

# Solid Waste & Recycling

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## REPURPOSING WITH PURPOSE

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## Modular Depots for the Circular Economy— One Block at a Time

By / Paul van der Werf  
Photos courtesy of Modulo-béton

Modular HHW Depot in Niagara Region

The waste and recycling depot is a fixture of Canadian waste management, used for both non-hazardous and hazardous waste streams. They continue to evolve, from a few bins scattered around a muddy yard, to more organized, above grade, built facilities. As we start moving towards a more circular economy, it is important that their design be given considerable forethought, to create facilities that are comprehensive, easy to use, and importantly, will attract residents and businesses for return visits.



Modular residential drop off solution for Rigaud, Quebec.

Modern depots today are often a combination of an engineering, earthmoving, and paving exercise to provide depot users with an above grade platform where they can toss their various materials into waiting bins below. Depots tend to be one-offs, and largely a function of the site specific geographies of where they are being built. Unlike other facilities where waste management activities take place, there are essentially next to no proprietary depot technologies or systems.

The exception is Modulo-béton, a modular (and movable) patented recycling depot technology that was introduced to



Modular residential drop off solution for Rigaud, Quebec.

Canada in 2012. Most simply pre-cast load-bearing (locally manufactured) concrete building pieces and ramps are assembled into custom “one of a kind” above grade depots. Aside from having to follow the laws of physics, the building piece installation is only limited by one’s imagination. Depot users basically drive on the “roof” or platform and drop their various materials into waiting bins below. The space below the platform is entirely usable and can be used for storage, MHSW depot, offices, a re-use centre, and so on.

The technology has started to make inroads in some smaller Quebec communities and for HHW receipt in Niagara Region.

### Saint-Rémi, Québec Site

The Modulo Eco-Centre in Saint-Rémi (population ca. 7,700) was built in October 2014. It consists of 27 blocks, which provide a driving platform of about 300m<sup>2</sup>, a single inbound and outbound ramp, and accommodation for eight roll-off bins around its perimeter. The site was completed within three months of contract award. The depot currently offers free collection of compostable materials, cardboard, household hazardous waste, electronics, bulky items (e.g. furniture), and tires. The centre also accepts yard/garden waste, construction and demolition waste, and renovation/other materials waste, although there is fee for these materials.

### Rigaud, Québec Site

The Modulo Eco-Centre in Rigaud (population ca. 7,600) was established in 2016. The facility is set up similarly to the Saint-Rémi site with capacity for eight roll-off bins around its perimeter, but with separate inbound and outbound ramps. It can be challenging for small towns to offer their residents something substantial when it comes to depots. This Eco Centre gives the citizens of Rigaud an outlet, where there was previously none, for various waste streams that had been

ending up in the landfill. The Eco-Centre accepts five types of materials including dry building materials, treated wood/plywood, bulky metal (e.g. appliances), non-metallic and non-reusable bulky items (e.g. carpet), and asphalt shingles. The site is staffed with an attendant and is currently seeing about 300 visits/week.

“Its flexibility, ability to improve, and ability to enlarge the Eco Centre made this approach a no brainer for us,” said







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*The Region expects to receive up to 35,000 vehicles and 800 tonnes of HHW material annually between the two facilities.*

Rigaud Mayor Hans Gruenwal Jr. “Not to mention it was much less costly than other options.”

Ultimately, the decision was made because it made environmental sense but also to reduce waste disposal costs. They have made full use of the available space under the eco centre platform. “We are presently using it for storage of some recyclables, such as electronics, that we receive throughout each day,” said Gruenwal.

### Niagara Region Household Hazardous Waste Drop-off Depots

More recently the technology has been expanded to include purpose-built household hazardous waste (HHW) depots, two of which were recently installed in Niagara Region at the Humberstone Landfill and the Thorold Public Works Yard.

The same blocks and building principles are used to construct these facilities, except the output is a number of connected rooms where the various types of HHW material can be received, sorted, bulked, and safely stored, prior to

transporting from the site to an approved processor. The facilities were built to meet demanding specifications, which included MOECC, various fire codes, and CSA (electrical) requirements. Both include staff kiosks and a drive-thru area for residents. What this has done for the Region is allowed it to move away from 14 days per year of dedicated HHW event days, to facilities that are now open year round. The Region expects to receive up to 35,000 vehicles and 800 tonnes of HHW material annually between the two facilities.

As Niagara Region’s Bob Vanyo observes, “For our needs, this technology was flexible in terms how it could be configured and, in addition to the fire and safety features required at these types of facilities, offered some unique design features such as a canopy, which serves its purpose [of protection of the natural elements], yet lets in [natural] light, energy efficient lighting, and wide doors that facilitate easy in and out access for storage and removal of HHW.”

Modulo facilities in places like the Netherlands have taken these concepts and combined the recycling depot and HHW depot in one location. That is, the “roof” of facilities are used as a driving deck for those want to recycle various items, while the space below is used a HHW depot. ●●

Read more at Modulo-béton <http://www.modulo-beton.com/en>.

*Paul is the owner of the environmental consultancy 2cg. He is also a PhD candidate at Western University and developing strategies to prevent food from becoming food waste.*



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