

The GREEN HOUSE Affect

Tom Knezic and Christine Lolley
of Solares Design Build



“ENVIRONMENTAL INTEGRATION” ISN’T just a catchphrase for Tom Knezic and Christine Lolley—it’s a way of life. The intern architects, who are also husband and wife, give high-efficiency light bulbs away at parties, share a single car and count their food miles carefully. They’re also the founders of Solares Design Build Inc. (*solares.ca*), a Toronto-based residential design and construction company specializing in environmentally integrated homes.

By Sarah Lolley

★ Photo by Clay Stang

Although Solares Design Build is barely a year old, the company has already finished designing two custom homes (both in rural Ontario), and they’re now working on a third. The couple’s first project—a house for Christine’s parents (pictured above)—features passive solar heating and cooling, geothermal heating, extremely good insulation (including triple-glazed, low-emission windows) and high-efficiency appliances and fixtures. They also chose local materials, such as using trees felled where the house now stands, to build all interior doors, trim and stair treads.

The house has received enormous public and media attention so far, prompting the couple to hold a few lectures about Solares’ approach, as well. “People want to bring their concern for the environment home with them,” Lolley explains.

Designing houses is a common first step for young architects hoping to establish themselves. “Big-name architects ranging from Ludwig Mies van der Rohe to Frank Gehry have treated housing as a testing ground for what they would do in larger buildings,” Knezic says.

But the couple plans to make environmental integration their *raison d’être*. “The average Canadian home produces more carbon dioxide per year than an SUV,” Lolley explains, “so there’s a massive opportunity to make a difference with housing. Also, there’s a wonderful intimacy involved in this type of design: we are helping individuals create their dream homes.”

WHAT DOES ENVIRONMENTALLY INTEGRATED ARCHITECTURE ENTAIL?

Lolley: There are a lot of different focuses in the green building movement. For example, sustainable architecture focuses on using renewable resources, high-efficiency construction involves minimizing the energy that a building requires in order to operate and the healthy home movement tries to eliminate materials which release harmful volatile organic compounds as they decompose (i.e. off-gassing).

“Environmentally integrated” is a term that we coined to include all of these goals, with a particular order of prioritization. For example, bamboo flooring is very popular as a sustainable building material, but an environmentally integrated approach would consider that bamboo has to be shipped from Asia, which produces a large carbon footprint.

WHAT’S YOUR BIGGEST HURDLE AS A GREEN ARCHITECTURE COMPANY?

Lolley: The media tends to focus on flashy and expensive green technologies, so many people assume that green architecture is something complex and unaffordable. Our biggest challenge is helping people realize that there are many different aspects to environmentally integrated building. Some, like passive solar design (see graphic, below), are simple and free.

WHICH GREEN BUILDING TECHNOLOGY ARE YOU MOST EXCITED ABOUT?

Knezic: We strive to include passive solar heating and cooling in all of our designs. By orienting a house towards the south and having a properly sized roof overhang, you can obtain free heat from the sun during the winter, and keep your house shaded and cool during the summer, eliminating the need for air conditioning.

WHAT’S IT LIKE TO WORK TOGETHER AS HUSBAND AND WIFE?

Lolley: It’s great because we both understand what the other person is going through. We have the same goal, and we’ve chosen to pursue it together. Whenever we have a high moment, we’re both there to share it.

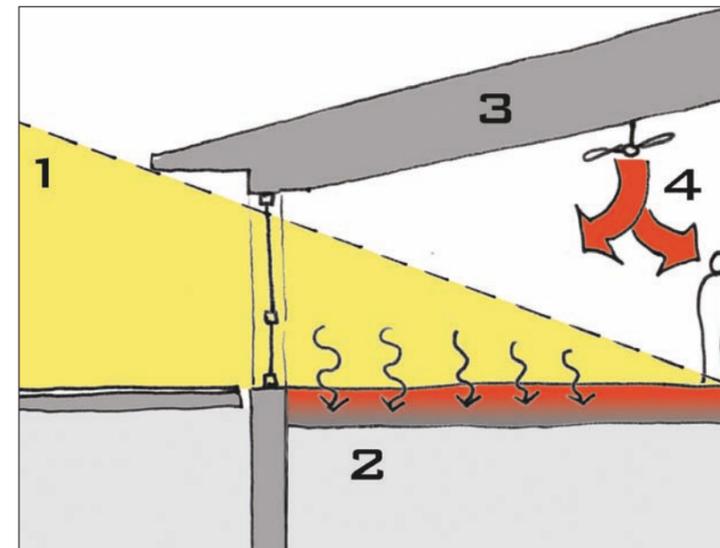
WHAT ARE YOUR GOALS FOR THE COMPANY AS IT GROWS?

Knezic: Eventually, we want to develop our own projects. In some ways it would be more risky, but in others less so because we would have more control. We’d like to build environmentally integrated homes for the masses—projects on a 100-house scale or more. We’d also love to do smaller infill housing development projects.

In Toronto, for example, there are so many small parcels of underused, undeveloped or vacant land. With a clever design and good management, they could be developed with eco-homes. But first, we’d like to design and build our own environmentally integrated home.

Passive Solar Design

It’s all about sun, ventilation and—wait for it—windows that open



WINTER

- 1 The low-angle winter sun enters the house through large, south-facing windows.
- 2 Concrete floors and walls store solar energy for nighttime heating.
- 3 A highly insulated and airtight roof, walls and windows prevent heat from escaping.
- 4 Ceiling fans are used to circulate hot air into the house’s living areas.

SUMMER

- 5 The house is shaded from high-angle sunlight by a deep roof overhang.
- 6 Concrete floors and walls absorb excess heat, keeping the house’s interior cool.
- 7 A shiny steel roof deflects solar energy.
- 8 Operable windows and a ceiling fan enable passive ventilation.

