5.6.4.2 Simplifications to a Product Line – Spacer Components

This section presents additional product line simplification rules specific to spacer components used in non-residential fenestration systems and site-built products.

Spacer: For the purpose of the CMA methodology, each spacer system assembly performance shall be provided in terms of its effective conductivity, k_{eff}. The Spacer system assembly consists of the spacer component, desiccant, and any applicable sealants. Three different paths are provided for the definition of the spacer component and corresponding spacer system assembly. Each spacer component can be submitted by the spacer manufacturer and later made available for spacer system assembly under only one path. The Path selected for a specific spacer model may be revised by the spacer manufacturer at any given time. The spacer model values shall be removed from the original Path and be made available in the new Path in accordance with the acceptance procedures established for that specific Path.

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Path II – Specific Spacer - Spacer System k_{eff} : (Specific Spacer, Default Sealant, Default Desiccant, Limited Geometry)

k_{eff} defined based on simulation from spacer bar drawings

The Spacer manufacturer shall submit drawings to an NFRC accredited simulator to be evaluated and modeled. The spacer shall be evaluated using generic sealant and desiccant materials to cover all sealant and desiccant materials (see table below). Modeling of desiccant is applicable to only those spacer systems which separately add desiccant to the spacer bar. The spacer is evaluated for each width available based on the drawings supplied by the spacer bar manufacturer at the maximum spacer height available from the manufacturer. If the spacer system does not incorporate secondary sealant, then the spacer system height is equal to spacer height. The spacer system with the highest k_{eff} value shall be used to represent all spacer system geometries for this spacer bar. Only one k_{eff} is submitted for inclusion in the CMA database to represent a spacer system under this path.

Table 5.6.1
Generic Sealant and Desiccant Material Values

Generic Materials	k (W/m-K)	k(Btu/hr-ft-F)
Generic Sealant 1	0.25	0.144
Generic Sealant 2	0.40	0.231
Generic Desiccated matrix	0.29	0.168
Generic Desiccant bead	0.03	0.017

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Path III – Detailed Spacer – Detailed Spacer System Calculation:
(Specific Spacer, Specific Sealant, Specific Desiccant, Detailed Spacer System Geometry)

k_{eff} defined based on simulation from spacer drawings, any applicable desiccant, and any applicable sealants.

The spacer manufacturer shall submit drawings to an NFRC accredited simulator to be evaluated and modeled. The spacer component under this path consists of spacer bar only. The spacer component shall be evaluated by the certified simulator working for an accredited lab and shall be based on the drawings and the bill of materials supplied by the spacer manufacturer. Each spacer component has unique width and height. The spacer system, consisting of the spacer component**,** desiccant, and any sealants, as appropriate, is generated when spacer system composition and geometry is known. The effective conductivity of such spacer system is calculated on demand using the values of 0.29 W/m-K for desiccated matrix and 0.03 W/m-K for desiccant bead, and shall be used in the whole fenestration product calculation.

As an option, the product may be evaluated and modeled with the generic sealant and (or) generic desiccant materials defined under Path II to limit the number of system configurations.

For the purpose of calculating the overall product rating at the standard NFRC size, the spacer system assemblies may be grouped with the spacer system assembly with the higher effective conductivity, which then becomes the group leader.