



Farabaugh Engineering and Testing Inc.

Project No. T303-22

Report Date: September 20, 2022

Total Pages (inclusive): 8

UL 2218
IMPACT RESISTANCE OF PREPARED ROOF COVERINGS

ON

METRO LOCK ROOF PANEL
16" COVERAGE X 13/16" HIGH JOINT X 26 GA. STEEL
(OVER 5/8" PLYWOOD)

FOR

METRO METALS.
5424 METRO PARK DRIVE
TUSCALOOSA, AL. 35405

Prepared by:

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Approved by:

Daniel G. Farabaugh



DADE COUNTY
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LABORATORY



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& QC ENTITY

Project No. T303-22

Purpose

This test method provides impact resistance data for the evaluation of prepared roof covering materials.

Test Date

9/7/22

Test Specimen

Manufacturer: Metro Metals
5424 Metro Park Drive
Tuscaloosa, AL. 35405

Test Specimen: Metro Lock Metal Panel - 16" wide coverage X 13/16" high joint x 26 ga.
(nail-strip panel)

Substrate: 5/8" plywood (nominal)

Test Assembly

- The 5/8" plywood was attached to the wood joist (2x10) supports (spaced at 2'-0" o.c.) using 8d ring shank nails at 4" o.c. around the perimeter and at interior supports.
- The metal roof panels were attached to the wood deck substrate using #10-14 X 1" long, type A point, wafer head, wood screw along length of the panel as shown on attached drawings. The screws were attached with a specified spacing pattern along the length of the panel with a fastening spacing of 15-9/16" o.c.. The panel sidejoint was a snap seam lap joint. See panel lap detail for location of fasteners.

Procedure

The test was conducted according to the procedure in UL 2218 "Impact Resistance of Prepared Roof Covering Materials", 2nd Edition dated 1/25/10 and as noted herein. A 2" diameter steel ball was dropped from a height of 20 feet on to the test specimen at 6 different locations (see attached drawing). Each location received 2 impacts within 1/2" of each other. After each impact, the resultant depression was measured with a depth gage and recorded.

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TEST DATA

Test Date: 9/7/22

Test Specimen: Metro Lock Metal Panel - 16" wide coverage X 13/16" high joint x 26 ga.
(nail-strip panel)

Ambient Temperature: 65 deg. F

UL 2218 Class: 4

Steel Ball Diameter: 2"

Drop Height: 20 ft.

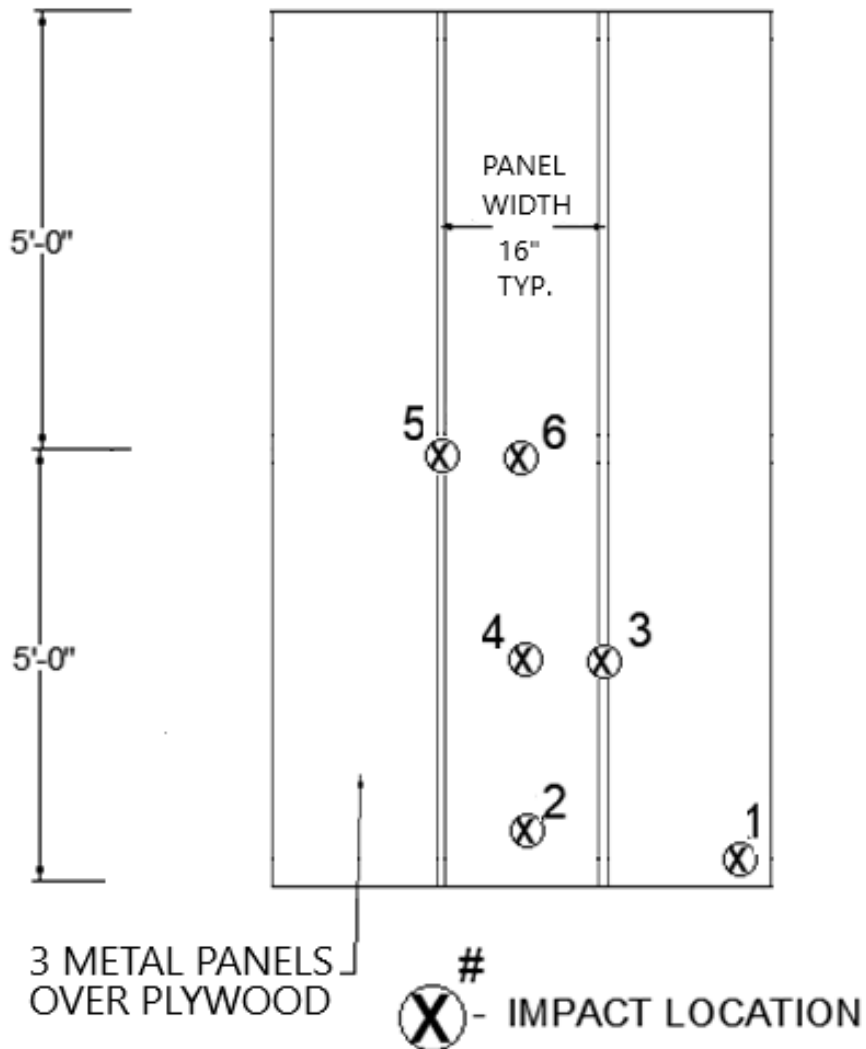
Steel Ball Weight: 1.178 lbs

Impact No.	Location	Depression Depth (in)
1A	Bottom Corner of Panel at 3" from end	0.04
1B	Bottom Corner of Panel at 3" from end	0.09
2A	Center Pan of Panel at 6" from panel end	0.067
2B	Center Pan of Panel at 6" from panel end	0.104
3A	Side-joint of Panel at quarter point	0.103
3B	Side-joint of Panel at quarter point	0.176
4A	Center Pan of Panel at quarter point	0.035
4B	Center Pan of Panel at quarter point	0.054
5A	Side-joint of Panel at middle of panel length	0.100
5B	Side-joint of Panel at middle of panel length	0.150
6A	Center Pan of Panel at middle of panel length	0.060
6B	Center Pan of Panel at middle of panel length	0.089

NOTE: Each location received 2 (example 1A & 1B) impacts within 1/2" of each other.

Results:

No failures occurred during the testing other than an impression in the panel at each impacted location. As a result of the impacts listed above, the test assembly has met the requirements of UL 2218, Class 4 using a 2" diameter steel ball with a 20ft. drop height.



PLAN VIEW OF PANELS

MOCK-UP ASSEMBLY

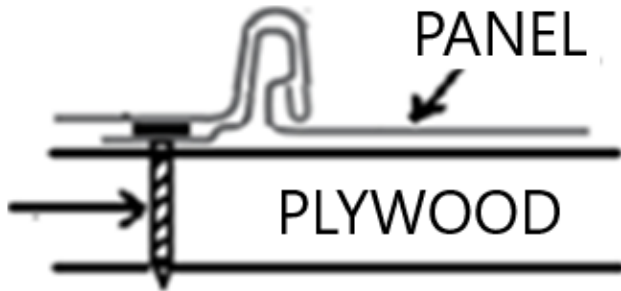
TESTED TEST SAMPLE



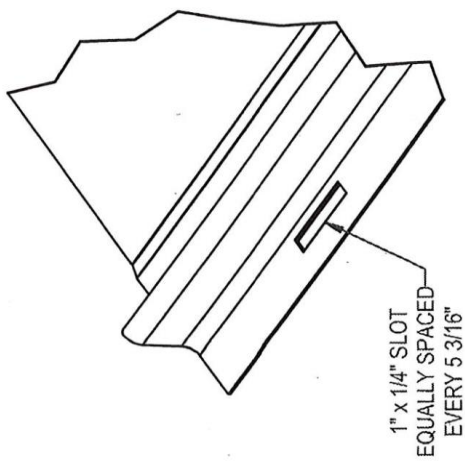
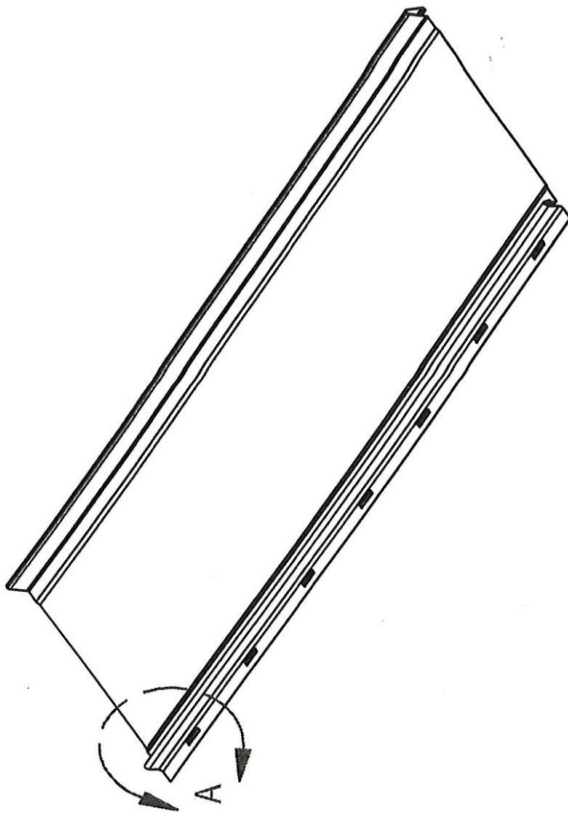


TYP. IMPACT LOCATION

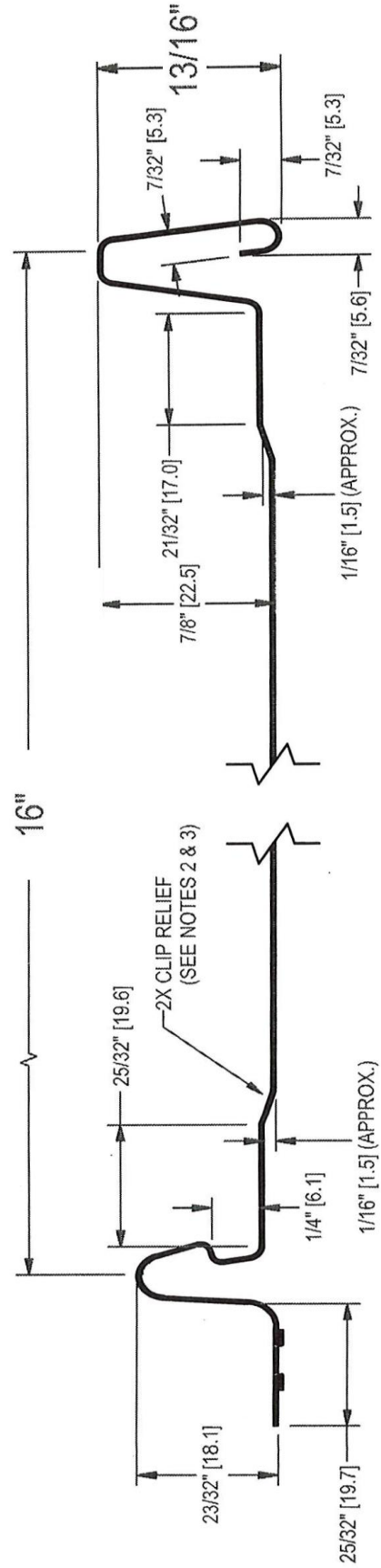
#10-14 X 1" WAFER
HEAD SCREWS @
15-9/16" O.C.



PANEL LAP



DETAIL A



Spectrochemical Laboratories-Material Evaluation, Inc.

155 Prominence Drive, New Kensington, PA. 15068

Phone: (724) 334-4140 Fax: (724) 334-4143

Date: 11-Aug-22

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Report of Tensile Testing

Client: Farabaugh Engineering & Testing (Ref PO #: Verbal - P. Farabaugh)

PIN #	Dimensions (in.) Width x Thickness	Area (sq. - in.)	Yield Point (lb.)	Tensile Strength (lb.)	Yield Strength (psi.)	Tensile Strength (psi.)	Elongation (% in 2 in.)	Fracture Location
↕ Metro Metals, 0.5091 x 0.0170 Metro Lock Panel, 16" w x 26ga	0.0087	555	636	64100	73500	25.3	M/2 Break	
Metro Metals, 0.5090 x 0.0165 Metro Rib Panel, 36" Cover. x 26ga	0.0084	889	911	105900	108500	0.4	U/4 (outside of gl)	

Test Method: Q2300.04 rev.14 (ASTM A370-21, E8-21, or E646-16 : Yld. by 0.2% offset, Elong. after fracture)
 Equipment Used: Instron 5900R60HVL (s/n: 1602) w/ Extensometer (s/n: E93054)
 Performed By: T. Ault

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 For more information call: 724-334-4140

Respectfully submitted,



Todd A. Ault
 Laboratory Manager