

Urban Transformation

Southeast False Creek's Millennium Water BY JENNIFER STAMP



One of the first things that strikes you as you look over top of Vancouver's newest sustainable community, Millennium Water (2010 Olympic Games Athlete's Village), is how noticeably green it is. The many rooftops scattered across eight city blocks are covered in vegetation. Roughly 50 per cent of each residential parcel square footage has vegetative coverage, a requirement by the City of Vancouver that aids in achieving various LEED credits.

The green roofs at Millennium Water are made up of both extensive and intensive profiles. Both have a number of benefits including mitigating the heat island effect, reducing peak flows of storm water, insulating the building from heat gain/loss, providing forage and habitat for wildlife. In the case of intensive green roofs they also provide amenity space for residents.

Extensive green roofs are those made up of thinner soil profiles (50mm to 150mm) and vegetated with small ground covers and grasses. In this project, two types of extensive green roof systems were used: Xeroflor and LiveRoof. Xeroflor Sedum mats were installed on the residential parcels and both LiveRoof trays and Xeroflor Sedum mats were installed on the Community

Centre. The advantages to both of these systems is that they are pre-vegetated (95 per cent vegetative coverage) resulting in an immediate green effect and reduced maintenance costs during the establishment period.

Durante Kreuk worked with Xeroflor Canada to develop a buildup of the extensive green roof Sedum mats to tolerate the wet Vancouver winters. The mats were laid over 100 — 150mm of mineral growing medium (that has less than 10 per cent organic matter) over the roof assembly comprised of: filtercloth/drainmat, 150mm rigid insulation, root barrier, and the waterproof membrane system. Several Sedum varieties were used for the green areas and red leafed Sedums were installed (bound by aluminium edging) to create the various athlete figures of the 2010 Olympic Games events.

At the Community Centre, LiveRoof trays with low growing drought tolerant grasses were installed, creating a shoreline aesthetic three storeys above the water's edge. The trays filled with mineral growing medium were set over 150mm rigid insulation over root barrier and the waterproof membrane system. Root barriers were installed under both extensive and intensive green

roofs to provide added protection to the waterproof membrane from aggressive roots of any weeds deposited by wind and birds.

Intensive green roofs are those made up of thicker soil profiles (150mm to 900mm+) and vegetated with larger plant material such as trees and shrubs. The intensive green roofs at Millennium Water are comprised of courtyard common amenity gardens and semi-private rooftop gardens accessed only by residents with direct connections through suites. When designing the courtyard gardens, we strove to provide spaces to support all the activities one would regularly do in the backyard of a single family residence.

The amenity gardens were comprised of a "kit of parts": a children's play area for ages 2-5 and 6-12, an unprogrammed lawn area, urban agriculture, a rainwater garden and an amenity patio (located adjacent to the interior amenity room). The children's play areas were designed to be more naturalistic and provide imaginative play, rather than programmed activities. An area of lawn was located adjacent to the children's play area so that activities could spill over into the lawn. The urban agriculture was located close by so that parents could keep an eye on their



children while working in the garden plots. These areas, roughly 200 sq. metres per parcel, were outfitted with all the essentials of a backyard garden: potting benches, tool storage and composters. Lastly, nearly all parcels have a rain water feature. Rain water stored for irrigation in underground cisterns is recirculated through the

water features, providing both a visual amenity for residents and aerating the stored water.

Both the intensive and the extensive green roofs are irrigated using highly efficient drip line and spray heads to ensure the rooftops and gardens are lush and green throughout the year. Both native and drought tolerant plant species

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were installed to lessen the demand for irrigation.

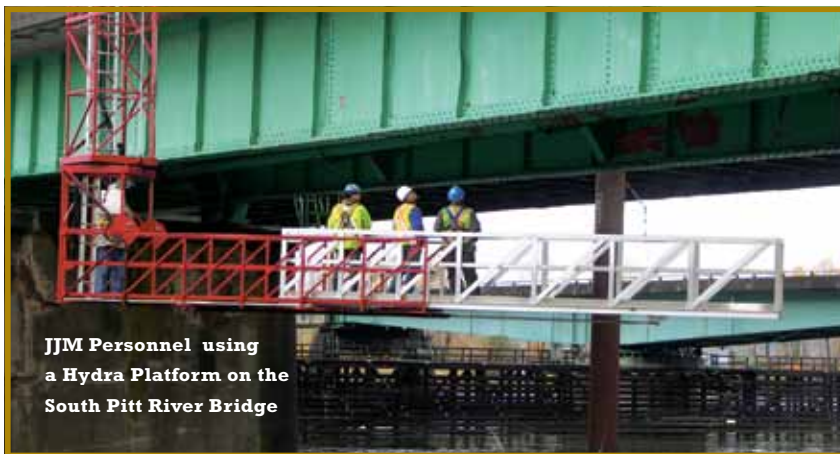
One of the key things to consider in the design of green roofs is maintenance access. As there were many roof levels over eight city blocks this requirement proved to be the most challenging aspect in the design of both the extensive and intensive green roofs at Millennium Water. We worked with the various architectural teams to provide rooftop access via roof hatches, exit stairs and common walkways so maintenance crews can do periodic weeding and inspect the roof.

When move in day comes for the residents of Millennium Water they will enjoy the amenities provided by the many green roofs at Vancouver's newest sustainable neighbourhood. **CB**

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