Message from the President

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Greetings to all my companions and envelope enthusiasts. I hope you started the year well, despite all surrounding impacts; our aspiration for peace endures.

I would like to touch on a few things that can be placed as targets to be addressed and / or achieved this year. These issues have been persistent in negatively contributing to our building envelope performance. We should be able, at minimum, to identify the actions required to change them. These issues aren't new to most of you, but they tend to be ranked lower in significance, misinterpreted, or ignored, resulting in an ongoing disadvantage for overall building envelope performance, which we—quite frankly—get blamed for.

Let's start with the issue of air leakage. It's been discussed often, and it was noted clearly in our last edition of *Pushing the Envelope Canada* that airtightness testing needs to become a mandatory requirement for new construction or major energy retrofit projects—not only for large commercial, institutional, and multi-residential projects, but for all buildings seeking energy efficiency and thermal comfort.

We're baffled at how legislative authorities and code jurisdictions allow this important building envelope quality requirement to be removed from various codes and sustainability frameworks. It's erroneous to believe that the resources to perform the required testing gradually during construction and at substantial performance are rare. It's worth mentioning that a comfort indoor space quality, like humidity, is greatly impacted by excessive air leakage. Replacing continuously lost conditioned air requires not only heating but also humidification, unlike controlled air / heat / humidity exchange with energy recovery ventilators.

The second issue to address is thermal bridging. Yes, we all know what it *actually* is and have learned about it, attended lectures, or even presented on this topic. Many can even precisely analyze, detail, and calculate it. But it appears to continually go mostly unnoticed in the building envelope performance submittals in Ontario and other provinces. Thermal bridges are certainly disregarded, with all their counteracting effects, as part of the envelope.

Public demand and political strategies should endorse true envelope performance recognition. If one continues to ignore the impact of thermal bridges, how would one be asking for environmental awareness and specific buildings' low energy consumption targets and reducing greenhouse gas emissions, etc., while envelopes continue to leak energy through imprudent bridges?

Another thermal bridging type, aside from opaque walls, that might fly under the radar and go unnoticed is the high conductivity of glass framing elements, as it mostly falls into the "glazing specialty" carefully packaged category. I was stunned to read a recently published article arguing reasons to maintain higher U-values for glazing / framing elements. This quote from that article is probably used to divert attention and delay investing efforts in improving framing thermal qualities: "…The proposed reduction in window thermal transmittance results in reduced heating but increased cooling. The better insulated windows reduce heat loss during the winter but prevent cooling during summer nights / mornings…". I will withhold my comments.

Synergies between thermal bridges and indoor relative humidity reductions validate their impacts on human comfort. It's obvious that one must reduce the relative humidity to prevent condensation accumulation, mould, and mildew at cold spots, sacrificing thermal comfort and probably wasting further energy needed to elevate the indoor temperatures, making up for warmth perception sensations reduced by the dryer air environment.

The third issue to focus on is trade-offs. Thus far, building codes have allowed for low performing thermal building envelopes, accepting most façades, with energy savings substitutions toward mechanical system alternatives. To meet the energy efficiency requirements by following the performance-based approach, developers are allowed "trade-offs" or substitutions between the energy efficiency of the building envelope and mechanical equipment, producing more energy leaking through the envelope. Energy preservation through the building envelope isn't enforced.

I'm sure there are many other issues we need to challenge, but let's suggest actions that can be taken this year to address these clearly identified objectives. I look forward to receiving your suggestions. ■