Thornton Tomasetti

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For Immediate Release

Thornton Tomasetti's Global Hub Project at Northwestern University Wins Post-Tensioning Institute Award

(Chicago, Ill. – May 10, 2017) – Thornton Tomasetti, the international engineering firm, announces that the Global Hub, the new home of Northwestern University's Kellogg School of Management in Evanston, Illinois, has been awarded the Post-Tensioning Institute's 2017 PTI Project Award. Thornton Tomasetti provided structural and façade engineering for the project. The award was presented at a May 1 ceremony in conjunction with the 2017 PTI Convention in Atlanta, Georgia. The PTI Project Awards are given biennially and recognize excellence in post-tensioning concrete design. Global Hub took top honors in the buildings category.

Key Points

- Designed by Toronto-based architecture firm KPMB Architects, the 415,000-square-foot Global Hub sits on the shore of Lake Michigan and features an innovative undulating design that mirrors its surroundings. To achieve the curving shape and accommodate various programming requirements throughout the building, extensive cantilevering and post-tensioning were introduced to minimize structural depth and deflection.

- The building consists of four six-story concrete "lofts" positioned around two vertically stacked central atriums. The biggest structural challenge was supporting 169 transfer columns in the upper three levels of the lofts. These transfer columns are supported by a network of large, post-tensioned transfer beams behaving as "foundations in the air." The transfer columns at the perimeter of the upper levels are set outboard of the levels below resulting in dramatic post-tensioned transfer cantilevers up to 19 feet in length.

- Post-tensioning in these transfer beams allowed for long spans and cantilevers with minimum structural depth and deflection, which is a critical concern for transfer columns. The curving nature of the floor plates also creates complicated PT transfer beam intersections, which were a key constructability consideration during the design phase. Many of the PT transfer beams were stressed in multiple stages to manage the varying loading conditions that occurred during construction without overstressing the beams. Post-tensioning is also used in the lower levels in beams that enable large, column-free classroom space and extensive cantilevering of exterior terraces while minimizing structural depth.

Executive Quote

Todd Whisenhunt, S.E., P.E., vice president, Thornton Tomasetti, Chicago

"We are honored to be recognized by the Post-Tensioning Institute for our work on this very challenging project. Post-tensioning was the only solution that could create the unique structural forms and spaces of the project. Without post-tensioning's superior deflection control and ability to minimize structural depth, another less cost-effective structural steel solution, such as deeper structure or less thermal mass, would have been required."

Supporting Materials

Thornton Tomasetti
www.ThorntonTomasetti.com

Northwestern University, The Global Hub, Kellogg School of Management
http://www.thorntontomasetti.com/projects/northwestern_university_global_hub_kellogg_school_management/

Todd Whisenhunt
http://www.thorntontomasetti.com/people/todd_whisenhunt/

Post-Tensioning Institute
http://www.post-tensioning.org/page/about-pti

About Thornton Tomasetti

Thornton Tomasetti is a leader in engineering design, investigation and analysis serving clients worldwide on projects of all sizes and complexity. Through its 10 complementary practices, Thornton Tomasetti addresses the full life cycle of a structure. We have supported clients working in more than 50 countries, with projects that include the tallest buildings and longest spans to the restoration of prized historic properties. Thornton Tomasetti comprises more than 1,200 engineering, architecture, sustainability and support professionals who collaborate from offices across North America, Asia-Pacific, Europe, Latin America and the Middle East.

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