

# HOMES

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## Breath-taking: An architectural answer to one homeowner's severe allergies



**JACK KOHANE, SPECIAL TO NATIONAL POST** | May 23, 2014 2:31 PM ET  
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The owners of this 2,150-square-foot house near Mulmur, Or

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combustion heaters be used in the building process.

Shai Gil for Superkul

For those with allergies, just about anything it can be of huge concern to allergy sufferers. Every material had to be sniff-tested and touched.

Because Barbara Tudhope has severe allergies and acute sensitivities to dust, pollen, electromagnetic radiation (EMF) and a long list of construction materials, the couple designed their home to foster an environment that doesn't cause her any adverse reaction.

"Barbara was making gains in her health after enduring years when her immune system was so compromised by toxic chemicals and poor function that it attacked almost everything in her body," her husband, Hilton Tudhope says. As such, construction protocols for

irritation. It's a problem not many builders think about, but end every block and board built into their new home. Each

their one-storey, 2,150-sq.-ft., two-bedroom, two-bathroom home in Mulmur, near the Niagara Escarpment, dictated that no solvents, no gas-fuelled tools, and no combustion heaters be used in the building process. "Almost all construction and renovation uses building materials that off-gas volatile organic compounds [VOCs], and contractors generally pay little attention to electrical and magnetic fields in the homes they build," says Mr. Tudhope, a business writer. "But both can have serious acute and chronic health consequences for someone like Barbara, and, in truth, for almost anyone."

The sixtysomething couple divide their time between Mulmur and their other residence in Dallas, Tex. "After I moved to Dallas to marry Barbara, we spent part of our summer vacations in the Creemore area, visiting friends and playing golf at Mad River Golf Club. Mulmur has the rolling hills, clean air, abundant fresh water and lack of industrial activity that we were looking for." And it was those attributes that led them to pick this picturesque spot, a well-treed, 11-acre property with a two-acre pond, for their summer residence for five months of the year.



Ian Dickens (L), great-great-grandson of Charles Dickens, talks with actor Simon Callow outside Charles Dickens' birthplace on February 7, 2012

Peter Macdiarmid / Getty Images

To shape the über-healthy abode they needed, the Tudhopes commissioned award-winning Toronto architectural firm Superkül. "We insisted that they and Wilson Project Management, our builder, read and adhere to the guidance in *Prescriptions for a Healthy House: A Practical Guide for Architects, Builders and Homeowners*," Mr. Tudhope says. In addition, every trade had to read the portion of the book that pertained to their area. "Building healthy, which was our mandate to everyone, is primarily about the materials, although design can contribute to the overall health of the living environment," he adds.

The site itself imposed significant constraints. The property rises steeply about 20 metres above the pond. Building at the top of the hill would have destroyed the relationship of the house to the pond, so it was built on the site of the existing house. There is a sharply rising hill to the north of the home that sheds large amounts of water during rains and the spring thaw; the far shore of a large pond acts as the southern boundary. The pond is part of a connected stream system that flows to the Pine River, so it meant getting a raft of approvals from the Nottawasaga Valley Conservation Authority and the Niagara Escarpment Commission.



A toll of 115 murders and widespread looting, assaults and vandalism in the past week are roiling Brazil's third-biggest city, casting doubts over upcoming carnival celebrations and raising questions about security ahead of the 2014 World Cup.

A toll of 115 murders and widespread looting, assaults and vandalism in the past week are roiling Brazil's third-biggest city, casting doubts over upcoming carnival celebrations and raising questions about security ahead of the 2014 World Cup. More than 3,000 federal troops were dispatched to the northeastern state of Bahia in recent days to restore order after much of the state's military police force went on strike last Tuesday to demand higher wages. The military police force, normally charged with routine order and security in Brazil, has stood by as criminals, some of them allegedly members of the police force themselves, have run rampant. About 20 percent of the state's police, or about 6,000 officers, have taken part in the strike, the government said. The city of Salvador, the state capital known as a locus of Afro-Brazilian culture and popular as a foreign tourist destination, has borne the brunt of the spree of violence. Less than two weeks before the start of Salvador's popular carnival celebration, which regularly draws a half-million visitors to its seaside colonial streets, the chaos is prompting residents to stay home while shopkeepers to shutter their doors and would-be visitors to cancel their plans. Brazil's recent economic boom has brought growing prosperity to Bahia and much of the rest of the country's historically poor northeast but the strike and its fallout underscore what many Brazilians say remains a fragile state of preparedness in public services and institutions. The fragility, analysts say, manifests itself anytime a contingency tests reflexes for everything from natural disasters to transport strikes to organized crime waves. "There's a contrast here between rapid economic growth and a sluggish ability for many public institutions to evolve," said Claudio Couto, a professor of public administration at the Fundacao Getúlio Vargas, a business school in Sao Paulo. "The government isn't able to keep up and that shows in its overall preparedness." The issue of preparedness is critical in places like Salvador, one of 12 Brazilian cities chosen as a venue for soccer's World Cup, just two years away. The tournament, along with the 2016 Olympics in Rio de Janeiro, is highly anticipated in Brazil as a chance for the country to showcase its recent progress on the global stage. In Salvador and the rest of Brazil's northeast, the economic progress has brought an unwelcome consequence - skyrocketing crime. Fueled by a growing drug trade, an inflow of poor migrants and still lingering inequality between the region's haves and have-nots, northeastern cities regularly rank among the most violent in Brazil. "The management of public security there is a failure," Jose Vicente da Silva, a retired police colonel and former national security secretary, said in a televised interview on Tuesday. **RISE CRIME DESPITE ECONOMIC GAINS** For Bahia Governor Jaques Wagner, a star of Brazil's ruling Workers' Party and a key ally of President Dilma Rousseff, the strike has led to marathon negotiations with the striking police, who say they are underpaid and overburdened by the rising crime. The governor already agreed to a 6.5 percent salary increase for the police but has refused to grant an amnesty for striking workers who have committed crimes. "The right to protest is guaranteed but not the right to offend, to prey on, or to threaten people," the governor told Brazilian television on Tuesday. For the people of Bahia, the past week's tumult has created a general sense of unease. The 115 homicides reported by state authorities by early Tuesday far exceed the state's already high numbers for a weeklong period, the government said, without providing comparable data. While the arrival of federal troops helped allay the initial alarm, security experts have criticized the measure, calling soldiers, trained for military exercises, poor substitutes for everyday police officers. And because many of the troops have been dispatched to the focus of the protests, a state assembly house where striking police have sought refuge, citizens say they still feel unprotected. "There's a feeling of insecurity," said Andre Mariano, a college student who was picking up friends at the Salvador airport Tuesday morning. "You don't see officials out on the street - neither police nor soldiers." Travel businesses, meanwhile, are bracing for the strike's impact during what should be a peak time for revenues. Already, local tourism officials have said as many as 10 percent of their unpaid reservations for carnival and beyond have been canceled in recent days. "It's going to be much worse if this doesn't get resolved," said Pedro Galvao, president of the Bahia chapter of the Brazilian Association of Travel Agents. "People don't travel to places where they will be scared." Late last week, the U.S. Embassy in Brazil advised Americans to "consider delaying any non-essential travel" to Bahia "until the security conditions have stabilized." © Thomson Reuters 2012

"This project proved to be a bit of a learning curve for us," says Andre D'Elia, a principal at Superkül and lead architect. "It was challenging in a non-typical way for us. All of our houses are one-off buildings, but this one was a prototype on a completely different level. We didn't know for sure if our client would have any negative reactions to the house until it was built. It was a huge leap of faith on their part — fingers crossed that all would work out in the end. Thankfully it did."

According to the architect, "the home's design is intended to forge a strong connection between its own insular world and its beautiful surrounding landscape while providing a healthy retreat from environmental threats." Its design balances LEED criteria — the project is LEED Gold targeted — with the client's specific health requirements. Some LEED standards, such as using materials

with higher recycled content, were not suitable in this project.

They dubbed the home +House because, Mr. D'Elia says, it sets a precedent in Canadian environmental design. Not a drop of paint was used. All electrical wiring was shielded in commercial-grade conduit to protect against EMFs, and to cut down on EMF exposure, demand switches in each bedroom shut off power at the fuse box when circuits are not in use. Exterior walls are constructed of Durisol Wood Concrete (containing no VOCs), a material with a higher-than-average pH environment at the wall surface, which inhibits the growth of fungi and mould.



The scene of the crash on February 6, 2012

David Ritchie for National Post

To eliminate the need for drywall, American Clay, a natural, non-toxic product, was applied as an interior finish on all walls. Mr. D'Elia points out that "having clay on the wall helps filter out dust, pollen and dander. Because the clay has the unique ability to 'breathe,' it enables it to regulate relative humidity levels, creating a more comfortable interior environment."

Other health-happy features include native plantings on the green roof for additional insulation; passive ventilation through the use of operable windows, skylights and fans; hospital-grade HEPA filter in the ducted system; soy-based sealant used on the concrete floor and countertops; and FSC-certified lumber throughout. "This house is about stripped-down minimalism, functional spaces and integrated with a wealth of health-sensitive technologies," Mr. D'Elia says. "It's a health-conscious home married with a sustainable agenda."

The Tudhopes are happier, and they believe, healthier with the results. As Ms. Tudhope, a yoga therapist, puts it, "I needed to experience my environment differently. That was our primary and non-negotiable must-have."

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