

**CSA A440.2-09 THERMAL PERFORMANCE  
TEST REPORT**

**Rendered to:**

**CR LAURENCE CO., INC.**

**SERIES/MODEL: MS-375TC Thermal Composite Door**

**TYPE: Swinging Door with Frame**

Summary of Results			
<b>Temperature Index - Frame (<math>I_f</math>)</b>		57	
<b>Temperature Index - Glass (<math>I_g</math>)</b>		68	
<b>Temperature Index</b>		57	
<b>Unit Size:</b>	965 mm x 2159 mm		
<b>Layer 1:</b>	6 mm	PPG Solarban z75 (e=0.018*, #2)	
<b>Gap 1:</b>	13.5 mm	TS-D: Technoform TGI Wave Spacer	90% Argon*
<b>Layer 2:</b>	6 mm	Clear	

Reference must be made to Report No. F4753.06-116-46, dated 08/31/18 for complete test specimen description and data.



**CSA A440.2-09 THERMAL PERFORMANCE TEST REPORT**

Rendered to:

CR LAURENCE CO., INC.  
2100 East 38th Street  
Vernon, California 90058

Report Number: F4753.06-116-46  
Test Date: 03/09/16  
Report Date: 08/31/18

**Test Sample Identification:**

**Series/Model:** MS-375TC Thermal Composite Door

**Type:** Swinging Door with Frame

**Overall Size:** 965 mm x 2159 mm

**Test Sample Submitted by:** Oldcastle BuildingEnvelope - Terrell, Texas

This report is a reissue of the original Report No. F4753.03-116-46. This report is reissued in the name of CR Laurence Co., Inc. through written authorization of Oldcastle BuildingEnvelope.

**Test Procedure:** Testing was performed in a Guarded Hot Box in accordance with CSA A440.2-09, *Test Procedure for Measuring the Steady-State Temperature Index of Fenestration Systems*.

**Test Results Summary:**

Temperature Index - Frame ( $I_f$ )	57
Temperature Index - Glass ( $I_g$ )	68
Temperature Index	57



**Test Sample Description:**

**Frame:**

<b>Material:</b>	AT (5 mm): Aluminum with Thermal Breaks - All Members*		
<b>Size:</b>	965 mm x 2159 mm		
<b>Daylight Opening:</b>	N/A	<b>Glazing Method:</b>	N/A
<b>Exterior Color:</b>	Clear	<b>Exterior Finish:</b>	Anodized
<b>Interior Color:</b>	Clear	<b>Interior Finish:</b>	Anodized
<b>Corner Joinery:</b>	Square Cut / Screws / Sealed		

\*Sill was AT (5 mm), head and jambs were AT (13 mm)

**Panel:**

<b>Material:</b>	AT (6 mm): Aluminum with Thermal Breaks - All Members*		
<b>Size:</b>	908 mm x 2115 mm		
<b>Daylight Opening:</b>	683 mm x 1772 mm	<b>Glazing Method:</b>	Interior/Exterior
<b>Exterior Color:</b>	Clear	<b>Exterior Finish:</b>	Anodized
<b>Interior Color:</b>	Clear	<b>Interior Finish:</b>	Anodized
<b>Corner Joinery:</b>	Square Cut / Screws / Sealed		

\*Stiles were AT (6 mm), top and bottom rail were AT (9 mm)

\*\* Interior panel cavities were filled with polyurethane foam

**Glazing Information:**

<b>Layer 1:</b>	6 mm	PPG Solarban z75 (e=0.018*, #2)	
<b>Gap 1:</b>	13.5 mm	TS-D: Technoform TGI Wave Spacer	90% Argon*
<b>Layer 2:</b>	6 mm	Clear	
<b>Gas Fill Method:</b>	Single-Probe Method*		

\*Stated per Client/Manufacturer

N/A Non-Applicable

**Test Sample Description: (Continued)**

**Weatherstripping:**

Description	Quantity	Location
Flexible hollow bulb gasket	1 row	Head and jambs
Single-fin gasket	1 row	Jambs
Single-fin gasket	1 row	Interior and exterior bottom rail sweep
Single-fin gasket	1 row	Top rail
FG-1133 gasket	1 row	Interior and exterior glazing perimeter

**Hardware:**

Description	Quantity	Location
Lock assembly	1	Lock stile
Aluminum handle	2	Interior and exterior lock stile
Full-mortise butt hinge	3	Hinge jamb/stile
Aluminum door sweeps	2	Interior and exterior bottom rail
AT (5 mm) mill finish threshold	1	Sill

**Drainage:**

Drainage Method	Size	Quantity	Location
Sloped sill		1	Sill

## Temperature Index

### Measured Test Data

#### Heat Flows

1. Total Measured Input into Metering Box ( $Q_{total}$ )	190.84 W
2. Surround Panel Heat Flow ( $Q_{sp}$ )	8.05 W
3. Surround Panel Thickness	152 mm
4. Surround Panel Conductance	0.1688 $W/m^2 \cdot k$
5. Metering Box Wall Heat Flow ( $Q_{mb}$ )	1.62 W
6. EMF vs Heat Flow Equation (equivalent information)	0.0107*EMF + 0.007
7. Flanking Loss Heat Flow ( $Q_{fl}$ )	0.71 W
8. Net Specimen Heat Loss ( $Q_s$ )	180.47 W

#### Areas

1. Test Specimen Projected Area ( $A_s$ )	2.08 $m^2$
2. Metering Box Opening Area ( $A_{mb}$ )	3.35 $m^2$
3. Metering Box Baffle Area ( $A_{b1}$ )	3.15 $m^2$
4. Surround Panel Interior Exposed Area ( $A_{sp}$ )	1.27 $m^2$

#### Test Conditions

1. Average Metering Room Air Temperature ( $T_h$ )	21.02 C
2. Average Cold Side Air Temperature ( $T_c$ )	-18.01 C
3. Average Guard/Environmental Air Temperature	21.81 C
4. Metering Room Average Relative Humidity	4.68 %
5. Measured Cold Side Wind Velocity (Perpendicular Flow)	20.37 kph
6. Measured Static Pressure Difference Across Test Specimen	0.00 mm $\pm$ 0.04 mm H <sub>2</sub> O

#### Results

1. Temperature Index - Frame ( $I_f$ )	57
2. Temperature Index - Glass ( $I_g$ )	68
3. Temperature Index	57

#### Test Duration

1. The environmental systems were started at 07:23 hours, 03/08/16.
2. The test parameters were considered stable for two consecutive four hour test periods from 09:03 hours, 03/09/16 to 17:03 hours, 03/09/16.
3. The thermal performance test results were derived from 13:03 hours, 03/09/16 to 17:03 hours, 03/09/16.

### Temperature Index

<b>Pre-specified Thermocouples - Frame</b>	
Thermocouple #	Temperature
4	4.53
5	6.98
6	4.14
7	5.44
8	6.03
9	5.28
10	7.54
11	7.19
12	10.61
13	6.22
15	6.47
16	10.87
Average	6.77

<b>Pre-specified Thermocouples - Glass</b>	
Thermocouple #	Temperature
1	8.61
2	9.24
3	8.27
14	14.56
Average	10.17

<b>Roving Thermocouples - Frame*</b>	
Thermocouple #	Temperature
20	4.53
21	6.19
22	5.81
23	4.14
Average	5.17

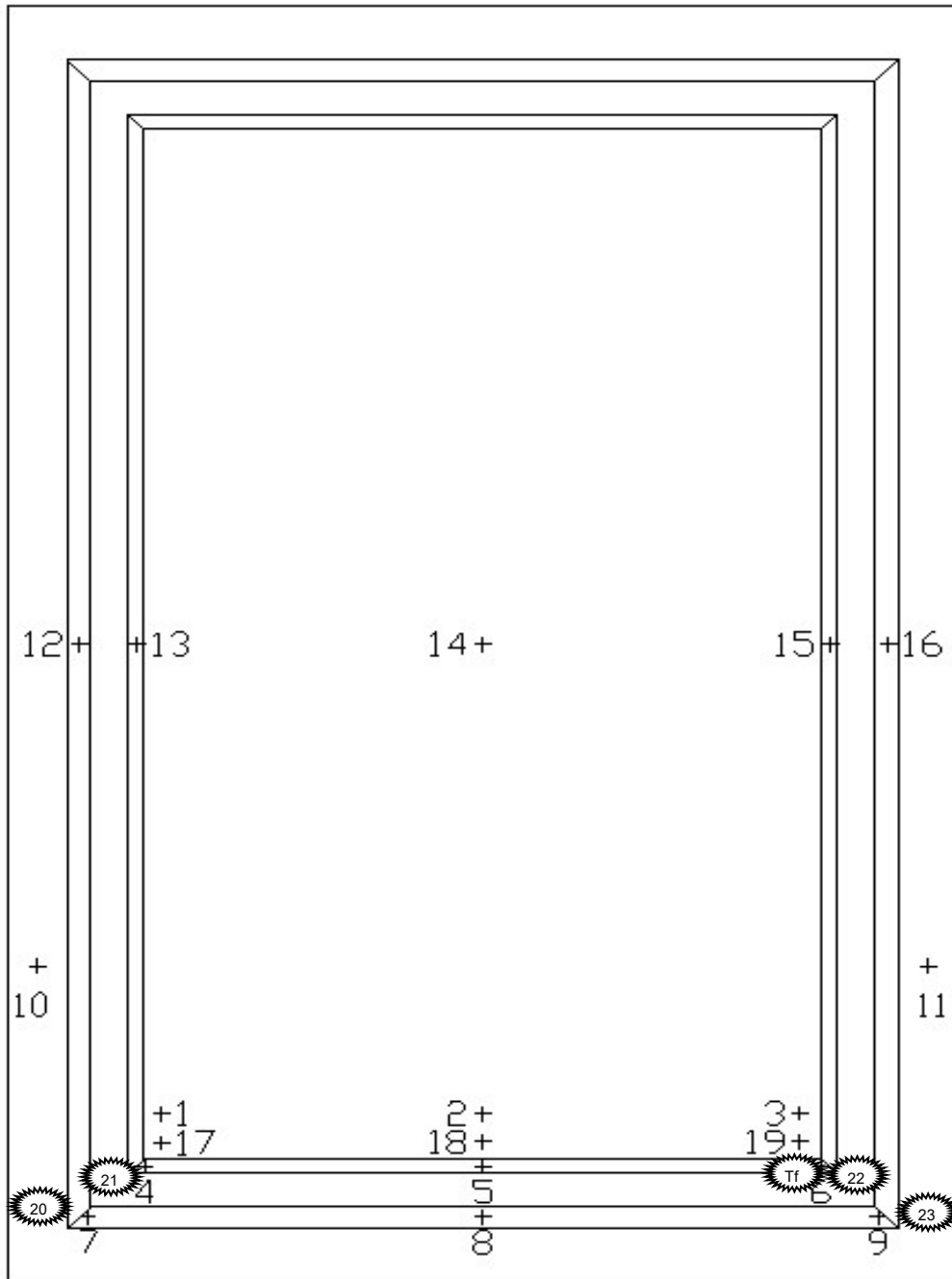
<b>Roving Thermocouples - Glass*</b>	
Thermocouple #	Temperature
17	3.94
18	6.19
19	3.53
Average	4.56

#### Results


- |  |          |
|--|----------|
| 1. Average Metering Room Air Temperature ( $T_h$ ) | 21.02 C  |
| 2. Average Cold Side Air Temperature ( $T_c$ )     | -18.01 C |
| 3. Average of Coldest Glass Temperatures ( $T_g$ ) | 8.70 C   |
| 4. Coldest Frame Temperature ( $T_f$ )             | 4.14 C   |
| 5. Temperature Index - Frame ( $I_f$ )             | 57       |
| 6. Temperature Index - Glass ( $I_g$ )             | 68       |
| 7. Temperature Index                               | 57       |

\* Roving thermocouples are for information only and are not included in the calculation of the Temperature Index

### Thermocouple Location Diagram



Coldest Frame Temperature

 T<sub>f</sub> 4.14

**Glazing Deflection:**

	<b>Panel</b>
Edge Gap Width	13.5 mm
Estimated center gap width upon receipt of specimen in laboratory (after stabilization)	12.7 mm
Center gap width at laboratory ambient conditions on day of testing	12.7 mm
Center gap width at test conditions	10.4 mm

*Glass collapse determined using a digital glass and air space meter*

The following calibration dates are outside of allowed: Annual Calibration was more than 1 year ago, Last CTS Check was more than 1 year ago, Last EMF/Flanking check was more than 1 year ago.



This report is a reissue of the original Report No. F4753.03-116-46. This report is reissued in the name of CR Laurence Co., Inc. through written authorization of Oldcastle BuildingEnvelope.

Intertek-ATI will service this report for the entire test record retention period. Test records that are retained such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation will be retained by Intertek-ATI for the entire test record retention period. The test record retention end date for this report is March 09, 2020.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. It is the exclusive property of the client so named herein and relates only to the specimen tested. This report may not be reproduced, except in full, without the written approval of Intertek-ATI.

For INTERTEK-ATI

Tested By:

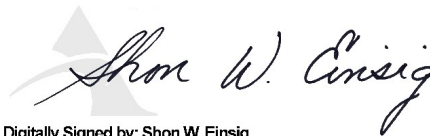


Digitally Signed by: Ryan P. Moser

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Ryan P. Moser  
Senior Technician

Reviewed By:



Digitally Signed by: Shon W. Einsig

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Shon W. Einsig  
Senior Technician

RPM:kmm  
F4753.06-116-46

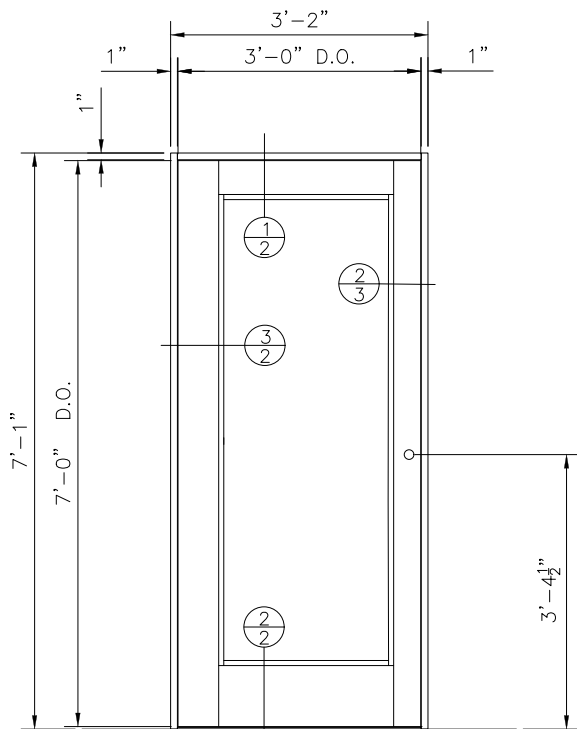
Attachments (pages): This report is complete only when all attachments listed are included.

Appendix-A: Drawings (33)

### Revision Log

<u>Rev. #</u>	<u>Date</u>	<u>Page(s)</u>	<u>Revision(s)</u>
.06R0	08/31/18	All	Original Report Issue - Reissue of Report No. F4753.03-116-46 in the name of CR Laurence Co., Inc.

## **Appendix A: Drawings**

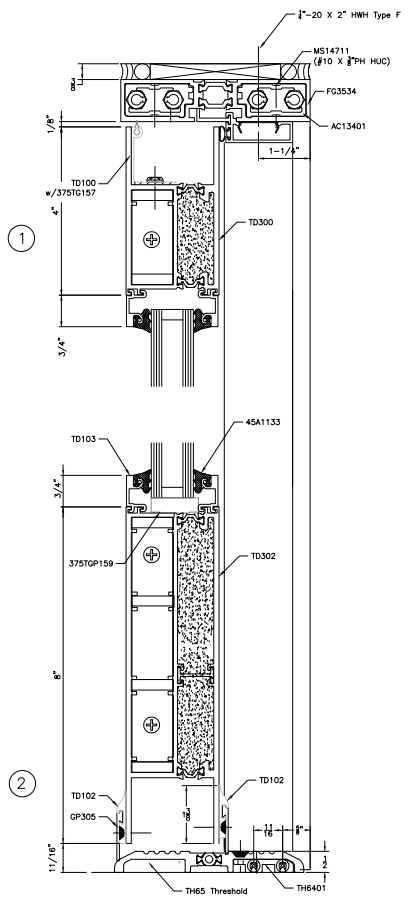


Test:  
 AAMA 1503, AAMA 507, NFRC 102  
 NFRC Simulations, CSA

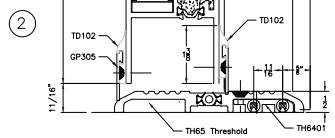
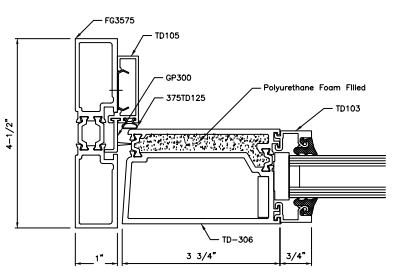
Door Hardware Test # 1		
Qty	Hardware #	Description:
1-1/2 Pair per door	375TBH	
1	DH22900	1-1/2" Back Set Hook Bolt Lock
1	DH008	H.D.Flush Bolt
2	PR032/PR034	Push/Pull
2	375TLC	Cylinder Kit
1	375TG159	Bulb Gasket-Door Stops
	70-3/4" x 27-13/16"	1/4" clear Temp.-Solarban 275 1/2"-12.7mm Technofoam spacer 90% Argon-1/4" clear temp.

	Report #:	F4753-116-46
	Date:	03/09/2016
	Verified by:	<i>Ryan P. Pomeroy</i>

REVISIONS
<b>C.R. LAURENCE CO.</b> ARCHITECTURAL PRODUCTS 2100 E. 38th Street, Los Angeles, CA 90058 www.crlaurence.com
Job Name: <b>375TC</b> <b>THERMAL COMPOSITE DOOR</b>
Clearing Contractor:
DATE: 6.25.2018 DRAWN BY: GDO CHECKED BY: XX SCALE: AS SHOWN JOB #: PTC768309
SHT <u>1</u> OF <u>3</u>

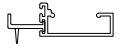


3



	Report #:	F4753-116-46
	Date:	03/09/2016
	Verified by:	<i>Raymond P. Mauer</i>

REVISIONS	
<b>C.R. LAURENCE CO.</b> ARCHITECTURAL PRODUCTS 2100 E. 38th Street, Los Angeles, CA 90058 www.crlaurence.com	
375TC THERMAL COMPOSITE DOOR	
Job Name:  Drawing Contractor:	DATE: 6.25.2018 DRAWN BY: GDO CHECKED BY: XX SCALE: AS SHOWN JOB #: PTC768309
SHT <u>2</u> OF <u>3</u>	



TD106 Assy.  
(TD105 w/ GP300)



TD105



TD100



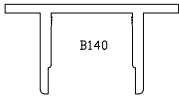
TD102



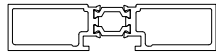
TD103



AC13401



B140



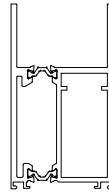
FG3534



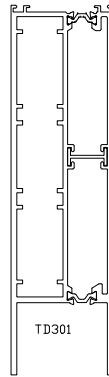
TH65



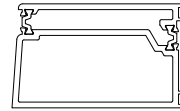
TD64



TD300



TD301



TD506



GP300



GP302



GP303



GP305



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2100 E. 38th Street, Los Angeles, CA 90008  
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NEW THERMAL DOOR  
Thermal Testing

Job Name

Erasing Contractor

DATE: 6.25.2018  
DRAWN BY: GDD  
CHECKED BY: XX  
SCALE: AS SHOWN  
JOB #: PTC768309

SHT 6 OF 7