

## Bay Adelaide Centre

Targeting LEED® Gold status, the Bay Adelaide Centre is situated conveniently in the middle of Toronto's financial district. The impressive 50-storey office tower contains over 1,525,000 square feet of rentable, Class A office space. Over 112,062 square feet of below-grade retail space links this complex to the extensive downtown concourse network. Three levels of existing below-grade parking provide space for approximately 1,100 cars.

The building is designed as a landmark signature tower, and with its distinctive rooftop silhouette makes a unique and lasting architectural imprint on the Toronto skyline.

The levels below-grade are framed with concrete floors/columns, which are supported on spread footings or strip footings founded directly on competent rock. The levels above grade are framed with reinforced concrete core and structural steel columns & floors. The concrete core is the lateral load resisting system. The steel columns & floor framing are the gravity load resisting system and the structure was designed for Progressive Collapse Provisions (British provisions).

The core walls are constructed using self-consolidating concrete (SCC). As one of the first North American projects to be using SCC at this scale, it provides an excellent opportunity to collect data on the effect of SCC on formwork pressure. Along with pressure monitoring, concrete testing occurs for every pour in order to better understand the relationship between the thixotropic properties of SCC and formwork pressures. The building was topped off on September 30, 2008 using a total volume of 17,300 m<sup>3</sup> of SCC for the core walls. The internal pump line delivering the concrete to the top



<b>Owner:</b>	Brookfield Properties Corporation
<b>Architect of Record:</b>	WZMH Architects
<b>Engineer of Record:</b>	Halcrow Yolles
<b>General Contractor:</b>	EllisDon Corporation
<b>Material Supplier:</b>	St Marys CBM
<b>Additional Participants:</b>	<ul style="list-style-type: none"><li>• Carpenters Local 27</li><li>• Coffey Geotechnics Inc. (formerly Shaheen &amp; Peaker)</li><li>• ERICO</li><li>• Grace Construction Products</li><li>• Structural/Hardrock, Joint Venture</li><li>• Harris Rebar</li><li>• Ironworkers Local 721</li><li>• LIUNA Local 506</li><li>• National Concrete Accessories</li><li>• PERI Formwork Systems Inc.</li><li>• Walters Structural</li></ul>
<b>Project Facts:</b>	<ul style="list-style-type: none"><li>• Valued at \$300 Million</li><li>• Construction from April 2006 to June 2009</li><li>• 214.75 m (705 ft) high</li><li>• 50-storey office tower</li></ul>



of the core wall ran approximately 90 m horizontally before turning in the vertical direction. The vertical line ran approximately 200 m high once the last floor was reached.

EllisDon has also been challenged with the restoration of the historical façade at Bay and Temperance Street. The original wall had to be removed, refurbished and reinstalled with new details that ensured there was no compromise between the interfaces of historical façade, the new curtain wall and storefront exterior wall systems.

Other design challenges that EllisDon faced were:

***Construction of New Within Framework of Existing Structure***

- New foundations under/over existing
- Reinforcement of existing columns
- Working in “confined spaces”

***Understanding of Construction Requirements in General***

- Construction logistics
- Construction lay down areas
- Construction loading requirements

***Understanding the Requirements of the Core Form***

- Retain core form advice and expertise early
- Coordination of MEP openings
- Minimum design strengths
- Understanding of loads imposed and locations
- Location of construction joints



2008 Ontario Concrete Award winning project for  
Material Development & Innovation

In 2000, the Ontario Cast-In-Place Concrete Development Council (OCCDC) was formed to aid the owner/developer, architect/engineer and design-build contractor in the decision-making process of choosing the best construction material for the framing system of new cast-in-place structures.

OCCDC promotes the benefits of reinforced concrete as the construction material of choice based upon the following advantages:

- fast-track construction
- costs savings
- structural advantages
- environmental considerations
- local economy benefits

The Members of the OCCDC include (alphabetical order):

Aluma Systems Inc.  
Carpenters District Council of Ontario  
Concrete Forming Association of Ontario  
Ironworkers District Council of Ontario  
LIUNA—Ontario Provincial District Council  
Ontario Formwork Association  
PERI Formwork Systems Inc.  
Ready Mixed Concrete Association of Ontario  
Reinforcing Steel Institute of Ontario



365 Brunel Road, Unit #3  
Mississauga, Ontario L4Z 1Z5  
Tel: 905-507-1122  
Fax: 905-890-8122  
Email: [buildings@occdc.org](mailto:buildings@occdc.org)