



# Farabaugh Engineering and Testing Inc.

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Project No. T304-22

Report Date: September 20, 2022

Total Pages (inclusive): 7

**UL 2218**  
IMPACT RESISTANCE OF PREPARED ROOF COVERINGS

ON

**METRO RIB ROOF PANEL**  
**36" COVERAGE X 3/4" 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:

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### **Purpose**

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

### **Test Date**

9/8/22

### **Test Specimen**

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

Test Specimen: Metro Rib Metal Panel - 36" wide coverage X 3/4" high joint x 26 ga.

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 1-1/2" long, type 17 point, hex head, wood screw with 1/2" steel sealing washer. The screws were attached with a specified spacing pattern across the width of the panel with a fastening spacing of 30" along the length of the panel. The panel sidejoint was lap joint. See fastening pattern for location of fasteners across width of panel.

### **Procedure**

The test was conducted according to the procedure in UL 2218 "Impact Resistance of Prepared Roof Covering Materials", 2<sup>nd</sup> 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: 9/8/22

Test Specimen: Metro Rib Metal Panel - 36" wide coverage X 3/4" high joint x 26 ga.

Ambient Temperature: 72 deg. F

UL 2218 Class: 4

Steel Ball Diameter: 2"

Drop Height: 20 ft.

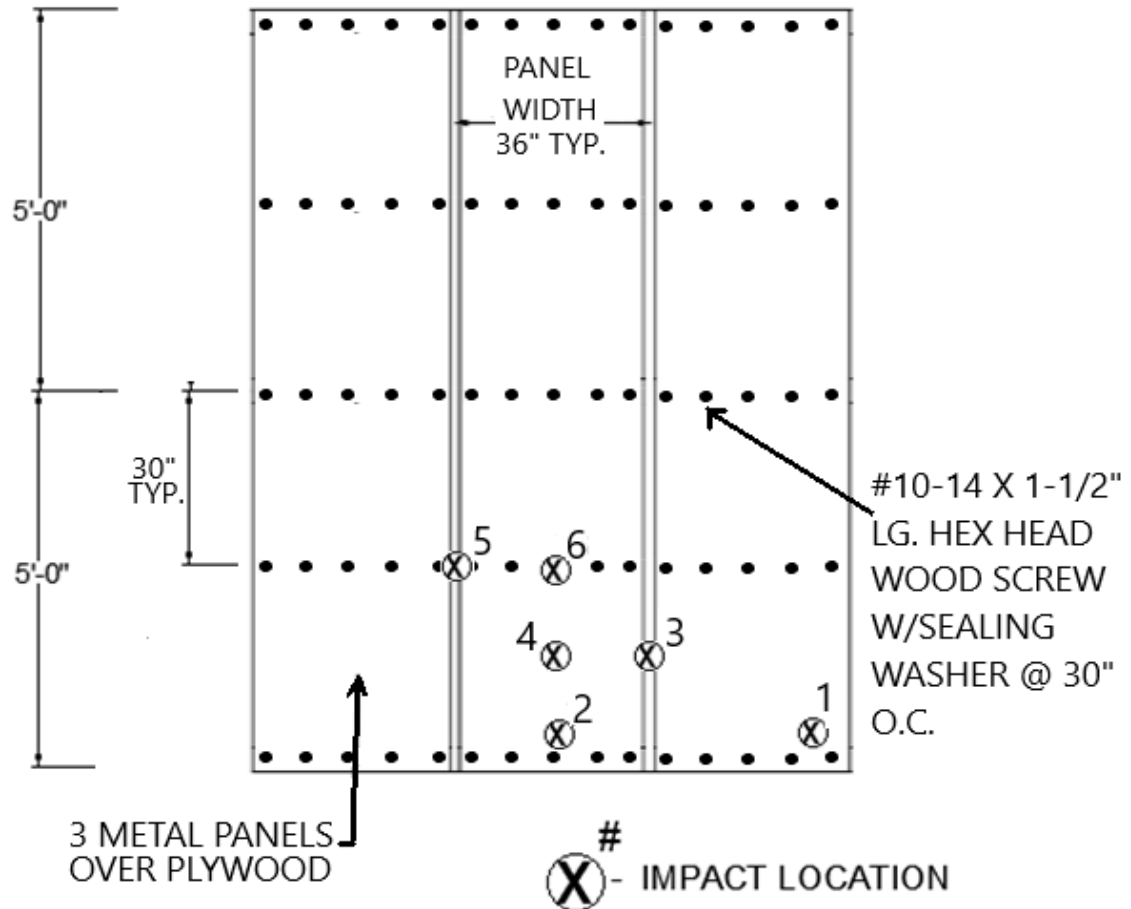
Steel Ball Weight: 1.178 lbs

Impact No.	Location	Depression Depth (in)
1A	Bottom Corner of Panel at 3" from end	0.073
1B	Bottom Corner of Panel at 3" from end	0.106
2A	Center of Panel (on rib) at 6" from panel end	0.149
2B	Center of Panel (on rib) at 6" from panel end	0.215
3A	Side-joint of Panel at midspan between fastener location	0.147
3B	Side-joint of Panel at midspan between fastener location	0.181
4A	Center of Panel (on rib) at midspan between fastener location	0.205
4B	Center of Panel (on rib) at midspan between fastener location	0.245
5A	Side-joint of Panel at fastener location	0.150
5B	Side-joint of Panel at fastener location	0.190
6A	Center of Panel (on rib) at fastener location	0.140
6B	Center of Panel (on rib) at fastener location	0.225

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

### Results:

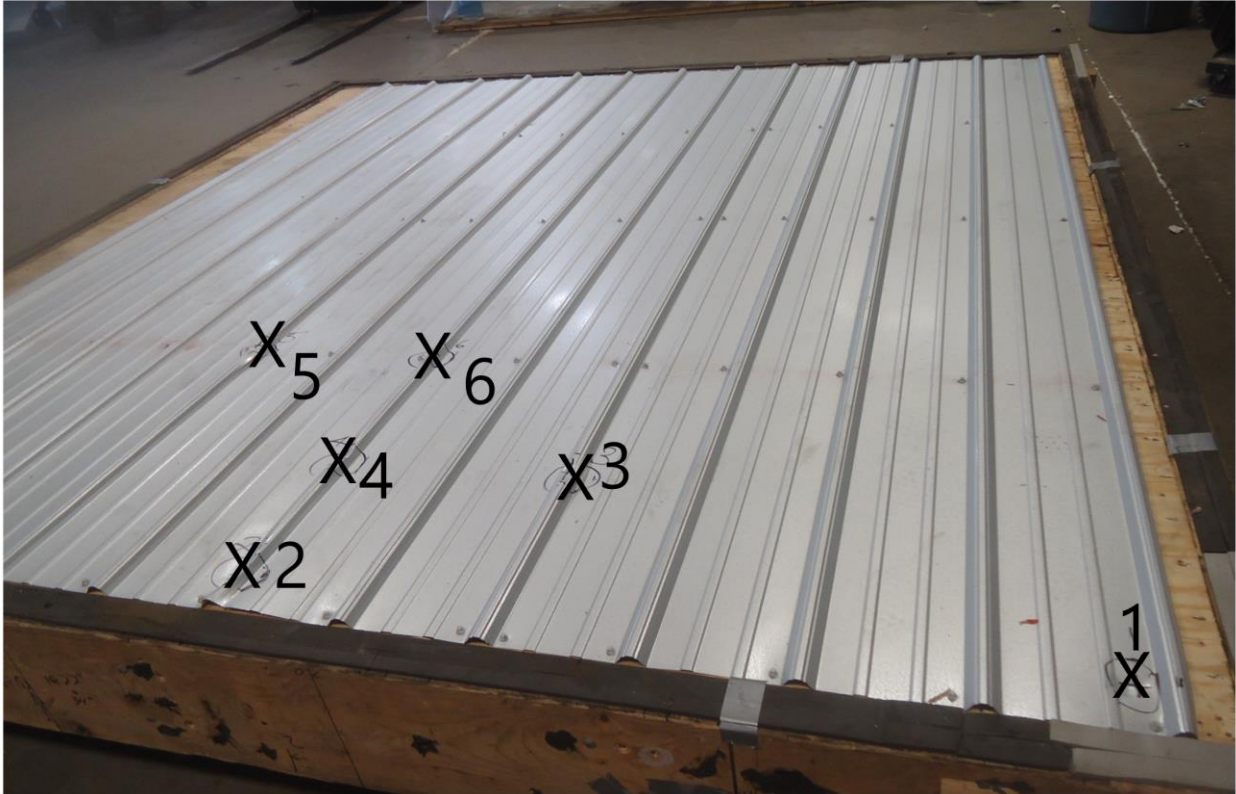
No failures occurred during the testing other than an impression in the panel at each impacted location. As a result of the impacts listed above, the test assembly has met the requirements of UL 2218, Class 4 using a 2" diameter steel ball with a 20ft. drop height.



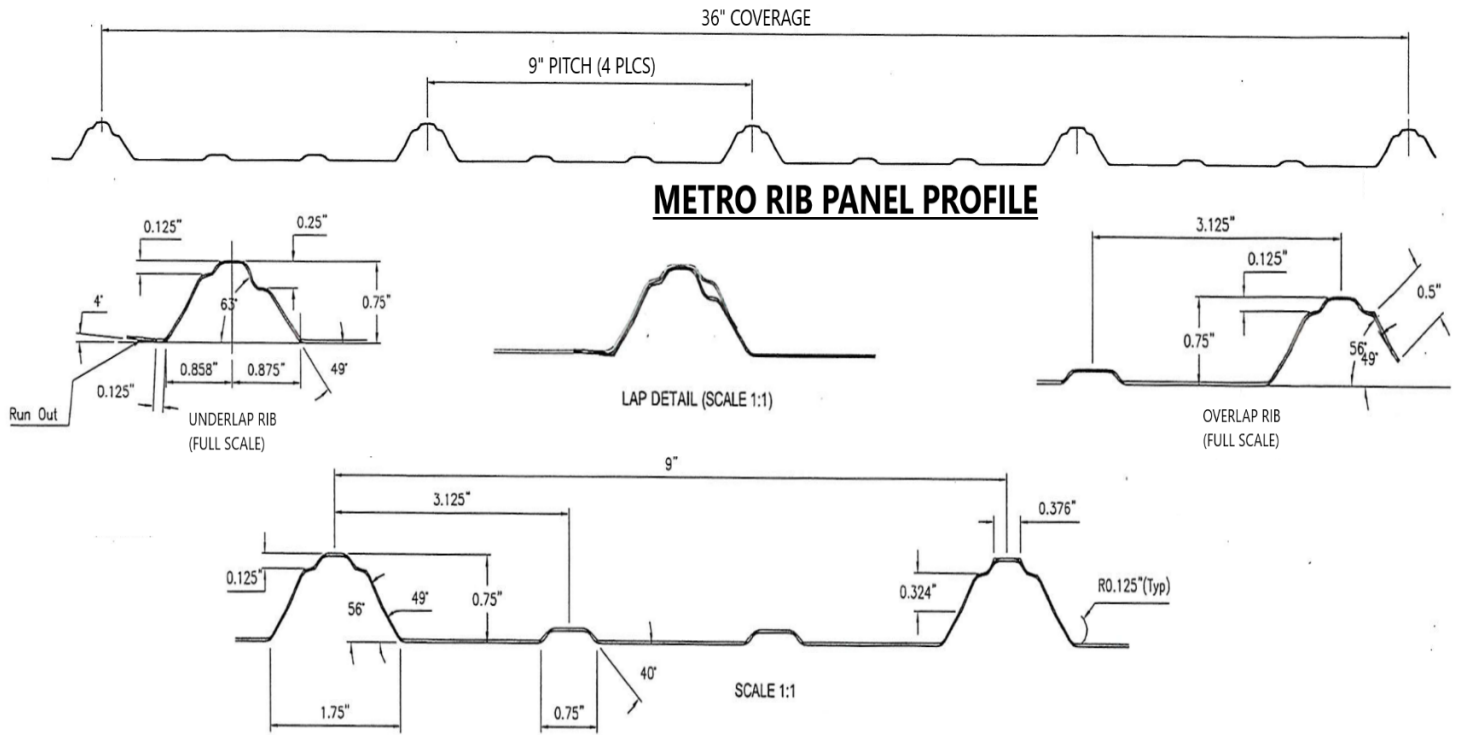
# PLAN VIEW OF PANELS

## MOCK-UP ASSEMBLY

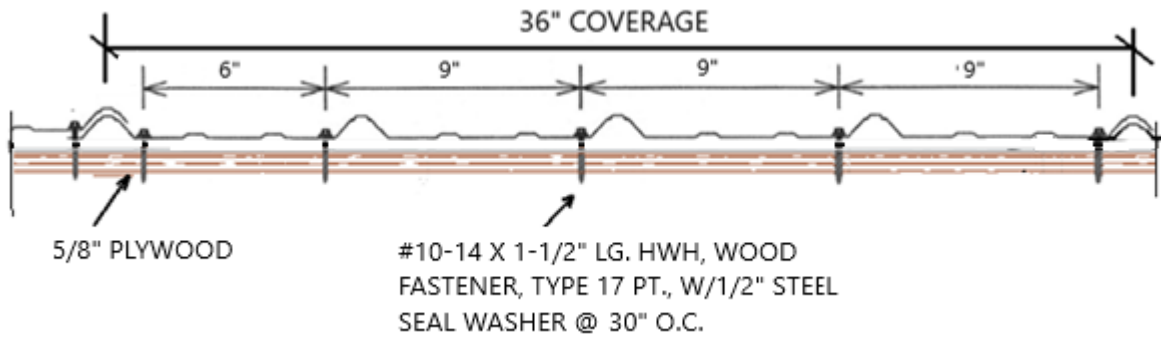
## TESTED TEST SAMPLE



**TYP. IMPACT LOCATION**



**FASTENER PATTERN 9/9/9/6 INTO PLYWOOD @ 30" O.C. ALONG LENGTH OF PANEL**



**FASTENER PATTERN 9/9/9/6 INTO PLYWOOD @ 30" O.C. ALONG LENGTH OF PANEL**

**Spectrochemical Laboratories-Material Evaluation, Inc.**

155 Prominence Drive, New Kensington, PA. 15068

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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, Metro Lock Panel, 16" w x 26ga	0.5091 x 0.0170	0.0087	555	636	64100	73500	25.3	M/2 Break
Metro Metals, Metro Rib Panel, 36" Cover. x 26ga	0.5090 x 0.0165	0.0084	889	911	105900	108500	0.4	U/4 (outside of gf) ⇐

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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 Please send your comments and concerns to us at [feedback@spectrochemicalme.com](mailto:feedback@spectrochemicalme.com)  
 For more information call: 724-334-4140

Respectfully submitted,



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 Laboratory Manager