U of T report reveals merits of window wall, curtain wall

(VAUGHAN: June 27, 2017) – The debate within the construction industry rages on about which glass cladding system is preferable: window wall or curtain wall. That's what led the University of Toronto's Building Tall Research Centre and the Residential Construction Council of Ontario (RESCON) to commission a report to investigate the merits of the two main glazed cladding systems for tall buildings.

"Early iterations of window wall cladding may have experienced isolated issues relating to thermal performance, air tightness, water penetration or condensation. However, many of the problems associated with window wall cladding were related to early generations of window wall iterations and have since been improved upon," says **Dr. Arash Shahi**, research manager of Building Tall and a post-doctoral fellow at U of T's department of civil engineering.

"At Building Tall, we completed a comparative analysis of window wall versus curtain wall using metrics of thermal performance, air tightness, water penetration, condensation, constructability, maintenance and cost."

Here are three key findings in the report:

1. Window wall is the more suitable application for residential construction as it accommodates features such as balconies, operable windows and suite compartmentalization (contains odours, noise and air movement within a single unit) compared to curtain wall, which is more appropriate for commercial buildings. Window wall also has significant advantages for constructability, cost and maintenance.
2. Intrinsic properties of curtain wall and the way it is attached to a structure can give it certain advantages in the above noted metrics. However, our review shows that a well-designed and properly installed window wall system can perform equally or better than curtain wall based on these metrics, and at a lesser cost.
3. Best practices for the design and installation of window wall cladding have advanced to achieve better performance including reduced thermal bridging to the concrete structure; less conductive window wall frames; rain screen design to collect and drain any penetrating water. Construction mock-ups and field testing have become commonplace and further contribute to improving water penetration and/or air infiltration.

Paul De Berardis, RESCON's director of building science and innovation, said the findings show there have been advances in the more current iterations of window wall.

"The false perception that window wall is a lesser form of glazed cladding should be laid to rest," De Berardis said. "This study clearly demonstrates that window wall not only has a vital place in high-rise construction, it can actually outperform a typical curtain wall system. The unique characteristics of

window wall make it ideally suited for residential applications, which is why it dominates the condo cladding marketplace."

Click here for the report.

WHAT IS U OF T's BUILDING TALL RESEARCH CENTRE?

The Centre within U of T's Faculty of Applied Science & Engineering conducts and promotes research related to tall buildings from multi-disciplinary technical perspectives, including building science, construction and sustainability. It collaborates with designers, consultants, developers, builders and policy makers. Visit buildingtall.utoronto.ca.

WHAT IS RESCON?

The Residential Construction Council of Ontario represents more than 200 of Ontario's residential builders. Our members build world-class high-rise, mid-rise and low-rise homes, including rental apartments and social housing buildings. Visit www.rescon.com for more.

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