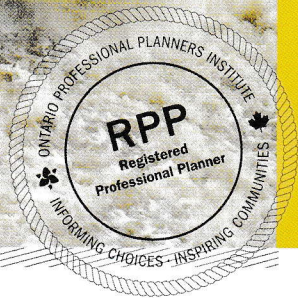




IDEAS AT THE CROSSROADS OF INSPIRED COMMUNITIES



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RPPs have been at the forefront of the climate change conversation for some time now.

01 V2 is a rear-lane secondary suite designed to work within the newly approved City of Toronto Laneway Housing guidelines.

BUSINESS

R-Hauz: Affordable, mid-density housing that's energy efficient to build and live in

BY CAROLYN CAMILLERI



“Storm management is built in, with groundwater infiltration an important part of the R-Hauz concept”

© R-Hauz Solutions Inc.



Leith Moore has worked in land development and home construction since 1981. As president of Waverley Projects Inc., his focus is creative ground-oriented infill development and mid-rise transit-oriented development in the Greater Toronto and Hamilton area.

“My favourite projects are the industrial-to-loft residential conversions,” says Moore.

For example, Broadview Lofts is a 104-unit condominium conversion of a 1914 industrial warehouse. A distinctive feature of the seven-storey building is the water tower that stands high above the roof.

“Putting that water tower back on top of Broadview Lofts was the biggest high,” says Moore.

In addition to leading Waverley Projects, Moore co-founded R-Hauz Solutions Inc. in 2018. The problem R-Hauz seeks to solve: the missing middle.

“We have been locked into a paradigm of good planning policy for intensification that has not found an expression in outcomes anywhere except in high-rise projects,” says Moore. “We feel there is a large part of the market that wants an affordable and liveable option of either low-rise suburban houses, semis, and towns or small high-rise condominium apartments.”

Moore says he and his colleagues at R-Hauz don’t see the lack of mid-density development as a lack of market desire, but rather as an inability of the industry to deliver a desirable product within the

framework of a traditional land assembly, zoning process, and building process. Not that it hasn’t been tried. Moore says there is a legacy of failed attempts at mid-density projects “...that took too long to be approved, cost too much to build, and absorbed a greater degree of human and capital resources than a tried-and-true high-rise.”

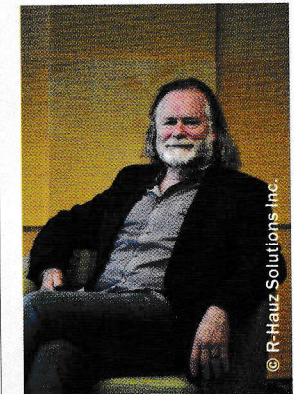
Meanwhile, Moore saw major transit corridors that were underdeveloped and a construction industry that had not innovated or improved its productivity for many decades.

ENTER R-HAUZ

R-Hauz makes BIM (building information modelling) prefabricated, manufactured structures. Currently, R-Hauz produces two models of secondary-unit, laneway homes, as well as a six-story, mass-timber, infill structure that can be configured in various ways. Both products offer exterior choice with structural repeatability for cost certainty. The prime R-Hauz market is property owners whose housing needs have changed but who don’t want to sell the asset.

“We take the land cost out of the equation and put self-solving housing solutions directly into the hands of the consumer,” says Moore. “This is a very important evolution in building in Ontario.”

It allows gentle designation to occur by individual property owners when their lifecycle needs change. As families grow, parents age, or older children become independent, buildings can be modified to



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- 02 Each unit floor has its own heating and cooling system and a combination of front and back of unit terraces, balconies, or French balconies for passive cooling and access to sunlight.
- 03 V2 models feature a range of one or two bedroom suites over a one or two (or no) car garage. Each unit has an electric car charging station.
- 04 Leith Moore is a graduate of the School of Urban and Regional Planning at the University of Waterloo and was an adjunct professor through 2016. He is past chair of both Building Industry and Land Development Association and Evergreen and past president of Ontario Home Builders Association, and he has served on two provincial advisory panels: one on transit investment and the other a land-use planning review. He is currently a member of the Ontario Greenbelt Council by appointment of the Minister of Municipal Affairs.
- 05 The area of each V2 is determined by the lot size and has been designated for lot widths of 20, 30, and 40 feet.

suit those changing needs or bring in rental revenue. And R-Hauz can meet consumer needs fast: one year from idea to install for V6 townhouses and four months for V2 laneway homes.

R-Hauz is drawing considerable consumer attention, including for use as retirement accommodation and co-housing, because the buildings are barrier-free and can be located in established neighbourhoods where services are within walking distance. While R-Hauz is also drawing some attention from the investor market, Moore says it's not as efficient if the land has to be purchased.

A GREENER WAY TO BUILD

The R-Hauz solution not only allows consumers to meet their own housing needs, but it also answers the climate action call for mid-density developments located along underdeveloped transit corridors and provides a greener way to build.

"R-Hauz is entirely about conservation of energy – our own human in addition to natural resources – and improved efficiency," says Moore.

R-Hauz has used an IPD (integrated project design) approach from the onset of concept designs.

"Our project construction team has been sitting with us for the past year as we undertook detailed design with our architectural, structural, and wellness consultants," says Moore.

A common criticism from the industry is that small is beautiful, but you cannot scale it. R-Hauz has countered that criticism by designing a product that is flexible in its exterior façade and interior use and configuration but is repeatable.

"We have found a way to scale a small build by using BIM technology and the IPD process to make 100 small builds appear like one large one to finance and trade interests," says Moore.

Structure, building code, mechanical and electrical systems, and smart building infrastructure are repeatable, and approval requirements are those set out by the city in their mid-rise guidelines.

"We are working with established planning policies – not working to change them," says

Moore. "Approvals are really centred where they should be – on exterior design and working with neighbourhood character."

Manufacturing is offsite so there is less waste in the building process than would occur in an onsite process. Because these are slab-on-grade structures, there is less digging and no long lines of idling trucks delivering concrete or removing materials. Disruption to the neighbourhood is reduced to a fraction compared to conventional construction. V6 townhouses are a five-month build onsite and V2 laneway homes are less than one month onsite.

"So it is less time and less noise overall, and the kind of noise we create is much less," says Moore.

A GREENER WAY TO LIVE

"We use a combination of enhanced envelope and insulation building standards to require a minimum energy footprint and use electricity as a decarbonization strategy," says Moore. "Our structure is a mass-timber, all-wood building – a superior solution with respect to carbon strategy."

Storm management is built in, with groundwater infiltration an important part of the R-Hauz concept. Other details include roofs that reflect rather than absorb heat, recycled grey water for toilets, electric car charging stations, and, as Moore says, "low-flow everything, LED everything."

Human-friendly features include terraces or balconies of six feet or more; quiet, energy-efficient, under-floor radiant heat and cooling; and exposed-wood ceilings and wooden stairways.

"There is much research now on wood and human emotions – we react well to it," says Moore. "Happiness is a design concept we need to come back to."

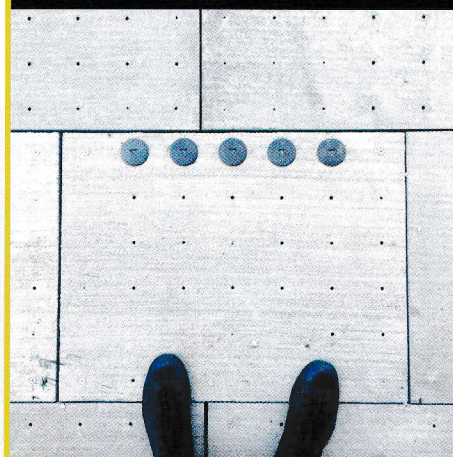
Light is also tied to well-being.

"Our units are through units – all of them – with windows front and back for passive cooling and more sunlight," says Moore.

In the townhouses, entry is direct from the elevator, which means no long dismal hallways.

The first R-Hauz V6 project started this past April in Toronto, while pilots for two models of the R-Hauz V2 laneway homes will be underway in late spring/early summer. ♻️

→ CLOSER LOOK



Climate Tile

Waverley Projects has entered into an agreement with Tredje Natur of Copenhagen to adapt Climate Tile to the Canadian market.

"Climate Tile is a permeable tile with storage built under its surface to hold back stormwater," says Leith Moore, president of Waverley Projects. "It can convey stormwater to infiltration beds for groundwater recharge. It can convey stormwater to planting beds for trees and urban landscapes. It can convey stormwater to cisterns for future use by the municipality for street cleaning. It can slowly release the balance once the storm surge in the roadway has passed."

Most permeable tiles are pavers with gaps around the edges so water can seep into granular material underneath. When those gaps fill with silt, they stop functioning. With Climate Tile, because it sits on top of a system, it can be opened up and washed out.

"Not only does it work, but it's beautiful," says Moore. "It's just lovely."

Climate Tile is currently being tested in Copenhagen and studied for compatibility with GTA-approval requirements. Once tests and refinements are complete, it will be entirely manufactured in Ontario for use on sidewalks, lanes, parking lots, and parking pads.