

# HALLMARK BUILDING SUPPLIES, INC. TEST REPORT

**SCOPE OF WORK**

MODIFIED FM 4473 IMPACT RESISTANCE TESTING OF LEVANTE, INTERLOCKING BOARDS

**REPORT NUMBER**

M4644.01-109-44

**TEST DATE(S)**

07/19/21

**ISSUE DATE**

08/12/21

**RECORD RETENTION END DATE**

07/19/25

**PAGES**

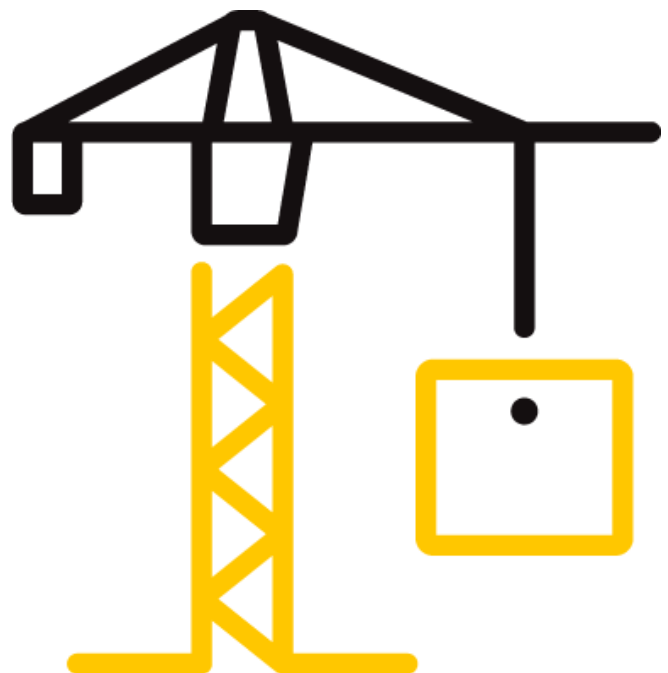
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**DOCUMENT CONTROL NUMBER**

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RT-R-AMER-Test-2957

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## TEST REPORT FOR HALLMARK BUILDING SUPPLIES, INC.

Report No.: M4644.01-109-44

Date: 08/12/21

### REPORT ISSUED TO

#### HALLMARK BUILDING SUPPLIES, INC.

901 Northview Road

Suite 100

Waukesha, Wisconsin 53188

### SECTION 1

#### SCOPE

Architectural Testing, Inc. (an Intertek company) dba Intertek Building & Construction (B&C) was contracted by Hallmark Building Supplies, Inc. to perform testing in general accordance with FM 4473 on their Levante, interlocking boards. Results obtained are tested values and were secured by using the designated test method(s). Testing was conducted at the Intertek B&C test facility in York, Pennsylvania.

For INTERTEK B&C:

<b>COMPLETED BY:</b>	Richard E. Hartman III
<b>TITLE:</b>	Technician – Product Testing
<b>SIGNATURE:</b>	
<b>DATE:</b>	08/12/21

REH:nls

<b>REVIEWED BY:</b>	Vicki L. McElwain
<b>TITLE:</b>	Supervisor – Product Testing
<b>SIGNATURE:</b>	
<b>DATE:</b>	08/12/21

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### SECTION 2

#### TEST METHOD(S)

The specimen was evaluated in general accordance with the following:

**Modified ANSI/FM 4473 (2011)**, *Specification Test Standard for Impact Resistance Testing of Rigid Roofing Materials by Impacting with Freezer Ice Balls*. American National Standard, FM Approvals (January 2011).

### SECTION 3

#### MATERIAL SOURCE/INSTALLATION

Test specimen(s) was provided by the client. Representative samples of the test specimen(s) will be retained by Intertek B&C for a minimum of four years from the test completion date.

Installation of the tested product was performed by the Intertek B&C. The specimen was placed on a wood test deck and was secured with #8 x 1-5/8" pan head screws located 16" on center through the panels and into the studs. The panels interlocked and overlapped 7/16" at the top and bottom.

### SECTION 4

#### EQUIPMENT

**Cannon:** Constructed from steel piping utilizing compressed air to propel the missile

**Missile:** 44.5 mm (1-3/4") and 50.8 mm (2.0") diameter ice balls

**Cannon Identification Number:** A1207

**Timing Device:** Electronic Beam Type

**Timing Device Calibration Date:** 8/18/21

**Tape Measure Verification:** 63788

**Weather Station:** 63316

### SECTION 5

#### LIST OF OFFICIAL OBSERVERS

NAME	COMPANY
Caitlin Kittle	Hallmark Building Supplies, Inc.
Vicki L. McElwain	Intertek B&C
Richard E. Hartman III	Intertek B&C

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### SECTION 6

#### TEST SPECIMEN DESCRIPTION

**Product Type:** Interlocking Boards

**Series/Model:** Levante

**Color:** Brown

**Finish:** Wood Grain

**Overall Assembly Size:** 1219 mm (48") width by 949 mm (37-3/8") length

**Nominal Thickness:** 1.8 mm (0.069")

**Tile Description:** Extruded aluminum with a male interlock at the bottom and a female interlock at the top

**Individual Tile Weight:** 1500 g (3.3 lb)

**Individual Tile Size:** 1219 mm (48") width by 187 mm (7-3/8") length

**Exposed Tile Size:** 1219 mm (48") width by 149 mm (5-7/8") length

**Number of Tiles:** 6

#### **Deck Construction:**

The wood test deck was 4' wide x 3' high and was constructed from 2x4 Spruce-Pine-Fir construction lumber at the perimeter with three studs spaced 16" on center.

#### **Panel Construction:**

The panels were constructed from extruded aluminum. An extruded aluminum starter strip was utilized.

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### SECTION 7

#### TEST RESULTS

##### Modified FM 4473, Ice Ball Impact Resistance

**Sample Conditioning Temperature:** 26°C (79°F) for at least 4 hours

**Sample Conditioning Relative Humidity:** 59% for at least 4 hours

**Ice Ball Conditioning Temperature:** -22°C (-7°F) for at least 48 hours

**Muzzle Distance from Test Specimen:** 1524 mm (60")

The ambient temperature during testing was 27°C (80°F). The results are tabulated as follows.

##### Class 3 Ice Ball Impacts:

LOCATION/ IMPACT	VELOCITY m/s (fps)	MISSILE				IMPACT AREA	OBSERVATIONS	RESULTS
		ORIENTATION	WEIGHT g (lbs)	DIAMETER mm (in.)	ENERGY ft-lb			
1 - 1	30.5 (100.0)	15° of vertical	43.0 (0.095)	44.5 (1.75)	14.73	Left side, center edge of panel	No visible cracking or breakage	Pass
1 - 2	30.4 (99.8)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.37	Left side, center edge of panel	No visible cracking or breakage	Pass
2 - 1	30.7 (100.6)	15° of vertical	43.0 (0.095)	44.5 (1.75)	14.91	Top left corner, edge of panel	No visible cracking or breakage	Pass
2 - 2	30.6 (100.3)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.51	Top left corner, edge of panel	No visible cracking or breakage	Pass
3 - 1	30.1 (98.7)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.05	Bottom of panel next to stud	No visible cracking or breakage	Pass
3 - 2	30.1 (98.7)	15° of vertical	43.0 (0.095)	44.5 (1.75)	14.35	Bottom of panel next to stud	No visible cracking or breakage	Pass

**TEST REPORT FOR HALLMARK BUILDING SUPPLIES, INC.**

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**Class 3 Ice Ball Impacts: (Continued)**

LOCATION/ IMPACT	MISSILE					IMPACT AREA	OBSERVATIONS	RESULTS
	VELOCITY m/s (fps)	ORIENTATION	WEIGHT g (lbs)	DIAMETER mm (in.)	ENERGY ft-lb			
4 - 1	30.1 (98.7)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.05	Bottom of panel, between studs, at interlock	No visible cracking or breakage	Pass
4 - 2	30.2 (99.0)	15° of vertical	44.0 (0.097)	44.5 (1.75)	14.78	Bottom of panel, between studs, at interlock	No visible cracking or breakage	Pass
5 - 1	30.3 (99.3)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.22	Center of panel, between studs	No visible cracking or breakage	Pass
5 - 2	30.5 (100.0)	15° of vertical	43.0 (0.095)	44.5 (1.75)	14.73	Center of panel, between studs	No visible cracking or breakage	Pass
6 - 1	30.1 (98.9)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.11	Center of panel, next to stud	No visible cracking or breakage	Pass
6 - 2	30.7 (100.6)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.60	Center of panel, next to stud	No visible cracking or breakage	Pass
7 - 1	30.8 (101.1)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.74	Bottom of panel, next to stud, at interlock	No visible cracking or breakage	Pass
7 - 2	31.3 (102.7)	15° of vertical	42.1 (0.093)	44.5 (1.75)	15.22	Bottom of panel, next to stud, at interlock	No visible cracking or breakage	Pass
8 - 1	31.5 (103.3)	15° of vertical	42.1 (0.093)	44.5 (1.75)	15.39	Center of panel, next to stud	No visible cracking or breakage	Pass
8 - 2	30.7 (100.6)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.60	Center of panel, next to stud	No visible cracking or breakage	Pass

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**Class 3 Ice Ball Impacts: (Continued)**

LOCATION/ IMPACT	VELOCITY m/s (fps)	ORIENTATION	MISSILE			IMPACT AREA	OBSERVATIONS	RESULTS
			WEIGHT g (lbs)	DIAMETER mm (in.)	ENERGY ft-lb			
9 - 1	30.3 (99.5)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.28	Bottom of panel, between studs, at interlock	No visible cracking or breakage	Pass
9 - 2	31.0 (101.6)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.89	Bottom of panel, between studs, at interlock	No visible cracking or breakage	Pass
10 - 1	30.1 (98.6)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.02	Center of panel, between studs	No visible cracking or breakage	Pass
10 - 2	30.3 (99.5)	15° of vertical	42.1 (0.093)	44.5 (1.75)	14.28	Center of panel, between studs	No visible cracking or breakage	Pass
11 - 1	29.9 (98.0)	15° of vertical	43.0 (0.095)	44.5 (1.75)	14.15	Right side, center edge of panel	No visible cracking or breakage	Pass
11 - 2	29.8 (97.8)	15° of vertical	43.0 (0.095)	44.5 (1.75)	14.09	Right side, center edge of panel	No visible cracking or breakage	Pass
12 - 1	31.1 (102.0)	15° of vertical	43.0 (0.095)	44.5 (1.75)	15.33	Top right corner, edge of panel	No visible cracking or breakage	Pass
12 - 2	31.4 (103.1)	15° of vertical	42.1 (0.093)	44.5 (1.75)	15.33	Top right corner, edge of panel	No visible cracking or breakage	Pass

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**Class 4 Ice Ball Impacts:**

LOCATION/ IMPACT	VELOCITY m/s (fps)	ORIENTATION	MISSILE			IMPACT AREA	OBSERVATIONS	RESULTS
			WEIGHT g (lbs)	DIAMETER mm (in.)	ENERGY ft-lb			
1 - 1	32.2 (105.5)	15° of vertical	63.0 (0.139)	50.8 (2.00)	24.03	Left side, bottom edge of panel	No visible cracking or breakage	Pass
1 - 2	32.5 (106.7)	15° of vertical	65.0 (0.143)	50.8 (2.00)	25.36	Left side, bottom edge of panel	No visible cracking or breakage	Pass
2 - 1	32.7 (107.3)	15° of vertical	63.0 (0.139)	50.8 (2.00)	24.85	Top of panel, next to stud	No visible cracking or breakage	Pass
2 - 2	31.6 (103.8)	15° of vertical	65.0 (0.143)	50.8 (2.00)	24.00	Top of panel, next to stud	No visible cracking or breakage	Pass
3 - 1	32.5 (106.7)	15° of vertical	63.0 (0.139)	50.8 (2.00)	24.58	Center of panel, between studs	Small indentation	Pass
3 - 2	33.3 (109.1)	15° of vertical	64.0 (0.141)	50.8 (2.00)	26.10	Center of panel, between studs	No additional damage	Pass
4 - 1	33.3 (109.1)	15° of vertical	63.0 (0.139)	50.8 (2.00)	25.69	Bottom of panel, next to stud	Small indentation	Pass
4 - 2	32.5 (106.7)	15° of vertical	65.0 (0.143)	50.8 (2.00)	25.36	Bottom of panel, next to stud	Small indentation	Pass
5 - 1	32.7 (107.3)	15° of vertical	63.0 (0.139)	50.8 (2.00)	24.85	Bottom of panel, between studs, at interlock	No visible cracking or breakage	Pass
5 - 2	31.6 (103.8)	15° of vertical	65.0 (0.143)	50.8 (2.00)	24.00	Bottom of panel, between studs, at interlock	No visible cracking or breakage	Pass



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### Class 4 Ice Ball Impacts: (Continued)

LOCATION/ IMPACT	VELOCITY m/s (fps)	MISSILE				IMPACT AREA	OBSERVATIONS	RESULTS
		ORIENTATION	WEIGHT g (lbs)	DIAMETER mm (in.)	ENERGY ft-lb			
6 - 1	32.0 (105.1)	15° of vertical	63.0 (0.139)	50.8 (2.00)	23.85	Right side, bottom edge of panel, at interlock	No visible cracking or breakage	Pass
6 - 2	32.4 (106.2)	15° of vertical	63.0 (0.139)	50.8 (2.00)	24.35	Right side, bottom edge of panel, at interlock	No visible cracking or breakage	Pass

## SECTION 8

### CONCLUSION

The sample tested showed no evidence of visible cracking, breakage, splits, punctures, or disengagement of lap elements.

This report does not constitute certification of this product nor an opinion or endorsement by this laboratory. Intertek B&C will service this report for the entire test record retention period. The test record retention period ends four years after the test date. Test records, such as detailed drawings, datasheets, representative samples of test specimens, or other pertinent project documentation, will be retained for the entire test record retention period.

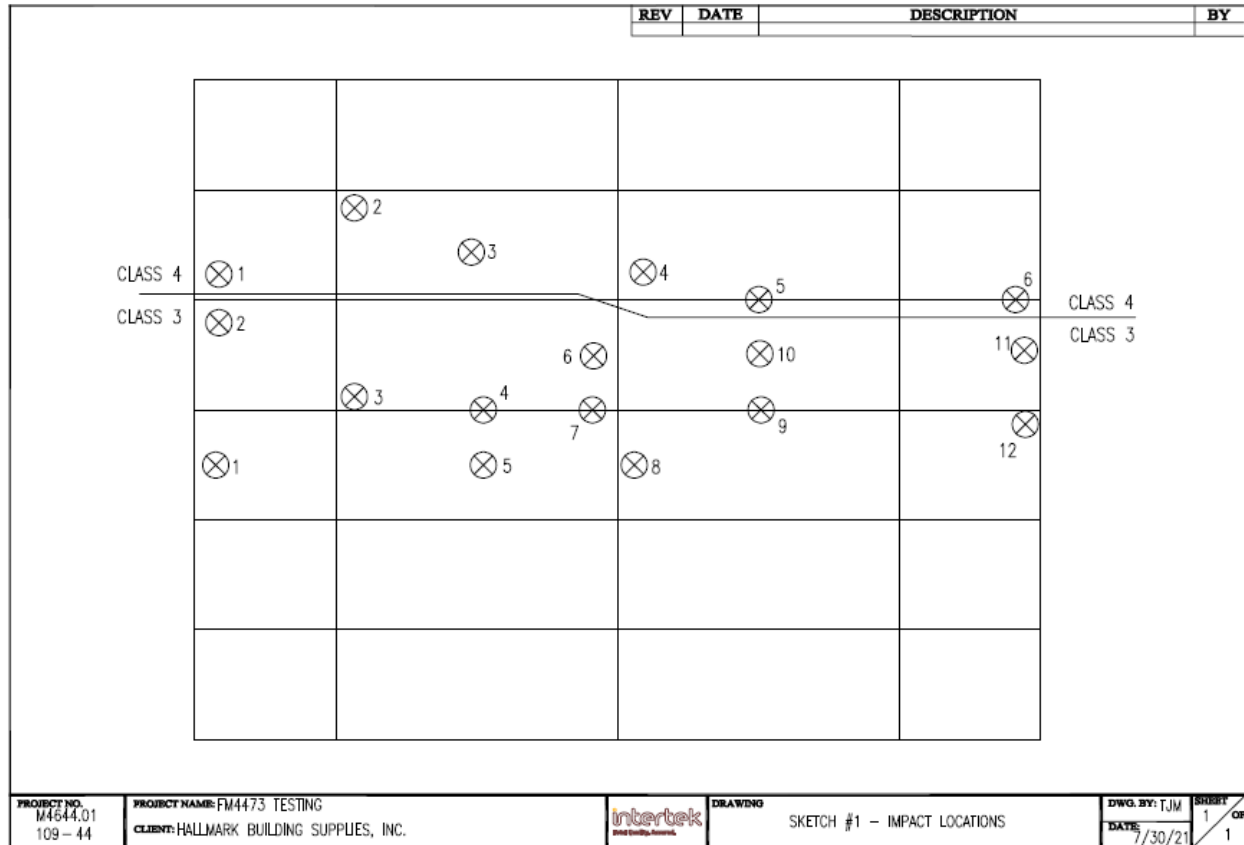
Unless differently required, Intertek reports apply the "Simple Acceptance" rule, also called "Shared Risk approach," of ILAC-G8:09/2019, Guidelines on Decision Rules and Statements of Conformity.

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### SECTION 9 SKETCH(ES)



**Sketch No. 1**  
**Impact Locations**

**TEST REPORT FOR HALLMARK BUILDING SUPPLIES, INC.**

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**SECTION 10**

**PHOTOGRAPH**



**Photo No. 1**

**View of Test Specimen Prior to Impacts with Stud Spacing Marked**



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## **TEST REPORT FOR HALLMARK BUILDING SUPPLIES, INC.**

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### **SECTION 1**

#### **DRAWINGS**

The test specimen drawings have been reviewed by Intertek B&C and are representative of the test specimen(s) reported herein. Test specimen construction was verified by Intertek B&C per the drawings included in this report. Any deviations are documented herein or on the drawings.



LEVANTÉ®  
ALUMINUM ARCHITECTURAL COMPONENTS

**LEVANTÉ®, LLC**  
901 NORTHVIEW ROAD  
SUITE 100  
WAUKESHA, WISCONSIN 53188

Project Name:

Part Name:

150mm - 6" INTERLOCKING BOARD

Used on assembly:

Part No.:

LDC619

Drawing Number:

AL-13689-D

## REVISIONS

REV.	DESCRIPTION	DATE	APPROVED
B	DIMENSION INDICATED BY A RED LETTER "B" HAS BEEN MODIFIED FROM 0.587" [14.90mm] TO 0.557" [14.15mm]. SLOT CUTS HAVE BEEN ADDED ALONG PROFILE'S LENGTH.	4/17/2020	EASS
C	LOCATION OF SLOT HOLES HAVE BEEN MODIFIED TO BE ALONG V-GROOVE SECTION. NUMBER OF SLOT HOLE ROWS WAS DECREASED FROM TWO ROWS TO ONE ROW.	5/14/2020	EASS
D	SLOT WIDTH HAS BEEN DECREASED FROM 0.197" [5.00mm] TO 0.1695" [4.30mm]; SLOT LENGTH HAS BEEN MODIFIED FROM 0.591" [15.00mm] TO 0.6610" [16.80mm]; TYPICAL SPECING BETWEEN EACH SLOT HAS BEEN MODIFIED FROM 0.986" [25.05mm] FROM SLOTS EDGES TO 4.000" [101.60mm] FROM SLOT CENTERS; FIRST AND LAST SLOT STARTS/ENDS 1.000" [25.40mm] FROM EDGES.	6/1/2020	EASS



Report #: M4644.01

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7/22/2021

Verified by: Richard E. Heston III

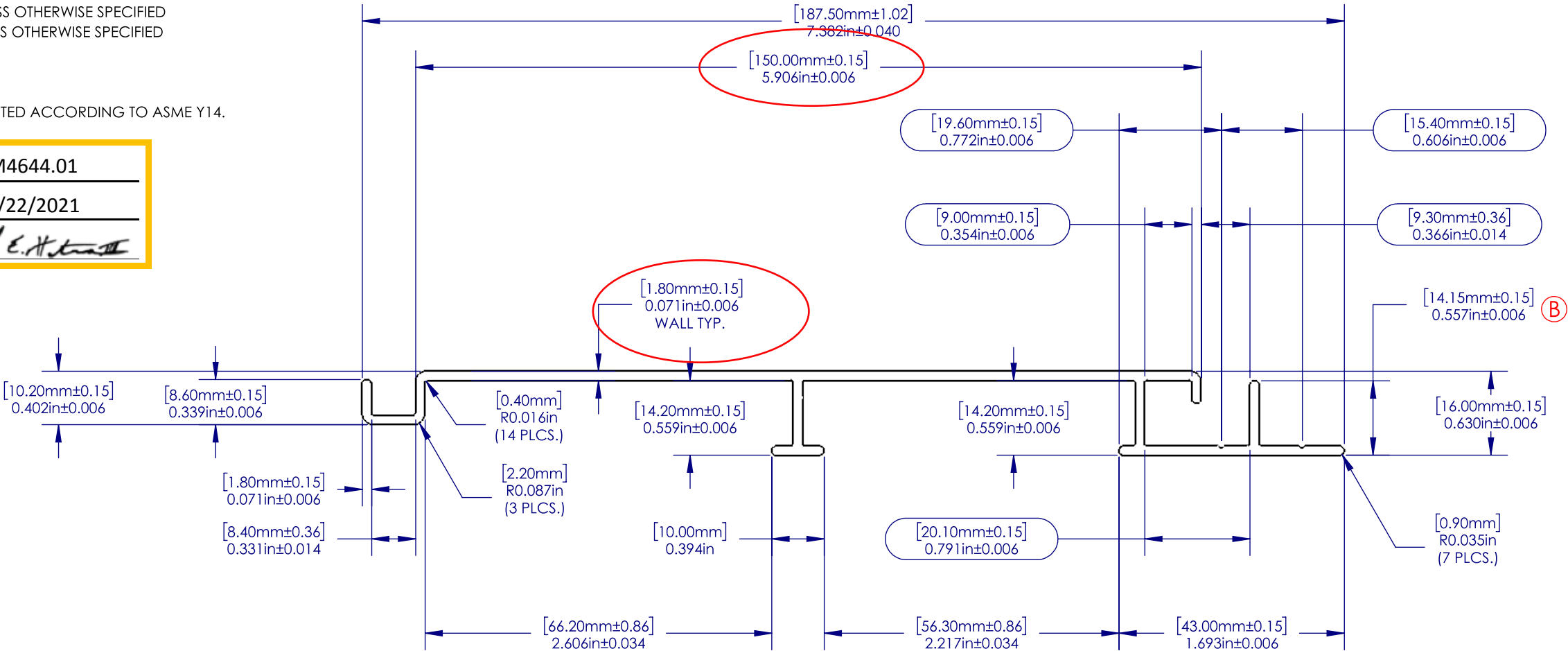


EXTRUSION PROFILE  
SCALE 1:1

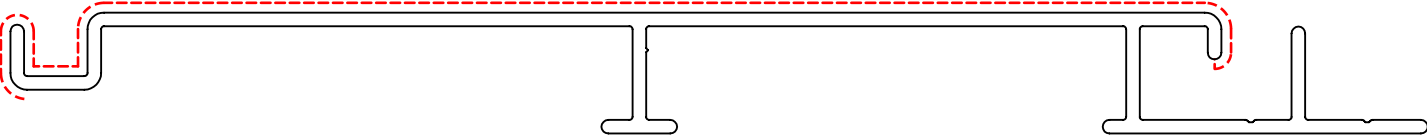
- NOTES:
1. EXTRUSION SHALL BE STRAIGHT WITHIN 1.1mm PER 1M [0.015"/FOOT]
  2. EXTRUSION TWIST 1.0DEG PER 1M [1.0DEG/FOOT]
  3. EXTRUSION CROSS SECTIONAL AREA IS 0.7451 sq.in. [480.72mm sq.]
  4. ALL RADII & FILLET RADIUS TO BE R0.016" [0.40mm] UNLESS OTHERWISE SPECIFIED
  5. SECTIONAL MATERIAL THICKNESS 0.071" [1.80mm] UNLESS OTHERWISE SPECIFIED
  6. CRITICAL DIMENSIONS ARE SHOWN WITHIN ( )
  7. REFERENCE DIMENSIONS ARE SHOWN WITHIN ( )
  8. ALL DIMENSIONS INCLUDE SURFACE FINISH
  9. ALL DIMENSIONS AND TOLERANCES ARE TO BE INTERPRETED ACCORDING TO ASME Y14.



Report #: M4644.01  
Date: 7/22/2021  
Verified by: *Richard E. H. [Signature]*




--- EXPOSED SURFACE



EXTRUSION PROFILE  
SCALE 1:1

WEIGHT/LENGTH	1.294	kg/m	0.867	lbs./ft.
AREA	479.37	sq. mm	0.7430	sq. in.
TOTAL PERIMETER	532.55	mm	20.9665	in.
OUTSIDE PERIMETER	532.55	mm	20.9665	in.
EXPOSED PERIMETER	190.38	mm	7.4952	in.

PROPRIETARY AND CONFIDENTIAL  
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ALWOOD LLC. ANY REPRODUCTION  
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UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES [MM] TOLERANCES:  MILLIMETERS X = ±1 .X = ±.25 .XX = ±10  ANGLES ∠ = ± 1°  FRACTIONS X/X = ± 1/64  INTERPRET GEOMETRIC TOLERANCING PER:  MATERIAL 6063-T5  FINISH Powder Coat		NAME EASS	DATE 06/01/20	 <b>LEVANTÉ</b> ALUMINUM ARCHITECTURAL COMPONENTS	
		DRAWN			
NEXT ASSY		USED ON		TITLE: <b>150mm - 6” Interlocking Board</b>	
APPLICATION		DO NOT SCALE DRAWING		SIZE	REV <b>D</b>
				PART NO. <b>LDC619</b>	
				SCALE: 1:1	WEIGHT: 16.677
					SHEET 2 OF 3



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### SECTION 2

#### REVISION LOG

REVISION #	DATE	PAGES	REVISION
0	08/12/21	N/A	Original Report Issue