soil. The silty, fine grain of this soil is unstable, and the land itself sinks as the soil breaks down. This is called subsidence. In a typical delta system, subsidence and flooding act as complimentary forces, keeping the land at a more-or-less even level. The levees surrounding New Orleans had quelled the flooding of the Mississippi River for almost three hundred years. In doing so, they disrupted

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*Kathy Muse, Holy Cross resident and member of the Neighborhood Association, takes a rest in the new home.*

the natural give-and-take of the delta, and the land subsided without being replenished.

Land subsidence alone would have been enough to put the city of New Orleans at risk for flooding. Compounding this risk was the industrialized destruction of the shoreline. Many of the barrier islands and wetlands that would have otherwise protected the city had either been dredged to make room for canals (Texaco and Amoco had dredged 10,000 miles of canals by the time Katrina arrived in Louisiana) or succumbed to the same subsidence that had lowered the city. According to Bob Berkebile of the Green Building Council, the area surrounding New Orleans had once been home to 65 square miles of cypress swamps, all of which have disappeared due to the direct or indirect industrialization of the coast. Each mile of cypress swamp protects the city from one foot of storm surge. By



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dredging and destroying the swamps, the city lost 65 feet of potential storm surge protection.

New Orleans' vulnerability to Hurricane Katrina by August of 2005 can thus be attributed to the following combined factors: destruction of natural barriers to storms and flooding, lowered elevation of the city with respect to the ocean, and the city's physical location in a region prone to hurricanes and violent storms. These three factors are all either being reproduced or already present in cities across the nation: The EPA estimates that the United States loses about 60,000 acres of wetlands per year, much of it due to coastal dredging and draining. In places like the Louisiana Coast and the Chesapeake Bay, the land itself has sunk into the ocean due to subsidence, and the land has been lowered with respect to the sea. However, most of this coastal land loss is due to another kind of human interfer-

ence – rising sea levels. Global warming means that the sea itself has risen with respect to the land, and the best science suggests that sea level rise will continue unabated over the course of this century. The Intergovernmental Panel on Climate Change (IPCC) released its Fourth Assessment Report in 2007, which predicted at least a foot of global sea level rise by 2099. This is a harrowing prospect, with potentially enormous consequences – widespread destruction as the seas flood our cities, for one, not to mention the destruction of coastal ecosystems that suddenly find themselves flooded with salt water – but this scenario only takes into account the *minimum* rise that would be engendered by rising sea temperatures. The Copenhagen Climate Science Conference, which was held in March 2009 and brought together over 2,000 of the world’s most respected climate scientists, publicly stated that the worst-case predictions of the Fourth Assessment Report are in fact more likely than any other scenario put forward by the IPCC. Not only could the sea level rise be closer to three feet (at which point 43 percent of our nation’s wetlands will disappear, according to the EPA), but the warming that this scenario assumes could also trigger further melting of the Greenland ice sheet. Greenland’s Swiss Camp research center has proven that this is a self-catalyzing process – the more the ice sheet melts, the faster it will melt. If present warming trends continue into the future, we could see a six-foot sea level rise from the melting ice sheet before the end of the century, and a total rise of twenty-three feet worldwide when the ice sheet finally collapses.

This would be a disaster, of course. By itself, sea level rise of this magnitude would spell misery for huge swaths of the



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planet. But if the best projections about global temperature rise are correct, this is a disaster that will be further exacerbated by increasingly frequent and intense storms. Hurricanes can only form when sea surface temperatures reach a threshold of 80 degrees fahrenheit, and they grow and spread according to how deep the warm water goes. Increased sea temperatures would allow hurricanes to form that would not have formed otherwise, and higher air temperatures would allow the air to retain more water and more energy as the hurricane builds. We can think of global warming acting on the global climate system the way that the nastiest of human diseases act upon the body: with one hand, it diminishes the defenses against storm damage, and with the other it increases the likelihood that storms will develop.

No one can say how any of this will play out. Therefore, the obligation that we have as conscious participants in our time is twofold: to ensure that the worst-case scenarios are avoided, and to prepare ourselves for a world of greater hardship and more limited resources.

### 3. Taking Notes in the Flood Plains

As of this writing, the Holy Cross project has been moving with surprising speed. Gaslines and solar panels have been installed, and some of the houses are far enough along to have been furnished. Global Green president Matt Peterson said during a talk at Tulane a few months ago that the effort to build a sustainable New Orleans would be moving even faster today if it hadn’t been for the recession (which is itself an argument for sustainable building practices – housing crisis, anyone?). There are many reasons to think the story of the Holy Cross Neigh-

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neighborhood will ultimately be a success story. We need to be paying attention if we want to find similarly successful practices for the rest of America's coastal cities.

First of all, the design process embodied by the Andry Street housing is definitely worth replicating. The design competition meant that the builders could draw on talent from all over the world, while the neighborhood association and local architects who knew the area made sure that the final selection made sense within the local geography. The tension between local groups and designers was productive, and both groups ended up educating one another.

"When Green Cross first showed us the plans (for their houses), we were concerned about how modern they looked, we thought modern houses would look so out of character here." I was speaking to Kathy Muse, a Holy Cross resident and member of the Holy Cross Neighborhood Association. "But as we looked at the designs, we started recognizing parts of the house – the long, open style to allow breezes back and forth, the elevation, the shaded porch – that looked familiar, that looked like the kinds of houses we've had here forever." Kathy now leads public tours of the Visitor's Center on the weekends.

Ensuring that housing initiatives have real bottom-up support is more than good democratic policy. It also means that the physical structure of the house is more likely to reflect sustainable, environmental principles. Often the people who know the most about what works for architecture in a given area are the people who've lived in that area all their lives. From both an ethical and a practical perspective, the more community-directed the project is, the better.

Which brings us to the second major



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lesson of the Holy Cross project: if you want to get anything done, you have to organize. The success of the Holy Cross project can be traced to the strong, unwavering demands of ordinary citizens. As Beth Galante told me, one reason why Holy Cross was selected to be the site of the project was because Holy Cross already had a rich history of environmental justice organizing. It was this history that they were able to draw upon to rally support for the Holy Cross project.

If one looks even further back in history, one can see how popular will affected even the funding for the project. Global Green's biggest source of funding for the project was the Home Depot Foundation. While there's no doubt that Home Depot has been an important positive influence on New Orleans in recent years, the company does not have an untroubled history on environmental issues, from controversy surrounding the sale of arsenic CCA treated lumber to logging in old growth forests. But real gains have come out of this history: after a spirited campaign by the Rainforest Action Network and a coalition of activists from many different organizations in the late nineties, the company agreed to stop selling lumber from endangered forests in August 1999. And in 2002 the organization incorporated the Home Depot Foundation, which gives out grants for sustainable, environmentally friendly building projects. These are both extremely positive developments, and Home Depot deserves credit for both. But it is doubtful that either would have happened if there hadn't been a growth in popular environmental consciousness that demanded an according shift in consciousness from big corporations. It was ordinary people who ensured that funding for projects like the Holy Cross Project were available in the

first place.

As with New Orleans, so with America. There are two concerns we need to address, as I mentioned earlier: prevention of disastrous climate change, and ensuring our housing can adapt to whatever changes prove unavoidable. On the one hand, we need to mobilize to make sure initiatives like the Holy Cross project are widely available for coastal cities in need of housing. Workshop/APD, the firm that came up with the GreenOLA design, has been working on a project called Rightframe, which will make green modular homes and will hopefully make sustainable housing more affordable for more people. Lack of information has historically been a barrier to projects like these: green building requires a much more informed and educated labor force. Holy Cross provides another important example in this respect: for every phase of the Holy Cross project, a local professional was paired with a national professional. A local architect with a national architect. A local builder with a national builder. The more that projects like Holy Cross focus on educating local workforces, the better the capacity becomes for doing similar projects in the future.

On the other hand, it is important to make sure the worst projections for climate change do not become reality. While some believe that 450 parts per million of



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atmospheric carbon is the absolute maximum our planet can afford, others (including climate scientist James Hansen) believe we have to stabilize atmospheric carbon at 350 ppm to avoid planetary disaster. Even 450 ppm will require a massive, international effort: current estimates place atmospheric carbon at 380 ppm, with a rough increase of one ppm per year since atmospheric carbon began to be recorded in 1958. Tactics to reduce carbon range from the radical to the commonplace, from individual consumer choices (including the choice to minimize consumption) and political measures (such as the Waxman bill, which is currently making its way through the senate) to direct action against carbon emitters, such as the recent protests in West Virginia against mountaintop removal and Tim DeChristopher's disruption of an auction for oil and gas leases in Utah last December. However you feel about these tactics individually, it will ultimately be a combination of these, not one or another, that changes the course of our climate.

In both cases, it will ultimately be popular will that determines the outcome. That shouldn't come as a comfort. It gives us a terrible responsibility: we will either all share the glory of transforming our society, or we will all share the blame for the collapse of our coastal cities.

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