

# Warm Edge Spacer Task Group

NFRC Spring Meeting

3/26/19

# Scope

Clarify the use of the term 'warm edge spacer system' through use of standardized definitions and calculation method.

Terminology and keff calculations do *not* impact NFRC whole product ratings, but ...

- Inconsistent broad use of term in market
- No consistent method / term for specifiers
- Spacer system effective conductivity keff calculation method is not standardized

# Proposed activities

- Document and standardize keff calculation (Sim Manual or NFRC 100)
  - Only place Keff is mentioned and used is in CMA Section 5.9, but otherwise, calculation does not appear in any NFRC document
- Define “Warm Edge Spacer System” (NFRC 100 and NFRC 600)
  - Include two classes, “Class I” and “Class II”, to differentiate performance
  - Performance based, not material based, using the spacer system effective conductivity Keff

# keff calculation

$$k_{eff} = \frac{L}{R_{tot} \left( \frac{1}{h_o} + \frac{1}{h_i} \right)}$$

where

- $L$  = spacer length (*do we need to standardize for comparative purposes?*)
- $R_{tot} = 1/U$  determined for spacer system assembly in THERM
- $h_o$  = outside heat transfer coefficient (5.28 Btu/h\*ft<sup>2</sup>\*F)
- $h_i$  = inside heat transfer coefficient (1.408 Btu/h\*ft<sup>2</sup>\*F)

# Proposed definition

**Warm Edge Spacer System:** A spacer system assembly including the spacer and any primary and/or secondary sealant(s) with reduced thermal heat transfer.

Warm Edge Spacer Systems are divided into two classes:

- **Class I:** A warm edge spacer system with effective conductivity  $K_{eff}$  less than or equal to **XX** W/mC (**XX** Btu/hr-ft-F) as calculated in accordance with either Path II or Path III of Section 5.9.5.1.
- **Class II:** A warm edge spacer system with effective conductivity  $K_{eff}$  greater than **XX** W/mC (**XX** Btu/hr-ft-F) and less than or equal to **YY** W/mC (**YY** Btu/hr-ft-F) as calculated in accordance with either Path II or Path III of Section 5.9.5.1.

*(Note: placeholder – need to determine appropriate range.)*

*Just preliminary concept – task group needs to review and discuss*

