

The Tallest Residential Tower in Canada is Beginning to Rise with PERI Climbing Systems

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Pinnacle One Yonge, Toronto, Canada

The Pinnacle One Yonge project is a multi-phase development, designed by Hariri Pontarini Architects. With its prominent location, across from Toronto's harbour, the sleek, masterfully designed towers will reshape the city's skyline.

The first three phases of the One Yonge project include residential towers that are 65, 105 and 92 storeys tall respectively.

Premform Construction, the formwork contractor of the One Yonge Project, already involved PERI on the first phase – The Prestige Tower, which is a 217 m tall condo building. It was completed with the help of PERI's RCS Climbing Protection Panel System (RCS P) together with MAXIMO Wall and SKYDECK Slab Formwork Systems.

Accelerated Construction Schedule Combined with High Standard of Safety

The contractor decided to use the RCS P System to fully enclose the upper three working levels of the tower. The RCS P Climbing Protection Panels shield the workers as well as the slab and wall formwork systems from the wind, allowing for their safe and continuous erection and dismantling.

To increase productivity, the RCS P panels were built with deep working platforms which provided additional access and storage area beyond the slab edge, allowing the contractor to store all of their wall formwork at the top of the building, thereby freeing up significant crane time.

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Premform selected the SKYDECK Slab Formwork System due to the ease of use and speed of erection, dismantling and cycling. Together with an RCS Protection System, SKYDECK can be used with full productivity right to the slab edge without the concerns of working at heights due to the full enclosure around the perimeter. The two systems complement each other to ensure fast and safe construction of a high-rise tower with minimal delays and schedule risk due to inclement weather.

Building the Tallest Residential Tower in Canada

Phase 2 of the One Yonge project, named SkyTower, will not only be the tallest of the development with 105 storeys and a height of 345 m, but will be the tallest residential tower in Canada. With a building of such height it is extremely important that solutions are developed to speed up each cycle by automating as much of the formwork process as possible. PERI delivered the ACS Core 400 Self-Climbing System to do exactly that.

The ACS Core 400 system was selected because it enabled the formwork and working platforms for the entire elevator and stair core to be raised from floor to floor without the use of the tower crane and with the minimum amount of labour. Due to the high capacity and flexibility of the system, only 6 hydraulic cylinders are needed for the task. This reduces the amount of cast in anchors into the structure to 12 pieces per floor, an industry wide minimum. Simultaneously the core system needed to be designed to efficiently transition between the starting low-rise core geometry and the reduced high-rise core geometry without a complete rebuild of the system. PERI Canada's Engineering department also developed a comprehensive level plus one material storage platform with a hydraulic opening hatch to enable pre-cast stairs to be installed from above, yet maximize storage area in the typical working condition.

Next Steps Ahead with PERI RCS Rail Climbing Technology

Similar to Phase 1, SkyTower plans to receive its very own complete RCS façade enclosure system starting at typical floor. As buildings get taller, protection against strong winds and inclement weather is critical to ensuring overall construction site safety. The RCS P system will enable faster, safer and more efficient construction of the tower, incorporating material cycling panels to further push productivity by shielding equipment as it is cycled up from the lower floors to the active deck. The upper floors of the tower form a tapered crown which gradually reduce the footprint of the building at every floor. The RCS P system was designed to accommodate the building geometry changes.

The Customer's aim is to free up as much crane time as possible and avoid storage of material at the base of the construction site led to the selection and development of the RCS Gallow (RCS G) Shear Wall System. PERI engineers offered a solution to hang all shear walls on the project off RCS G frames, enabling the formwork to remain in place at the top of the building at all times. This approach eliminates exposure of the formwork to the wind and time spent lowering formwork to the ground.

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By using the ACS Core 400 Self Climbing System for the core, RCS P Climbing Protection Panels for the façade enclosure and RCS Gallow System for the shear walls, Premform can accelerate their construction schedule while taking safety to another level.

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Photo 1

The Sky Tower will be the tallest residential tower in Canada reaching 105 storeys with a total height of 345 meters.

(Photo: PERI SE)



Photo 2

The ACS Core 400 system was chosen for its ability to lift the formwork and working platforms of the elevator and stair core between floors without requiring the tower crane and with minimal labour.

(Photo: PERI SE)



Photo 3

PERI engineers designed the core system to switch efficiently from low-rise to high-rise core geometry without rebuilding the whole system.

(Photo: PERI SE)

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Photo 4

The ACS Core 400 System is versatile and can be used with VARIO GT 24 Girder Wall Formwork and MAXIMO Panel Formwork systems.

(Photo: PERI SE)

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