



Bulletin 2: Toronto Green Standard (TGS) V3

Absolute Performance Pathway and Thermal Bridging Documentation Required after January 1, 2020

Issued January 2020

Scope

Mid to High Rise and Non-residential Part 3 Buildings and all City-owned Buildings

GHG 1.1 Buildings Energy Performance
GHG 1.2 Advanced Buildings Energy Performance
GHG 1.3 High Performance, Low Carbon pathway

(1) Absolute Performance Targets Pathway

As directed by Toronto City Council in December 2017, new development applications received on or after January 1, 2020 will need to follow the absolute performance targets pathway as laid out in Section 5 of the [Energy Efficiency Report Submission & Modelling Guidelines](#) (Energy Modelling Guidelines). Under this pathway, large, part 3 developments must demonstrate compliance with the applicable targets for: Total Energy Intensity (TEUI), Thermal Energy Demand Intensity (TEDI), and Greenhouse Gas Intensity (GHGI) provided in the [TGS](#) Energy/GHG and Resilience section.

As of January 1, 2020, the relative performance targets pathway may only be used for buildings without prescribed absolute energy performance targets ('other building types').

(2) Thermal Bridging Calculations

Meeting the TGS V3 absolute performance requirements is achieved by following the City of Toronto's Energy Modelling Guidelines. Thermal bridge calculations are a key component as described under section 5.5 and 5.5 (1 & 2).

Consistent calculations of building envelope heat loss including assemblies and associated thermal bridging elements must be accurately quantified and calculated for the purposes of complying with all Tiers of TGS performance (Tiers 1 through 4) as follows:

2.1 All linear interfaces must be included in calculating thermal bridging with clear field surfaces that may include the following:

- Window/wall transitions,
- Balcony/slab edges,
- Parapet/ceiling connections,
- Service penetrations and,
- Exterior cladding attachments.

2.2 The following details are required to be submitted with the Design Development Stage Energy Modelling Report (EMR) submitted prior to NOAC, during the Site Plan Approval process and with the As-Constructed EMR:

- Typical details for opaque clear fields including wall, roof and window assemblies along with the Area takeoff's and transmittance values calculation;
- Transmittance values of the selected glazing. Example: Frame Plus screenshot to demonstrate the transmittance values of the selected glazing is also acceptable;
- Typical linear interface details and takeoff as noted above with transmittance value;
- Show the effective R-value using the Thermal Performance Spreadsheet, preferably the completed Building Envelope Thermal Bridging Guide (BETBG) calculator.

An example of BETBG calculation and submissions for a mid-rise building is attached for reference. If you have any questions or comments please contact Environment & Energy Division review team at EnergyReview@toronto.ca for further information.