

# Technical Data Series

## Tech 402 Thermal Rated



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# Technical Data

## Thermal Rated

# Tech 402

**Testing Standards**

**ASTM C1363-05** Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus.

**ASTM C1199-09** Test Method for Measuring the Steady-State Thermal Transmittance of Fenestration Systems Using Hot Box Methods.

**ASTM E1423-06** Practice for Determining Steady State Thermal Transmittance of Fenestration System.

**U-Factor**

U-Factor is the door's thermal conductivity. Based on measured heat flow through a sample at the temperature difference of the air on the indoor and outdoor sides. Lower U-Factor the better.

$$U = \frac{\text{BTU}}{\text{F}^\circ \times \text{ft}^2 \times \text{hr}}$$

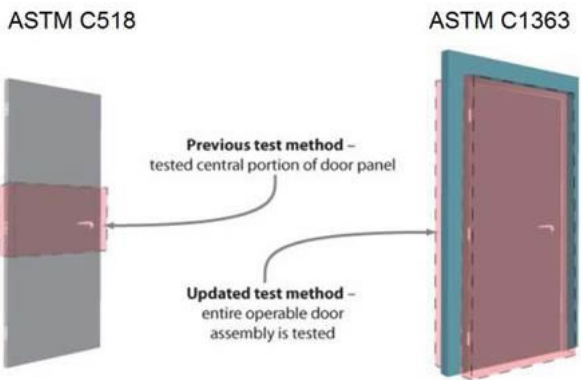
**R-Value**

R-Value is the door's thermal resistance. Higher R-Value the better.

$$R = \frac{\text{F}^\circ \times \text{ft}^2 \times \text{hr}}{\text{BTU}}$$

ASTM C1363 vs ASTM C518 the new test criteria provided realistic values representative of actual room conditions and are based on the full surface of an operable door rather than just the center portion of the door surface as with old test procedures.

ASTM C1363 alone is not intended to determine performance of fenestration systems. ASTM C1199 has been established for this purpose and is used in conjunction with ASTM E1423 and ASTM C1363.



| Door Type                            | R-Value | U-Factor |
|--------------------------------------|---------|----------|
| 18 ga Polyurethane Flush             | 2.75    | 0.36     |
| 18 ga. Polyurethane 6 Panel          | 2.69    | 0.37     |
| 16 ga Polyurethane Flush             | 2.66    | 0.38     |
| 18 ga. Polystyrene Flush             | 2.56    | 0.39     |
| 18 ga Polystyrene 6 Panel            | 2.45    | 0.41     |
| 16 ga Polystyrene Flush              | 2.57    | 0.39     |
| 18 ga Steel Stiffened Flush (250 TR) | 1.75    | 0.57     |
| 16 ga Steel Stiffened Flush (250TR)  | 1.71    | 0.58     |
| 14 ga Steel Stiffened Flush (250TR)  | 1.78    | 0.56     |

Results are representative of standard production items

