

# PROJECT PROFILE

## Toronto City Hall, Toronto, ON

### Revitalizing the Square

More than 1.5 million visitors each year take part in events or activities in Toronto's Nathan Phillips Square. Opened in 1965 and designed by world-famous Finnish architect Viljo Revel, the Square has served as the city's premier public space and civic gathering place. Visitors enjoy concerts, dance performances, art exhibitions, a farmers market, skating under the arches and reveling in New Year celebrations.

With the growth of both the population and the number of tourists visiting the Square each year, some of its structures had fallen into disrepair or were closed altogether. The City of Toronto realized that major renovations were overdue in order for the Square to meet the needs of today's residents and tourists and allow for an even greater variety of activities and special events.

As part of the effort to revitalize the Square, a design competition was held by the city of Toronto and a design from the team led by Shore Tilbe Irwin & Partners, Inc. and Plant Architect Inc. was selected from more than 48 entries. A key component of the design incorporated a garden roof for the City Hall Podium Roof utilizing a waterproofing system from Carlisle Coatings & Waterproofing Incorporated (CCW).

The City of Toronto has had an interest in and encouraged the use of green roofs for some time. In 2004, they began studying the environmental benefits of green roofs which led the Toronto City Council to adopt a Green Roof by-law in May 2009. This makes Toronto the first city in North America to institute a by-law, effective January 31, 2010, requiring that all new development (commercial, institutional and residential) above 2,000 square meters incorporate green roofs over a percentage of their available roof space.

The use of rooftops to grow plants dates back thousands of years with discoveries of roof gardens in use as early as the fourth century in Mesopotamia. Besides being aesthetically pleasing, roof gardens help control storm water runoff and contribute to a reduction in the urban heat-island effect. One of the most important considerations for any roof garden project is to make sure that the roofing material used underneath the plants is up to the challenge of providing waterproofing protection for the building.

Bob Ashby, architectural consultant, Shore Tilbe Irwin & Partners, Inc., understands the critical role of the roofing system below the garden area and that is why he recommended a hot-applied system. "Of all the materials that a Consultant may specify to keep water out of a structure we have found hot rubber to be the best performer," said Ashby. "Millions of square feet of successfully waterproofed projects is all the testimonial a product requires."

Flynn Canada Ltd. was chosen to install the new garden roof on Toronto's City Hall. "Living roofs facilitate interaction with nature," explained Terry McGlade, Manager, Flynn Canada Ltd., Gardens in the Sky. "This social interaction is just as valuable a benefit as improvements to air quality, reduction of the heat island and the capital costs savings to the building's energy performance."

### Toronto City Hall at a glance

**Location:**

Toronto, ON

**General Contractor:**

Shore Tilbe Irwin & Partners, Inc.  
/Plant Architect Inc.

**Carlisle Coatings & Waterproofing Contractor:**

Flynn Canada Ltd.

**Carlisle Coatings & Waterproofing Products:**

- CCW-500R
- Protection Board
- CCW MiraDRAIN 9000

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They began the job by removing the existing pavers and stored them for re-use by the City. Jim Guzik of Flynn Canada said, "The podium roof was just one phase of this project and they want to obtain a LEED® Gold certification for the entire project so we tried to salvage as much as we could from the system that had been in place." The crew also recycled a portion of the old insulation.

The existing 30-year old rubberized asphalt waterproofing membrane was left in place; then power washed and cleaned using a Carlisle-approved cleaner. The crew installed a two millimeter layer of CCW-500R hot-applied rubberized asphalt membrane followed by CCW's reinforcing fabric and applied a final, three millimeter layer of CCW 500R.

"The CCW500R hot-applied system was really the only way to go in this installation," said Guzik. "Throughout the years there had been two other waterproofing systems installed. Removing them would have been disruptive to the building occupants and very labor intensive." The 500R was ideal to use over the existing membrane because it bonds tenaciously to virtually any sound surface. Guzik said the use of the 711-90 reinforced flashing made quick work of the details.

After the membrane was in place, the crew installed Carlisle's 1/8-inch horizontal protection board followed by high-density extruded polystyrene insulation. CCW MiraDRAIN® 9000 drainage board was then placed over the insulation in preparation for the garden roof. The MiraDRAIN allows for proper drainage of water and features a woven, monofilament fabric that is able to withstand high abrasion from overburden such as a roof garden. The garden roof was installed using a tray system and covers about 35,000 square feet of the 120,000 square foot roof.

After many years of closure, the podium roof of Toronto's City Hall was finally reopened as a public garden on Saturday, May 29, 2010. Mayor David Miller, architects, school children and a band led the way to the new green roof to declare the space officially open.

In addition to the garden tray system, the podium roof features walkways, a courtyard, terraces and benches. One large planter on the south end of the roof houses three Kentucky Coffee trees which provide visual interest and a shady spot for visitors to relax. The new garden roof provides a refreshing habitat for Toronto's residents and visitors and serves as an educational opportunity for the city to teach others it is possible to reside in a dense urban area and still minimize the environmental impact on the planet.

