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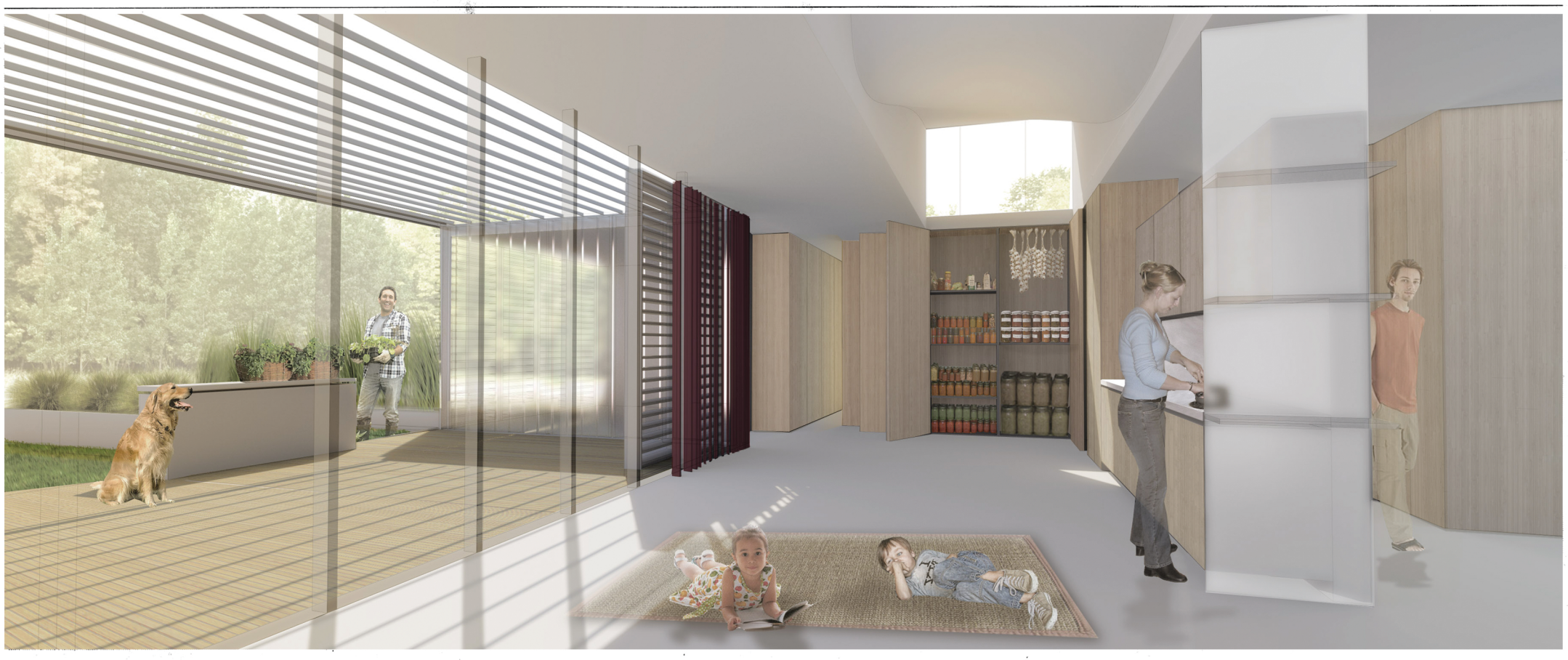

Housing with more bang

Toronto architects win international award with scheme to build sustainable housing with all the bells and whistles

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Off and on throughout the past 100 years, forward-thinking architects in Europe and North America have tackled the problem of how best to provide handsome, efficiently mass-produced housing for the millions.

That this admirable dream is very much alive in Canada was driven home earlier this summer when the young, serious Toronto firm rvtr beat out some 200 other contestants from around the world and placed near the top in Living Steel's 3rd International Architecture Competition for Sustainable Housing, mounted in Helsinki. (Living Steel is an undertaking by iron and steel manufacturers worldwide to encourage innovation in building design.)

Competitors were asked to propose housing suitable for workers and their families in the small steel-mill city of Cherepovets, Russia, which lies about as far north of the equator as Whitehorse.

Latitude, the winning scheme devised by the rvtr team (Paul Raff, Kathy Velikov, Geoffrey Thün and Colin Ripley), included a house designed for a harsh climate – a streamlined single-family dwelling fabricated from light-gauge steel and sheet metal components – but it also advanced ideas that went far beyond a one-off building.

In a conversation last week, Mr. Raff (who, with Ms. Velikov, presented the plan in Helsinki) explained his team's strategy.

"We took a radical position," he told me. "We didn't design just a single house. Instead we designed a housing system. We did that because one house is not going to save the world, no matter how good it is. But if we thought about the nature of manufacturing and construction from first principles, we could design housing prototypes that are flexible and adaptable. If you're not designing housing in this way, it's unsustainable. Using the fabrication processes the airplane industry has been using for years, you can have precisely controlled building components that can be highly efficient and rapidly assembled."

Efficiency is all very well, at least on the production end of things. But many mass-produced housing projects have been thwarted, Mr. Raff believes, because their designers believe that to be "green" means to be skimpy in the product itself – light on impact, stingy with energy and materials and so on. Success lies in quite the opposite direction: delivering more of everything.

"Instead of trying to reduce the amount of glass to reduce energy loss in a house, we should look for advanced ... glazing technology to deliver more natural light for a healthier, more luxurious lifestyle. We may not know where Russian or Canadian society is going, but I can tell you people want more amenities, more freedom and more choice. If we deliver that luxury and amenity, we can have an exponential growth in long-term sustainability."

The Latitude house is sustainable in the way Mr. Raff uses the word: compact yet gracious, laid out well to facilitate easy internal circulation.

Top, above and below, illustrations of Latitude, the winning scheme devised by the rvtr team. It includes a house designed for a harsh climate – a streamlined single-family dwelling fabricated from light-gauge steel and sheet metal components. RVTR

"It's very modern," he said. "It's got rectilinear geometries because of their enormous efficiency. But it's also got very clean lines, lots of natural light and openness to nature, space-efficient planning. We've tried to take some sustainable features such as the louvre system, which modulates sunlight, and make it a beautiful, rhythmic touch on the facade."

The competition brief asked entrants to come up with designs that would be suitable for a neighbourhood with just five houses an acre.

Here again, the rvtr team played fast and loose with the rules, and figured on 25 to 30 units of Latitude housing an acre.

Their reasoning, Mr. Raff said, was that "it's a better use of land and infrastructural resources. That kind of density allows community gardens and community services to happen efficiently, along with things like shared geothermal networks."

The technologies employed in the Latitude design are well-understood and readily available in the contemporary marketplace.

But the designers have also worked with unknowables firmly in mind. What if rising energy costs make electricity generated by roof-mounted photovoltaic cells seem like a bargain? Provision has been made for the installation of such features. What if higher food prices egg on more people in Cherepovets and Whitehorse – and even downtown Toronto – to try growing vegetables and putting up preserves? Latitude comes with an optional greenhouse, and the house is generously outfitted with pantries and other storage facilities.

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> Paul Raff

Be all that as it may, the stakes in competitions like this one are very high. In architectural circles everywhere, the race is on to create the perfect mass-produced house for the burgeoning world cities of the 21st century: energy-efficient, easy to manufacture, socially and environmentally sustainable, beautiful and affordable. Someone, somewhere, will hit on the right solution – and likely walk away with a Nobel Prize.

For its part, rvtr is forging ahead. With industry and academic partners, the firm is designing and building an 800-square-foot, solar-powered building called North House, destined for a competition called the 2009 Solar Decathlon in Washington, D.C. Stay tuned for more news about this and other developments in one of the most fascinating architectural stories of our time.