



## A year after Hurricane Sandy, Toronto architects design a home to endure



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First of all, I'd like to assure you, gentle reader, that architect Paul Dowsett of local firm Sustainable.TO does not have any incriminating photos of me. Yet. Regular shout-outs in this space are the result of the accolades and awards the firm keeps on winning.

Back in June, it was as finalist for "PHASEhouse," an ultra-inexpensive home that can be built for flood susceptible regions of Cambodia, designed for Building Trust International. Two years ago, "Low Cost/Low Energy House" took first place for a shotgun-style home for New Orleans' hurricane-ravaged Lower Ninth Ward (this one hosted by DesignbyMany.com and Archdaily.com).

This time, Sustainable has upped the ante, celebrity-style.

Last weekend, principal Mr. Dowsett, designer Nicholas Discenza and building scientist Andrew Stiffman toured a site struck by Hurricane Sandy in the Far Rockaway neighbourhood of Queens, New York, with Chelsea Clinton. Here, you see, "Resilient House," Sustainable's winning entry into the New York category of the Designing Recovery competition – hosted by the American Institute of Architects and Brad Pitt's Make It Right foundation, among others – is going to be built for the Lyons family. Interestingly, while New Orleans' GOATstudio won for their New Orleans flood-proof home, the winner for a tornado-proof home for Joplin, Mo., was created by another Toronto firm, Q4 Architects.

Resilient House is a tidy, raised-on-stilts, shotgun-style home with an interesting Modernist roofline, but what really sets the design apart is just how low-tech it is.

"A lot of times, when a hurricane hits, utilities will be down for days, weeks," explains Sustainable's Craig Race, "and because this house has such a low energy demand to begin with, people can continue to live in it ... because the sun and the wind keep the house comfortable."

Adds Mr. Dowsett: "The houses that were livable in New Orleans after [hurricane] Katrina were the houses that were designed and built pre-electricity: they dried out quite nicely [and] they didn't grow mould." Newer houses – the ones that rely on mechanical ventilation – were bulldozed, he laments. "So we figured going back to natural ventilation is the way," he laughs, "... back to the future."

And the future will no doubt be a bright one in this home: On the main floor, clerestory windows tucked into the playful roofline will rain light down into the middle. Two sets of sliding doors in the living and dining areas lead occupants to a large deck outside, while a bank of eight windows on the two-storey portion of the home also provide natural day lighting and passive heating (with a partial second storey, this home is known as a "camelback shotgun"); since all apertures face the sun, "light shelves" above each have been calculated to limit summertime penetration.



SUSTAINABLE.TO meets with Chelsea Clinton for the ground-breaking ceremony in New York City.

At 935 square feet, the main floor is large enough to feature a 10-by-13-foot master bedroom. Upstairs, contained within 586 square feet, the two children's bedrooms aren't much smaller (the Lyons have four children). Windows into the corridor and stairwell ensure that electric lighting will be necessary only at night.

As with many Sustainable.TO projects, the exterior features a highly reflective, self-venting Galvalume roof (and siding), and the operable clerestory windows will aid in exhausting warm air in summer. Walls are to be constructed with structural insulated panels (SIPs), which create a tighter seal with less thermal bridging.

Interestingly, the home Sustainable.TO designed originally – the one that won the competition – was for a much wider, fictional lot. Still in the shotgun model (with rooms all lined up and accessed from one hallway running along a wall), the home was a single-storey dwelling. When fiction became reality, however, and a real site was chosen, Mr. Discenza rallied the team to alter the design so it could be delivered in a mere two-and-a-half days. "There was a bit of tweaking involved," he says.

At a materials cost of between \$50,000 and \$75,000 (the high end is for a home with recommended upgrades that will save more energy and offer

low-maintenance materials), Mr. Dowsett doesn't think the Lyons's home will be a one-off. This is especially true since one of the other partners in the Designing Recovery competition is the New Orleans-based St. Bernard Project, which since 2006 has worked tirelessly to rebuild homes for Katrina survivors. This organization, which has now branched out to New York, "understands the momentum that needs to follow a competition win like this, which is great," says Mr. Dowsett.

There is no doubt our world is changing. With sea levels rising, "fully-finished basements with livable spaces may not be something that insurance companies are terribly thrilled to entertain any more," says Mr. Dowsett. And even homes built with future disasters in mind, such as the ones built by Mr. Pitt's Make It Right foundation immediately after Katrina, will, in future, need to rely less on "the latest technological gadgets," such as solar panels and heat recovery ventilators, and more on a "back-to-basics" approach like the Sustainable.TO design. In some cases, six-year-old houses in New Orleans are being abandoned because owners can't afford to maintain their complex systems. "They're walking away from them," laments Mr. Dowsett.

"Those are 'green' houses, but they're not resilient houses," finishes Mr. Discenza.

