

**Standard Practice  
for  
Determining the  
Steady-State Thermal  
Transmittance  
of  
Steel Door  
and Frame Assemblies**



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# Standard Practice for Determining the Steady-State Thermal Transmittance of Steel Door and Frame Assemblies

## 1 Purpose

- 1.1 The purpose of this practice is to establish a standard test specimen size, test conditions and a rating system for determining the thermal transmittance of operable steel door and frame assemblies.
- 1.2 This practice refers to the standardized thermal transmittance;  $U_{st}$  of an operable steel door and frame assembly installed vertically in the absence of solar and air leakage effects.
- 1.3 This practice employs the use of ASTM C1363-05, *Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus*, ASTM C1199-09e1, *Standard Test Method for Measuring the Steady-State Thermal Transmittance of Fenestration Systems Using Hot Box Methods* and ASTM E1423-06 *Practice for Determining Steady State Thermal Transmittance of Fenestration Systems*.

## 2 Test Specimen

- 2.1 Single doors and pairs of doors shall be tested as nominal 3'0" (914mm) wide x 7'0" (2134mm) high and 6'0" (1828mm) wide x 7'0" (2134mm) high openings, respectively.
- 2.2 The test specimens shall consist of door, frame, weather-stripping system, glazing (if included) and hardware and be fully operable prior to the sealing of the assembly.

**Note:** ASTM E1423 requires sealing of the test specimen to prevent air leakage.

## 3 Experimental Procedure

- 3.1 The specimen shall be tested in accordance with ASTM C1199, C1363 and E1423.

## 4 Calculation

- 4.1 The standardized Thermal Transmittance ( $U_{st}$ ) shall be calculated per the CTS method described in ASTM C1199.

## 5 Performance Ratings

Table 1

U-Value	< ½ Light	> ½ Light	Rating
> 0.46	>0.52	> 0.57	0
≤ 0.45	≤ 0.51	≤ 0.56	1
≤ 0.43	≤ 0.49	≤ 0.54	2
≤ 0.41	≤ 0.47	≤ 0.52	3
≤ 0.39	≤ 0.45	≤ 0.50	4
≤ 0.37	≤ 0.43	≤ 0.48	5
≤ 0.35	≤ 0.41	≤ 0.46	6
≤ 0.33	≤ 0.39	≤ 0.44	7
≤ 0.31	≤ 0.37	≤ 0.42	8
≤ 0.29	≤ 0.35	≤ 0.40	9
≤ 0.27	≤ 0.33	≤ 0.38	10

## 6 Report

- 6.1 The report shall contain the following information:
- 6.2 A detailed description of the test specimen components, i.e. Door, frame, hardware, glazing and weather-strip that includes model or series numbers.
- 6.3 If the test specimen is of a size other than that specified in Section 2.1, the reason for the deviation should be noted.
- 6.4 All of the information specified in Section 9 of test method ASTM C1199.
- 6.5 A statement affirming that the test was conducted in accordance with this standardized procedure.
- 6.6 A rating as defined in Table 1.



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