

Eglinton Crosstown LRT, Toronto, Canada

Project specifications

Project type: Metro
Application: Fire protection for precast segmental lining

Partners

Owner: Metrolinx



©Photo credit by Metrolinx, Eglinton Crosstown LRT, Toronto, Canada

One of the largest transit expansions in the history of the Greater Toronto Area, the Eglinton Crosstown is a 19km-long light rail transit line connecting the city from east to west in a dedicated route. The rail link includes 25 stations, elevated sections and 10km of twin tunnels, and is expected to reduce travel time by 60%.

The challenge

Once completed, the Eglinton Crosstown will link to existing bus routes, subway stations and commuter rail, and is being constructed in Canada's busiest and most-densely populated city.

In the short term, selecting TBM excavation over other methods provided less disruption to the urban environment, and the use of precast concrete segments automated the boring and lining processes during the construction period.

Looking long term, the project had several resiliency requirements for the tunnel lining, including in the event of a transit vehicle fire.

The solution

Precast concrete segments, manufactured locally in Toronto, included Duomix® M6 Fire microsynthetic polypropylene fibers.

Extensive research has demonstrated that, in the event of fire, these fibers create protective voids in the concrete segment for the vapor pressure to escape. The voids reduce the risk of explosive spalling or splintering of the concrete, as well decrease the depth and area of any spalling, especially when compared to fiber-free concrete.