

WESTERN STATES METAL ROOFING

(877) 787-5467 WESTERNSTATESMETALROOFING.COM

EXPOSED FASTENER METAL PANELS

7/8" CORRUGATED **WESTERN RIB® (7.2 PANEL)** PBR/R-PANEL

ULTESTS:

ANSI/UL 580, Uplift Resistance of Roof Assembly ANSI/UL 790, Fire Tests of Roof Coverings UL 2218A, Impact Resistance of Roof Systems

WSMR UL Certificate Number: R40094

Issue Date: 7/23/2020

REOUEST A FREE METAL COLOR SAMPLE

Affordable Delivery throughout USA, Canada, and Mexico

Phoenix: 901 W Watkins St., Phoenix, AZ 85007

(602) 495-0048

Tucson: 4975 E. Drexel Rd., Tucson, AZ 85706

(520) 574-4247















CERTIFICATE OF COMPLIANCE

Certificate Number R40094

Report Reference R40094-20191126

Issue Date 2020-JULY-23

Issued to: Western States Metal Roofing

901 W. Watkins St, Phoenix AZ 85007

This certificate confirms that representative samples of

Metal Roof Deck Panels; Wind Uplift Resistance; Roofing

Systems; Impact Resistance

Models: "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS2®", "Thin Lock®", "Western Lock®", and

"Western Seam®".

Have been investigated by UL in accordance with the

Standard(s) indicated on this Certificate.

Standard(s) for Safety: ANSI/UL 580, Tests for Uplift Resistance of Roof

Assemblies

ANSI/UL 790, Test Methods or Fire Tests of Roof

Coverings

UL 2218A, Impact Resistance of Roofing Systems

Additional Information: See the UL Online Certifications Directory at

https://iq.ulprospector.com for additional information.

This *Certificate of Compliance* does not provide authorization to apply the UL Mark. Only the UL Follow-Up Services Procedure provides authorization to apply the UL Mark.

Only those products bearing the UL Mark should be considered as being UL Certified and covered under UL's Follow-Up Services.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program

UL LLC







Mike Rubio Western States Metal Roofing 901 W. Watkins St Phoenix AZ 85007

Date: 2020/07/23 Subscriber: None PartySite: 2330146 File No: R40094 Project No: 4789493641 PD No: 20M16812

Type: R

PO Number:

Subject: Procedure And/Or Report Material

The following material resulting from the investigation under the above numbers is enclosed.

Issue

Date	Vol	Sec	Pag	es	Revised Date
	1		Revised	Index Page(s) 1	2020/07/21
2019/11/	26 1	1	Revised	Description Page(s) 1,2	2020/07/21
2019/11/	26 1	1	New	Illustration(s) 2,3,4	2020/07/21
2019/11/	26 1	1	Revised	Illustration(s) 1	2020/07/21
2019/11/	26 1	1911	26 Cert	of Compliance	
2019/11/	26 1		Revised	Description Page(s) 1	2020/07/21
2019/11/	26 1		New	Test Record 2	2020/07/21
2019/11/	27 1	2	Revised	Description Page(s) 1,2	2020/07/21
2019/11/	27 1	2	New	Illustration(s) 2,3,4	2020/07/21
2019/11/	28 1	3	Revised	Description Page(s) 1	2020/07/21
2019/11/	28 1	3	New	Illustration(s) 2,3,4	2020/07/21

Inspections at your plant will be conducted under the supervision of Ruben Sandoval Jr, UL INSPECTION CENTRAL/SOUTHERN CA-NV, HI, UL LLC, 29951 W. Avalon Dr., Buckeye AZ 85396., PHONE: 480-290-6987, FAX: 847-513-7826, EMAIL: Ruben.SandovalJr@ul.com

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at http://ul.com/aboutul/locations.

If you'd like to receive updated materials FASTER, UL offers electronic access and/or delivery of this material. For more details, contact UL's Customer Service Professionals as shown above.

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NBK File

UL INSPECTION CENTER 844

ADDENDUM TO TRANSMITTAL LETTER

Mike Rubio Western States Metal Roofing 901 W. Watkins St Phoenix AZ 85007

Date: 2020/07/23
Subscriber: None
PartySite: 2330146
File No: R40094
Project No: 4789493641
PD No: 20M16812

PD NO: ZUN

Type: R

PO Number:

Subject: Procedure And/Or Report Material

The following material resulting from the investigation under the above numbers is enclosed.

Issue

Date	Vol	Sec	<u>Pages</u>	Revised Date
2020/07/21	L 1	4	Add New Indep Proc Sect	
2020/07/22	2 1	5	Add New Indep Proc Sect	
2020/07/23	3 1	6	Add New Indep Proc Sect	
2020/07/24	1 1	7	Add New Indep Proc Sect	

File R40094 Vol. 1 Index Page 1 Issued: 2019-11-26 Revised: 2020-07-21

INDEX

* Description	Report-Independent Date	Section
"7/8" Corrugated"	2019-11-26	1
*"Western Rib"	2019-11-26	2
*"Western R-Panel"	2019-11-26	3
"MS2®"	2019-11-26	4
"Thin Lock®"	2019-11-26	5
"Western Lock®"	2019-11-26	6
"Western Seam®"	2019-11-26	7

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Independent Report for all CETW products report date 2019-12-20.

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "7/8" Corrugated".

The panels are roll-formed from No. 26, 24, 22, or 20 gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

The products are classified under Metal Roof Deck Panels (TJPV), Metal Roof Deck Panels (CETW), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

* The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0187 in. (No. 26 MSG minimum gauge), 0.0236 in. (No. 24 MSG minimum gauge), 0.0296 in. (No. 22 MSG minimum gauge), or 0.0356 in. (No. 20 MSG minimum gauge) for galvalume or galvanized steel. See ILL. 2 for further thickness dimension specifications. This thickness will not include the coating or any paint finish.

DIMENSIONS

* The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1. Maximum width of the panel will not exceed 39 in out to out.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The steel will conform to the following specifications, depending on the thickness:

Thickness	Strength
26 MSG	ASTM A653 Grade 80 or minimum yield point of 80,000 psi
24 MSG	ASTM A653 Grade 50 or minimum yield point of 50,000 psi
22 MSG	ASTM A653 Grade 50 or minimum yield point of 50,000 psi
20 MSG	ASTM A653 Grade 40 or minimum yield point of 40,000 psi

See ILL. 3 for additional strength specifications, and see ILL. 4 for gravity and uplift loads for these panels.

File R40094 Vol. 1 Sec. 1 Page 2 Issued: 2019-11-26 Revised: 2020-07-21

CLASSIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

The following information will be included on all Metal Roof Deck Panel (TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

*

METAL ROOF DECK PANEL
As To Uplift Resistance
Class 90
As Shown By Construction No. 649

Certification Marking Data for Roofing Systems (TGFU):

BUILDING UNITS FOR

ROOFING SYSTEMS
AS TO AN EXTERNAL FIRE EXPOSURE ONLY

3. Certification Marking Data for Roof-covering Materials, Impact Resistance (TGAM):

The following marking may also appear on each individual panel when the complete TGFU Certification Marking is provided on the package or bundle.

"Also Certified as to Impact Resistance; Class 4"

SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY

4. Classification Marking Data Page for CETW (optional) - P225, P227, P230, P237, P250, P259, P265, P266, P268, P508, P510, P512, P514, P518, P701, P711, P713, P717, P719, P720, P722, P723, P726, P731, P734, P801, P815, P819, P824, P825, and P828.

MARKING INFORMATION:

In addition, the following information will appear either on the product or package or on the Certification Marking:

Company's name or UL file number,

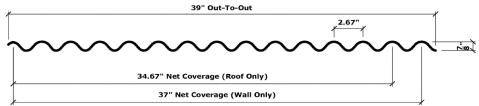
Product identification

and

Factory identification (if applicable).

Issued: 2019-11-26 Revised: 2020-07-21

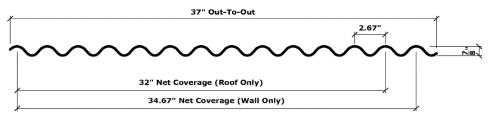
48" Master Coil



There can be variance in the overall width of up to 1". This will NOT lessen roof/wall coverage. The width of this panel will vary with specialty/kynar finishes.

Out to out may vary depending on coil width used.

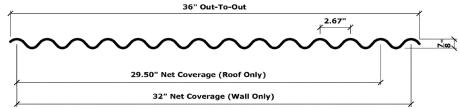
46" Master Coil



There can be variance in the overall width of up to 1". This will NOT lessen roof/wall coverage.

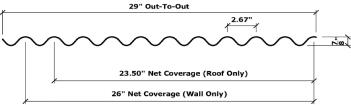
The width of this panel will vary with specialty/kynar finishes. Out to out may vary depending on coil width used.

43" Master Coil



There can be variance in the overall width of up to 1". This will NOT lessen roof/wall coverage. The width of this panel will vary with specialty/kynar finishes. Out to out may vary depending on coil width used.

36" Master Coil



There can be variance in the overall width of up to 1". This will NOT lessen roof/wall coverage. The width of this panel will vary with specialty/kynar finishes.

Out to out may vary depending on coil width used.

Panel out-to-out will be determined by the coil used to produce the panels

File R40094 Vol. 1 Sec. 1 ILL-2 Issued: 2019-11-26 New: 2020-07-21

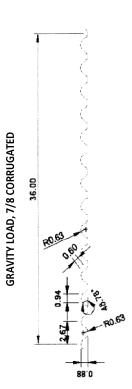
	GAUGE / THICKNESS	
	7/8" CORRUGATED PAN	NEL
GAUGE	DECIMAL THICKNESS	TYPE /FINISH / SUBSTRATE
26	0.0190	GALVALUME
24	0.0236	GALVALUME
22	0.0296	GALVALUME
20	0.0356	GALVALUME
26	0.0187	GALVANIZED
24	0.0236	GALVANIZED
22	0.0296	GALVANIZED
20	0.0356	GALVANIZED
26	0.0160	BARESTEEL
24	0.0210	BARESTEEL
22	0.0269	BARESTEEL
20	0.0329	BARESTEEL
22	0.0269	A-606 -4 (Corten ®)
20	0.0329	A-606 -4 (Corten ®)

File R40094 Vol. 1 Sec. 1 ILL-3 Issued: 2019-11-26

New: 2020-07-21

			STRENGTH
		7/8"	CORRUGATED PANEL
GAUGE	DECIMAL THICKNESS	SUBSTRATE	STRENGTH
26	0.0187	GALVALUME	ASTM A792 GRADE 80 OR MINIMUM YIELD POINT 80,000 PSI
24	0.0236	GALVALUME	ASTM A792 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
22	0.0296	GALVALUME	ASTM A792 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
20	0.0356	GALVALUME	ASTM A792 GRADE 40 OR MINIMUM YIELD POINT 40,000 PSI
	-11		
26	0.0187	GALVANIZED	ASTM A653 GRADE 80 OR MINIMUM YIELD POINT 80,000 PSI
24	0.0236	GALVANIZED	ASTM A653 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
22	0.0296	GALVANIZED	ASTM A653 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
20	0.0356	GALVANIZED	ASTM A653 GRADE 40 OR MINIMUM YIELD POINT 40,000 PSI
		-	
26	0.0160	BARESTEEL	ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
24	0.0210	BARESTEEL	ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
22	0.0269	BARESTEEL	ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
20	0.0329	BARESTEEL	ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI
22	0.0269	A -606 TYPE 4	ASTM A-606 TYPE 4 GRADE 50 OR MINIMUM YIELD POINT 45,000
20	0.0329	A -606 TYPE 4	ASTM A-606 TYPE 4 GRADE 50 OR MINIMUM YIELD POINT 45,000 F

File R40094 Vol. 1 Sec. 1 ILL-4(Page 1)Issued: 2019-11-26 New: 2020-07-21



		F.				Gra	Gravity - Total Allowable Load in PSF (Span in Feet)	Allowable I	Load in PSF	Span in Fe	eet)			
Single Span Incress Hand Stress 141.8 104.2 79.7 63.0 51.0 35.4 26.0 19.9 15.8 2 Spans Spans or More Span Freezon Stress 139.9 102.7 78.7 62.2 50.3 35.0 55.7 19.7 15.5 3 Spans or More Span Type Span Ty		span Type	Load Iype	3	3.5	4	4.5	5	9	7	8	6	10	
Spans or More Spans Spans or More Spans Felection 79.6 50.1 33.6 17.2 9.9 6.3 4.2 2.9 6.3 4.2 2.9 6.3 35.0 6.3 4.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 1.2 <td>(ia</td> <td></td> <td>Stress</td> <td>141.8</td> <td>104.2</td> <td>7.67</td> <td>63.0</td> <td>51.0</td> <td>35.4</td> <td>26.0</td> <td>19.9</td> <td>15.8</td> <td>12.8</td>	(ia		Stress	141.8	104.2	7.67	63.0	51.0	35.4	26.0	19.9	15.8	12.8	
Spans or More Spans o	80K	Single Spail	Deflection	9.62	50.1	33.6	23.6	17.2	6.6	6.3	4.2	2.9	2.1	
2 Spants or More Spant Spant or More Span Type 183.2 183.2 183.2 183.2 183.2 183.2 183.2 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3 183.3	Fy=		Stress	139.9	102.7	78.7	62.2	50.3	35.0	25.7	19.7	15.5	12.6	
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Spans or More Single Spans or More Stress Stress 185.3 136.1 104.2 82.3 66.7 46.3 34.0 26.1 20.6 7 3 Spans or More Span Type Stress 216.2 156.4 104.8 73.6 53.7 31.0 19.6 13.1 9.2 Span Type Load Type 3.5 130.1 87.1 61.2 44.6 25.8 16.3 10.9 7.7 9.0 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7 7.7	20K	oingle Span	Deflection	103.1	64.9	43.5	30.6	22.3	12.9	8.1	5.4	3.8	2.8	
2 Spans or More Spans	Ελ=		Stress	185.3	136.1	104.2	82.3	2.99	46.3	34.0	26.1	20.6	16.7	
Spans or More Span Type Statest or More Spans) ə8	2 Spans	Deflection	248.4	156.4	104.8	73.6	53.7	31.0	19.6	13.1	9.7	6.7	
Spann Vol. Worle Deflection 206.6 130.1 87.1 61.2 44.6 25.8 16.3 10.9 7.7 7 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 9 Single Span Spans or More Total Type Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 5 2 Spans or More Type Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 5 2 Spans or More Type Type Type Type Type Type Type Typ	กคอ	25014 20 2000 25	Stress	216.2	158.8	121.6	96.1	77.8	54.1	2.68	30.4	24.0	19.5	
Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Span Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 Single Span Deflection 134.3 84.6 56.7 39.8 29.0 16.8 10.6 7.1 50.1 56.1 Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 Deflection 323.5 203.7 136.5 95.9 69.9 40.4 25.5 17.1 12.0 3 Spans or More Deflection 269.0 169.4 133.5 131.9 98.7 68.6 50.4 38.6 30.5	77	Spails of More	Deflection	206.6	130.1	87.1	61.2	44.6	25.8	16.3	10.9	7.7	9.5	
Spans or More Research Ordinating Stress 3 3.5 4 4.5 5 6 7 8 9 9 Single Spans or More Bection Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 5 2 Spans or More Belection 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 5 3 Spans or More Belection 235.0 172.6 132.2 95.9 69.9 40.4 25.5 17.1 12.0 7 3 Spans or More Belection 269.0 169.4 113.5 79.7 58.1 33.6 21.2 10.0 10.0		T	- L			Gra	vity - Total	Allowable I	Load in PSF	(Span in Fe	et)			
Single Span 2 Single Span 3 Sing 3		adkı ıkbe	road iype	3	3.5	4	4.5	2	9	7	8	6	10	
2 Spans Deflection 134.3 84.6 56.7 39.8 29.0 16.8 10.6 7.1 5.0 2 Spans 2 Spans 2 Spans or More 2 Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 7.1 12.0 7.1 12.0 7.2 12.1 12.0 84.6 40.4 25.5 17.1 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0 12.0	(ia	مرمی داهمای	Stress	235.0	172.6	132.2	104.4	84.6	58.7	43.2	33.0	26.1	21.1	
2 Spans 2 Stress 235.0 172.6 132.2 104.4 84.6 58.7 43.2 33.0 26.1 3 Spans or More Stress 274.2 201.5 154.3 121.9 98.7 68.6 50.4 38.6 30.5 3 Spans or More Deflection 269.0 169.4 113.5 79.7 58.1 33.6 21.2 14.2 10.0	20K	Juigle Spail	Deflection	134.3	84.6	26.7	39.8	29.0	16.8	10.6	7.1	5.0	3.6	
2 Spalls Deflection 323.5 203.7 136.5 95.9 69.9 40.4 25.5 17.1 12.0 3 Spans or More Stress 274.2 201.5 154.3 121.9 98.7 68.6 50.4 38.6 30.5 Deflection 269.0 169.4 113.5 79.7 58.1 33.6 21.2 14.2 10.0	=λ=		Stress	235.0	172.6	132.2	104.4	84.6	58.7	43.2	33.0	26.1	21.1	
3 Spans or More Deflection 269.0 169.4 113.5 79.7 58.1 68.6 50.4 38.6 30.5 10.0) ə8	Slibde 2	Deflection	323.5	203.7	136.5	626	6.69	40.4	25.5	17.1	12.0	8.7	
3 Spalls of Mole Deflection 269.0 169.4 113.5 79.7 58.1 33.6 21.2 14.2 10.0	ทธอ	ozoM zo paca C	Stress	274.2	201.5	154.3	121.9	98.7	9.89	50.4	38.6	30.5	24.7	
	77	o obalis of iviole	Deflection	269.0	169.4	113.5	79.7	58.1	33.6	21.2	14.2	10.0	7.3	

File R40094 Vol. 1 Sec. 1 ILL-4(Page 2)Issued: 2019-11-26 New: 2020-07-21

	10	17.1	4.2	17.1	10.1	19.9	8.4								
	6	21.1	2.7	21.1	13.8	24.6	11.5								
et)	8	26.7	8.2	26.7	19.6	31.1	16.3	sion	ma	(kip-in)	1.8880	2.5009	3.1722	2.5620	
(Span in Fe	7	34.9	12.2	34.9	29.3	40.7	24.4	Bott. In Compression	XS	(in^3/ft)	0.0526	9690'0	0.0883	0.1070	
oad in PSF-	9	47.4	19.3	47.4	46.6	55.4	38.7	Bott.	×	(in^4/ft)	0.0247	0.0324	0.0422	0.0486	
Gravity - Total Allowable Load in PSF (Span in Feet)	2	68.3	33.4	68.3	80.5	79.7	6.99	sion	ma	(kip-in)	1.9139	2.5074	3.1722	2.5620	
vity - Total	4.5	84.3	45.8	84.3	110.4	98.4	91.8	Top In Compression	XS	(in^3/ft)	0.0533	0.0704	0.0891	0.1079	
Gra	4	106.8	65.3	106.8	257.2	124.6	130.7	Top	×	(in^4/ft)	0.0250	0.0324	0.0422	0.0486	
	3.5	139.4	97.4	139.4	234.6	162.7	195.1	es	wt	(pst)	0.92	1.17	1.49	1.75	180
	3	189.8	154.7	189.8	372.6	221.5	309.8	Section Properties	fy	(ksi)	80	20	20	40	prtion
Can'T bool	road iype	Stress	Deflection	Stress	Deflection	Stress	Deflection	Secti	Gauge		76	24	22	20	May Deflection
T see	Spall Type		Julgie Span		2 Spans		J Spalls of More		0						
		(ia	tok	,= γ ∃) ə8	ทธอ	07								

			10	12.6	2.1	12.8	5.2	14.9	4.3		10	16.7	2.8	16.7	6.7	19.5	5.6		10	21.1	3.6	21.1	8.7	24.7	7.3
			6	15.5	2.9	15.8	7.1	18.4	5.9		6	20.6	3.8	50.6	9.2	24.1	7.7		6	26.1	5.0	26.1	12.0	30.5	10.0
		eet)	8	19.7	4.1	19.9	10.1	23.3	8.4	eet)	8	26.1	5.4	26.1	13.1	30.5	10.9	eet)	8	33.0	7.1	33.0	17.1	38.6	14.2
7		(Span in Fe	7	25.7	6.2	26.0	15.1	30.4	12.5	(Span in Fe	7	34.0	8.1	34.1	19.6	39.8	16.3	(Span in Fe	7	43.2	10.6	43.2	25.5	50.4	21.2
	2	oad in PSF	9	35.0	8.6	35.4	24.0	41.4	19.9	oad in PSF	9	46.3	12.9	46.4	31.0	54.2	25.8	oad in PSF	9	58.7	16.8	58.7	40.4	9.89	33.6
JGATED	}	Gravity - Total Allowable Load in PSF (Span in Feet)	5	50.3	17.0	51.0	41.4	9.65	34.4	Gravity - Total Allowable Load in PSF (Span in Feet)	5	66.7	22.3	6.99	53.7	78.0	44.6	Gravity - Total Allowable Load in PSF (Span in Feet)	5	84.6	29.0	84.6	6.69	98.7	58.1
UPLIFT LOAD, 7/8 CORRUGATED 36.00		vity - Total	4.5	62.2	23.3	63.0	8'95	73.5	47.2	vity - Total	4.5	82.3	30.6	82.5	73.6	8.96	61.2	vity - Total	4.5	104.4	39.8	104.4	6'36	121.9	79.7
LIFT LOAD,	R063	Gra	4	78.7	33.2	7.67	6'08	93.1	67.2	Gra	4	104.2	43.5	104.5	104.8	212.9	87.1	Gra	7	132.2	26.7	132.2	136.5	154.3	113.5
UP	5 - P. 2		3.5	102.7	49.5	104.2	120.7	121.6	100.4		3.5	136.1	64.9	136.5	156.4	159.3	130.1		3.5	172.6	84.6	172.6	203.7	201.5	169.4
1	R0.63		3	139.9	78.6	141.8	191.7	165.5	159.4		3	185.3	103.1	185.7	248.4	216.8	506.6		8	235.0	134.3	235.0	323.5	274.2	769.0
	88.0	H	гоаа туре	Stress	Deflection	Stress	Deflection	Stress	Deflection	T pool	гоаа туре	Stress	Deflection	Stress	Deflection	Stress	Deflection	T Pool	road iype	Stress	Deflection	Stress	Deflection	Stress	Deflection
		F E	span Type		Single Span		2 Spans		s spans or iviore		span Type		Single Span		z spans		S Spails of Wore	T 2000	эран туре		Single Span		2 Spalls		o opails of More
				(ia	80K	3=γ∃) ə8	neg	97			(ia	20K	-Λ=) ə3	ทธอ	77			(ia	20K	-Λ=) ə8	ทย	77

	T aca J	T Pool			Gra	Gravity - Total Allowable Load in PSF (Span in Feet)	Allowable I	oad in PSF	(Span in Fe	et)		
	Spall Lype	road Lype	3	3.5	4	4.5	5	9	7	8	6	10
(ia	, c	Stress	189.8	139.4	106.8	84.3	68.3	47.4	34.9	26.7	21.1	17.1
tok	Siligie Spali	Deflection	154.7	97.4	65.3	45.8	33.4	19.3	12.2	8.2	5.7	4.2
-λ ₌	2000	Stress	189.8	139.4	106.8	84.3	68.3	47.4	34.9	26.7	21.1	17.1
) ə3	z spans	Deflection	372.6	234.6	257.2	110.4	80.5	46.6	29.3	19.6	13.8	10.1
ทธอ	CropA ro acco	Stress	221.5	162.7	124.6	98.4	7.67	55.4	40.7	31.1	24.6	19.9
07	o opalis di More	Deflection	309.8	195.1	130.7	8.16	6.99	38.7	24.4	16.3	11.5	8.4

Secti	Section Properties	ies	Top	Top In Compression	sion	Bott.	Bott. In Compression	ssion
Gauge	fγ	wt	Χį	XS	ma	×!	XS	ma
	(ksi)	(Jsd)	(in^4/ft)	(in^3/ft)	(kip-in)	(in^4/ft)	(in^3/ft)	(kip-in)
76	08	0.92	0.0250	0.0533	1.9139	0.0247	0.0526	1.8880
24	20	1.17	0.0324	0.0704	2.5074	0.0324	9690'0	2.5009
22	20	1.49	0.0422	0.0891	3.1722	0.0422	0.0883	3.1722
20	40	1.75	0.0486	0.1079	2.5620	0.0486	0.1070	2.5620
Max Deflection	lection	180						

File R40094 Vol. 1 Sec. 2 Page 1 Issued: 2019-11-27 Revised: 2020-07-21

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "Western Rib".

The panels are roll-formed from No. 26, 24, or 22 gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

The products are classified under Metal Roof Deck Panels (TJPV), Metal Roof Deck Panels (CETW), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

* The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0187 in. (No. 26 MSG minimum gauge), 0.0236 in. (No. 24 MSG minimum gauge), or 0.0296 in. (No. 22 MSG minimum gauge) for galvalume or galvanized steel. See ILL. 2 for further thickness dimension specifications. This thickness will not include the coating or any paint finish.

DIMENSIONS

The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1. The maximum width of the panel will be 36 inches.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The 26 MSG steel will conform to Grade 80 Specifications (ASTM A792 designation) or the minimum yield point will be 80,000 psi. The 24 and 22 MSG steel shall conform to Grade 50 Specifications (ASTM A792 designation) or have a minimum yield strength of 50,000 psi.

See ILL. 3 for additional strength specifications, and see ILL. 4 for gravity and uplift loads for these panels.

CLASSIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

*

File R40094 Vol. 1 Sec. 2 Page 2 Issued: 2019-11-27 Revised: 2020-07-21

The following information will be included on all Metal Roof Deck Panel

(TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

24 or 22 MSG ONLY METAL ROOF DECK PANEL As To Uplift Resistance Class 90

As Shown By Construction No. 137

And/Or

*

METAL ROOF DECK PANEL
As To Uplift Resistance
Class 30 or 90
As Shown By Construction No. 244

Certification Marking Data for Roofing Systems (TGFU):

BUILDING UNITS FOR

ROOFING SYSTEMS
AS TO AN EXTERNAL FIRE EXPOSURE ONLY

3. Certification Marking Data for Roof-covering Materials, Impact Resistance (TGAM):

The following marking may also appear on each individual panel when the complete TGFU Certification Marking is provided on the package or bundle.

"Also Certified as to Impact Resistance; Class 4"

SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY

4. Classification Marking Data Page for CETW (optional) - P225, P227, P230, P237, P250, P259, P265, P266, P268, P508, P510, P512, P514, P518, P701, P711, P713, P717, P719, P720, P722, P723, P726, P731, P734, P801, P815, P819, P824, P825, and P828.

MARKING INFORMATION:

In addition, the following information will appear either on the product or package or on the Certification Marking:

Company's name or UL file number,

Product identification

And

Factory identification (if applicable).

File R40094 Vol. 1 Sec. 2 ILL-2 Issued: 2019-11-27 New: 2020-07-21

	WESTERN RIB PANEL	
GAUGE	DECIMAL THICKNESS	TYPE /FINISH / SUBSTRAT
26	0.0190	GALVALUME
24	0.0236	GALVALUME
22	0.0296	GALVALUME
20	0.0356	GALVALUME
26	0.0187	GALVANIZED
24	0.0236	GALVANIZED
22	0.0296	GALVANIZED
20	0.0356	GALVANIZED
		- 40
26	0.0160	BARESTEEL
24	0.0210	BARESTEEL
22	0.0269	BARESTEEL
20	0.0329	BARESTEEL
22	0.0269	A-606 -4 (Corten ®)
20	0.0329	A-606 -4 (Corten ®)

File R40094 Vol. 1 Sec. 2 ILL-3 Issued: 2019-11-27

New: 2020-07-21

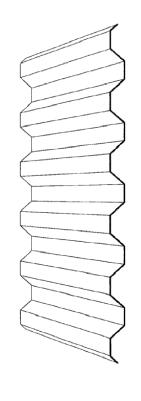
STRENGTH **WESTERN RIB PANEL GAUGE DECIMAL THICKNESS** SUBSTRATE **STRENGTH** 0.0187 ASTM A792 GRADE 80 OR MINIMUM YIELD POINT 80,000 PSI 26 GALVALUME 24 0.0236 **GALVALUME** ASTM A792 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 22 0.0296 **GALVALUME** ASTM A792 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 20 0.0356 GALVALUME ASTM A792 GRADE 40 OR MINIMUM YIELD POINT 40,000 PSI 26 0.0187 GALVANIZED ASTM A653 GRADE 80 OR MINIMUM YIELD POINT 80,000 PSI ASTM A653 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 24 0.0236 GALVANIZED ASTM A653 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 22 0.0296 **GALVANIZED** 20 0.0356 GALVANIZED ASTM A653 GRADE 40 OR MINIMUM YIELD POINT 40,000 PSI BARESTEEL 26 0.0160 ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 24 0.0210 BARESTEEL ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 22 0.0269 BARESTEEL ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 20 0.0329 BARESTEEL A -606 TYPE 4 ASTM A-606 TYPE 4 GRADE 50 OR MINIMUM YIELD POINT 45,000 PSI 22 0.0269

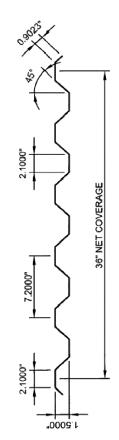
20

0.0329

A -606 TYPE 4 ASTM A-606 TYPE 4 GRADE 50 OR MINIMUM YIELD POINT 45,000 PSI

WESTERN RIB





NOTES:

- 2004 North American Specifications for the design of Cold-Formed 1 Effective section properties are calculated in accordance with the Steel Structural Members.
- 2 Ix is for the determination of deflection.
- 3 Sx and Ma are for the stress determination.

File R40094 Vol. 1 Sec. 2 ILL-4(Page 2)Issued: 2019-11-27 New: 2020-07-21

Load Type
Stress 19/.4 145.1 Deflection 209.4 131.9
Stress 166.1 122.0
193.8
Deflection 395.9 249.3
7 P C C
23 3.5
Stress 290.1 213.2
Deflection 291.8 183.8
Stress 260.8 191.6
Deflection 698.4 439.8
Stress 304.4 223.6
Deflection 580.8 365.7
Can't beco
23 3.5
Stress 404.7 297.3
Deflection 397.5 250.3
Stress 365.9 268.8
Deflection 957.5 603.0
Stress 427.0 313.7
Deflection 796.3 501.4
Con T poo
23 3.5 3.5
Stress 366.5 269.2
Deflection 514.0 323.7
Stress 328.3 241.2
Deflection 1238.1 779.7
Stress 383.2 281.5

File R40094 Vol. 1 Sec. 2 ILL-4(Page 3) Issued: 2019-11-27 New: 2020-07-21

ssion	ma	(kip-in)	2.2419	3.5208	4.9392	4.4324		
Bott. In Compression	XS	(in^3/ft)	0.0624	0.0979	0.1375	0.1850		
Bott.	хi	(in^4/ft)	0.0621	0.0911	0.1249	0.1615		
sion	ma	(kip-in)	2.6653	3.9168	5.4630	4.9472		
Top In Compression	XS	(in^3/ft)	0.0743	0.1090	0.1521	0.2065		
Top	Хİ	(in^4/ft)	0.0658	0.0917	0.1249	0.1615		
ies	wt	(bsd)	98'0	1.10	1.40	1.65	180	
Section Properties	Ą	(ksi)	08	20	20	40	ection	
Secti	Gauge		76	24	22	20	Max Deflection	
								•

						Г				Н	Г							
	10	14.9	5.3	17.8	13.6	20.7	11.3		10	23.5	7.8	26.1	19.0	30.5	15.8			
	6	18.5	7.3	21.9	18.7	25.6	15.5		6	29.0	10.7	32.2	26.0	37.6	21.7			
et)	8	23.4	10.4	27.8	59.9	32.4	22.1	et)	8	36.7	15.3	40.8	37.1	47.6	30.8			
(Span in Fe	7	30.5	15.6	36.3	39.7	42.3	33.0	(Span in Fe	7	47.9	22.8	53.3	55.3	62.2	46.0			
oad in PSF	9	41.5	24.7	49.4	63.1	57.6	52.4	oad in PSF	9	65.2	36.2	72.5	6.78	84.7	73.1			
Allowable L	2	8.65	42.7	71.1	109.0	83.0	9.06	Allowable L	2	93.9	62.6	104.4	151.8	121.9	126.3			
ity - Total A	4.5	73.8	9'85	87.7	149.5	102.4	124.3	ity - Total	4.5	115.9	85.9	128.9	208.3	150.5	173.2			
Grav	4	93.4	83.4	111.1	212.8	129.6	177.0	Grav	4	146.7	122.3	163.2	296.6	190.5	246.6			
	3.5	122.0	124.5	145.1	317.7	169.3	264.2		3.5	191.6	182.6	213.2	442.7	248.8	368.2			
	3	166.1	197.6	197.4	504.4	230.4	419.5		3	260.8	289.9	290.1	703.0	338.6	584.6			
Car.T beco	- add i bbc	ress	eflection	ress	eflection	ress	eflection		- add i bbc	ress	eflection	ress	eflection	ress	eflection			
		St	Ŏ	St	Ŏ					St	Ŏ	St	Ŏ					
T acad	Spall Type	يرمن دامين	Siligie Spali	2000	2 Spalls	2000	S Sparis or More	F	Spall Type		Single Span	25000	2 Spans	Month of the Control	S Spails Of MORG			
Н		(ia	80K	<u>-</u> λ=) ə8	usē	97			(ia	20K	-λ ₌) ə3	neo	54 (
		Gravity - Total Allowable Load in PSF (Span in Feet) 3.5 4 4.5 5 6 7 8 9	Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Span Type 3 3.5 4 4.5 5 6 7 8 9 Cicylogon Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5	Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3	Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9	Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Stress 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Deflection 504.4 317.7 212.8 149.5 109.0 63.1 39.7 26.6 18.7	Span Type A 3.5 A 4.5 5 6 7 8 Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Stress 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 Spans Deflection 504.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Stress 230.4 169.3 109.6 102.4 83.0 57.6 42.3 32.4 25.6	Load Type 3.5 4 4.5 6 7 8 9 Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 9 Deflection 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Deflection 504.4 317.7 212.8 149.5 109.0 63.1 39.7 26.6 18.7 Stress 230.4 169.3 129.6 102.4 83.0 57.6 42.3 32.4 25.6 Deflection 419.5 107.0 62.4 33.0 22.1 15.5	Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 124.5 83.4 73.8 59.8 41.5 30.5 23.4 18.5 Spans Deflection 197.6 124.5 83.4 58.6 42.7 24.7 10.4 7.3 Spans or More Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Spans or More Stress 230.4 169.3 129.6 102.4 83.0 57.6 42.3 32.4 25.6 Spans or More Deflection 419.5 107.0 124.3 90.6 52.4 33.0 22.1 15.5	Span Type 3.5 4 4.5 5 6 7 8 9 Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 Spans Or More Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Spans Or More Stress 230.4 169.3 129.6 109.0 63.1 39.7 26.6 18.7 Span Type Load Type 419.5 107.0 124.3 90.6 52.4 33.0 22.1 15.5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9	Span Type 3 3.5 4 4.5 5 6 7 8 9 Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 9.9 2 Spans or More Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More Stress 230.4 169.3 129.6 102.4 83.0 57.6 42.3 32.4 25.6 Span Type Load Type 264.2 177.0 124.3 90.6 52.4 33.0 22.1 15.5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 Stress 260.8 191.6 115.9 93.9 65.2 47.9 36.7 26.0	Span Type 3 3.5 4 4.5 6 7 8 9 Single Spans or More Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Spans or More 2 Spans or More 197.6 124.5 83.4 73.8 59.8 41.5 30.5 23.4 18.5 3 Spans or More 2 Spans or More 197.6 124.5 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More 2 Spans or More 419.5 264.2 177.0 124.3 90.6 52.4 33.0 22.1 15.5 4 Span Type 2 cold Type 3 5.4 4.5 5 6 7 8 9 5 single Span 5 cold Single Span 5 cold Single Span 185.9 65.2 47.9 36.7 20.0 8 9	Span Type 3.5 4 4.5 6 7 8 9 Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 124.5 83.4 73.8 59.8 41.5 30.5 23.4 18.5 Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 Stress 230.4 145.1 112.8 149.5 109.0 63.1 39.7 26.6 18.7 Spans or More Stress 230.4 15.6 177.0 124.3 90.6 52.4 33.0 22.1 15.5 Span Type Stress 260.8 191.6 146.7 115.9 93.9 65.2 47.9 36.7 29.0 </td <td>Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Spans Or More Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 Spans or More Stress 230.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 Span Type Stress 230.4 169.3 129.6 109.0 63.1 39.7 22.1 15.6 Single Span Load Type 419.5 107.0 124.3 90.6 52.4 33.0 22.1 15.5 Single Span Stress 260.8 191.6 145.7 115.9 93.9 65.2 47.9 36.7 29.0 Spans Common</td> <td>Span Type Load Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 6 7 8 9 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 2 Spans or More Deflection 504.4 317.7 212.8 149.5 109.0 63.1 39.7 26.6 18.7 3 Spans or More Deflection 419.5 264.2 177.0 124.3 90.6 52.4 33.0 22.1 15.5 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 Single Span Stress 260.8 191.6 146.7 115.9 93.9 65.2 47.9 36.7 29.0</td> <td>Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 6 7 8 9 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 3 Spans or More Deflection 504.4 317.7 212.8 149.5 109.0 63.1 39.7 26.6 187.7 Span Type Load Type 169.3 129.6 102.4 83.0 52.4 33.0 22.1 15.5 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 6 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 Spans or More</td> <td>Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Deflection 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 2 Spans or More Span Type Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More Peflection 504.4 317.7 212.8 109.0 63.1 39.7 26.6 18.7 5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 5 Spans or More Load Type 3.5 4 4.5 5 6 7 8 9 5 Spans or More Stress 290.1 124.7 115.9 93.9 65.2 47.9 36.7 29.0 2 Spans or More Stress 290.1 121.2 <t< td=""><td>Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 3.0 23.4 18.5 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans or More Span Type Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 3 Spans or More Pellection 504.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More Pellection 504.4 149.5 160.3 109.0 63.1 30.7 22.1 15.5 5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 5 Span Type Stress 26.0 17.0 124.3 90.6 52.4 47.9 36.7 20.0 5 Spans Type Stress 26.0 126.3</td></t<></td>	Span Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Single Span Deflection 197.6 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 Spans Or More Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 Spans or More Stress 230.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 Span Type Stress 230.4 169.3 129.6 109.0 63.1 39.7 22.1 15.6 Single Span Load Type 419.5 107.0 124.3 90.6 52.4 33.0 22.1 15.5 Single Span Stress 260.8 191.6 145.7 115.9 93.9 65.2 47.9 36.7 29.0 Spans Common	Span Type Load Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 6 7 8 9 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 2 Spans or More Deflection 504.4 317.7 212.8 149.5 109.0 63.1 39.7 26.6 18.7 3 Spans or More Deflection 419.5 264.2 177.0 124.3 90.6 52.4 33.0 22.1 15.5 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 Single Span Stress 260.8 191.6 146.7 115.9 93.9 65.2 47.9 36.7 29.0	Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 6 7 8 9 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 3 Spans or More Deflection 504.4 317.7 212.8 149.5 109.0 63.1 39.7 26.6 187.7 Span Type Load Type 169.3 129.6 102.4 83.0 52.4 33.0 22.1 15.5 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 6 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 Spans or More	Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans Deflection 197.6 124.5 83.4 58.6 42.7 24.7 15.6 10.4 7.3 2 Spans or More Span Type Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More Peflection 504.4 317.7 212.8 109.0 63.1 39.7 26.6 18.7 5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 5 Spans or More Load Type 3.5 4 4.5 5 6 7 8 9 5 Spans or More Stress 290.1 124.7 115.9 93.9 65.2 47.9 36.7 29.0 2 Spans or More Stress 290.1 121.2 <t< td=""><td>Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 3.0 23.4 18.5 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans or More Span Type Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 3 Spans or More Pellection 504.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More Pellection 504.4 149.5 160.3 109.0 63.1 30.7 22.1 15.5 5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 5 Span Type Stress 26.0 17.0 124.3 90.6 52.4 47.9 36.7 20.0 5 Spans Type Stress 26.0 126.3</td></t<>	Span Type Gravity-Total Allowable Load in PSF (Span in Feet) Single Span Stress 166.1 122.0 93.4 73.8 59.8 41.5 3.0 23.4 18.5 2 Spans Stress 166.1 122.0 93.4 73.8 59.8 41.5 30.5 23.4 18.5 2 Spans or More Span Type Stress 197.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 19.9 3 Spans or More Pellection 504.4 145.1 111.1 87.7 71.1 49.4 36.3 27.8 21.9 3 Spans or More Pellection 504.4 149.5 160.3 109.0 63.1 30.7 22.1 15.5 5 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 5 Span Type Stress 26.0 17.0 124.3 90.6 52.4 47.9 36.7 20.0 5 Spans Type Stress 26.0 126.3

32.9 10.7 36.4 25.9 42.5 21.5

56.9 50.5 66.4

101.2 91.5 49.7

40.7 14.7

67.2 31.3

85.9 145.7

117.8

205.8 167.7 227.6 403.9

268.8

250.3

365.9 397.5

Deflection

Single Span

Stress

Load Type

Span Type

179.9

297.3 603.0 347.0 501.4

404.7

Stress

2 Spans

22 Gauge (Fy=50ksi)

957.5

Deflection

472.3

Stress

796.3

Deflection

3 Spans or More

162.6

Gravity - Total Allowable Load in PSF (Span in Feet)

35.5 52.5 29.5

74.3 75.4 86.7 62.7

118.1

209.9

265.7

119.7

206.8 170.0 172.0

283.7

99.5

42.0

Span in Feet

Load in PSF

Uplift - Total Allowable

10 29.5 13.9 33.0

36.5 19.0 40.7 45.9

8 46.2

60.3 40.5 67.3

82.1 64.2

118.2

145.9

184.7

241.2

328.3 514.0 366.5 1238.1

Stress

 \sim

Load Type

Span Type

File R40094 Vol. 1 Sec. 2 ILL-4(Page 4) Issued: 2019-11-27 New: 2020-07-21

3.5208

0.0911 0.1249

3.9168 5.4630 4.9472

2.6653

4.9392

0.1615

0.2065

0.1615

1.65

180

Max Deflection

1.40

8 2 2 8

26 24 22 20

0.1521

(kip-in)

(in^4/ft)

(kip-in)

(in^3/ft)

(in^4/ft) 0.0658 0.0917

wt (psf)

f√ (ksi)

Gauge

98.0

1.1

.≚

ma

0.0000000000000000000000000000000000000	Stress	427.7	314.2	240.6	190.1	154.0	106.9	78.6	60.1	47.5	38.5	
S Spails of More	Deflection	1029.6	648.4	434.4	305.1	222.4	128.7	81.0	54.3	38.1	27.8	
	Secti	action Properties	20	Ton	Ton In Compression	cion	Bott	Bott In Compression	cion			

45.9 47.5 38.1	46.2 27.1 51.5 65.3 60.1	60.3 44.5 27.4.8 97.5 66.5.9 78.6 66.5.9 78.6 66.5.9 8.7 81.0 5	92.1 64.2 91.6 154.8 106.9	111.0 111.0 131.9 267.4 154.0 222.4	.45.3 111 162.9 13 36.8 26 26 190.1 152 27 14 305.1 22 27 27 27 27 27 27 27 27 27 27 27 27	216.8 206.1 522.3 240.6 434.4	241.2 323.7 269.2 779.7 314.2 648.4	326.3 ion 514.0 366.5 ion 1238.1 ion 1029.6		Single Span 2 Spans 3 Spans or More	50 Gauge (Fγ=50ksi)
19.0 40.7 45.9 47.5 38.1	27.1 51.5 65.3 60.1 54.3	40.5 67.3 97.5 78.6 81.0	64.2 91.6 154.8 106.9 128.7	111.0 131.9 267.4 154.0 222.4	152.3 162.9 366.8 190.1 305.1	216.8 206.1 522.3 240.6 434.4	323.7 269.2 779.7 314.2 648.4	514.0 366.5 1238.1 427.7 1029.6	Deflection Stress Deflection Stress Deflection	Single Span 2 Spans 3 Spans or More	50 Gauge (Fγ=50kg
45.9 47.5 38.1	65.3 60.1 54.3	97.5 78.6 81.0	154.8 106.9 128.7	267.4 154.0 222.4	305.1 305.1	522.3 240.6 434.4	779.7 314.2 648.4	1238.1 427.7 1029.6	Deflection Stress Deflection	2 Spans 3 Spans or More	7) əgusə (F
45.9	65.3	97.5	154.8	267.4	366.8	522.3	7.677	1238.1	Deflection	2 Juans) ə8
40.7	51.5	67.3	91.6	131.9	162.9	206.1	269.2	366.5	Stress	7 Spans	-λ=
19.0	27.1	40.5	64.2	111.0	152.3	216.8	323.7	514.0	Deflection	Jiligie Jpaii	20K
36.5	46.2	60.3	82.1	118.2	145.9	184./	241.2	328.3	Stress	Cinalo Casa	(is

File R40094 Vol. 1 Sec. 3 Page 1 Issued: 2019-11-28

Revised: 2020-07-21

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "Western R-Panel". The panels are roll-formed from No. 29, 26, 24, or 22 minimum gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating. The products are classified under Metal Roof Deck Panels (TJPV), Metal Roof Deck Panels (CETW), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

* The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0135 in. (No. 29 MSG minimum gauge), 0.0187 in. (No. 26 MSG minimum gauge), 0.0236 in. (No. 24 MSG minimum gauge), or 0.0296 in. (No. 22 MSG minimum gauge) for galvalume or galvanized steel. See ILL. 2 for further thickness dimension specifications. This thickness will not include the coating or any paint finish. The 29 MSG panel is not eligible for wind uplift Certification under the product category Metal Roof Deck Panels (TJPV).

DIMENSIONS

The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The 26 MSG steel will conform to ASTM A653 Grade 80 specs, or the minimum yield point will be 80,000 psi. The 24 or 22 MSG steel will conform to ASTM A653 Grade 50 specifications or the minimum yield point will be 50,000 psi. See ILL. 3 for additional strength specifications, and see ILL. 4 for gravity and uplift loads for these panels.

CLASSIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

The following information will be included on all Metal Roof Deck Panel (TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

METAL ROOF DECK PANEL As To Uplift Resistance Class 90

As Shown By Construction Nos. 79, 104, 112, 161, 167, 184 and 542

File R40094 Vol. 1 Sec. 3 ILL-2 Issued: 2019-11-28 New: 2020-07-21

	GAUGE / THICKNESS	
	PBR PANEL	
GAUGE	DECIMAL THICKNESS	TYPE /FINISH / SUBSTRATE
26	0.0190	GALVALUME
24	0.0236	GALVALUME
22	0.0296	GALVALUME
26	0.0187	GALVANIZED
24	0.0236	GALVANIZED
22	0.0296	GALVANIZED
	•	
26	0.0160	BARESTEEL
24	0.0210	BARESTEEL
22	0.0269	BARESTEEL
22	0.0269	A-606 -4 (Corten ®)

File R40094 Vol. 1 Sec. 3 ILL-3 Issued: 2019-11-28

New: 2020-07-21

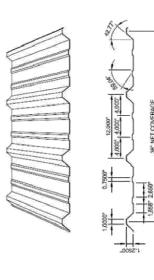
STRENGTH **PBR PANEL** GAUGE DECIMAL THICKNESS SUBSTRATE STRENGTH 26 0.0187 GALVALUME ASTM A792 GRADE 80 OR MINIMUM YIELD POINT 80,000 PSI 24 ASTM A792 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 0.0236 GALVALUME 0.0296 GALVALUME ASTM A792 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 22 26 0.0187 GALVANIZED ASTM A653 GRADE 80 OR MINIMUM YIELD POINT 80,000 PSI 24 0.0236 **GALVANIZED** ASTM A653 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 22 0.0296 **GALVANIZED** ASTM A653 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 26 0.0160 BARESTEEL ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 24 0.0210 BARESTEEL ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI ASTM A 1008 GRADE 50 OR MINIMUM YIELD POINT 50,000 PSI 22 0.0269 BARESTEEL A -606 TYPE 4 ASTM A-606 TYPE 4 GRADE 50 OR MINIMUM YIELD POINT 45,000 PSI 22 0.0269

Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 Single Span Stress 95.8 70.4 53.9 4.6 5.3 17.6 13.5 10.6 Single Span Geffection 119.7 75.4 50.5 35.5 23.8 15.0 13.4 4.4 2 Spans Geffection 119.7 75.4 50.5 35.5 43.3 30.1 12.1 10.6 13.4 4.4 Span Type Geffection 202.1 127.3 85.3 59.9 43.7 25.3 15.9 10.7 7.5 Span Type Load Type 3.5 4 4.5 5.6 3.0 6.3 4.4 13.8 Span Type Load Type 171.2 107.8 7.2 50.7 32.0 17.7 10.3 Span Type Load Type 15.3 11.9 82.7 60.3 3.4 17.7 10.3 Single Span	1					GRAVITY	GRAVITY LOAD / R-PANEL	ANEL					
Spain Mpe Stress 3.5 4 4.5 5 6 7 8 9 Single Span Stress 35.3 3.5 4.4 53.9 42.6 34.5 23.9 17.6 13.5 10.6 2 Spans Stress 10.0 55.5 25.8 15.0 9.4 6.3 4.4 2 Spans or More Poffection 243.0 103.5 102.5 7.5 43.3 30.1 12.1 16.9 13.4 3 Span sor More Poffection 243.0 103.2 7.2 50.6 35.1 15.9 10.6 7 8 9 5 Span Type Load Type 3.5 4 4.5 5.0 44.6 19.1 12.8 19.0 5 Span Surgle Span Load Type 3.5 4 4.5 5.0 4.4 13.0 12.4 13.8 5 Span Sor More Stress 130.5 9.7 4.6 3.0 2.0 14.6 17.7 12.4 5 Sp		T 200	7 P P C C			Gra	wity - Total	Allowable	Load in PSF	(Span in Fe	eet)		
Single Span Stress 95.8 70.4 53.9 4.6 34.5 15.9 17.6 13.5 10.6 Single Spans Deflection 119.7 75.4 50.5 35.5 25.8 15.0 9.4 6.3 4.4 Spans or More Spans or More Election 243.0 163.3 79.1 62.5 6.6 7 8.9 13.4 13.4 Span Type Load Type 3.5 1.03.3 79.1 62.5 50.6 7 8.9 9.0 Single Spans or More Election 20.2.1 1.07.3 79.1 62.5 50.6 7 8 9.0 6.3 10.6 9.0 10.6 9.0 10.6 9.0 10.6 9.0 10.6 9.0 10.6 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 <td></td> <td>Span Type</td> <td>road Lybe</td> <td>3</td> <td>3.5</td> <td>4</td> <td>4.5</td> <td>2</td> <td>9</td> <td>7</td> <td>8</td> <td>6</td> <td>10</td>		Span Type	road Lybe	3	3.5	4	4.5	2	9	7	8	6	10
Spans or More Spans Expersion of Load Type 75.4 50.5 35.5 43.8 15.0 9.4 6.3 44.4 Spans or More Spa	1		Stress	95.8	70.4	53.9	42.6	34.5	23.9	17.6	13.5	10.6	9.8
Spans or More Span Type 48.5 67.7 53.5 43.3 30.1 22.1 16.9 134 9.0 Spans or More Span Type Stress 140.5 103.3 79.1 62.5 50.6 35.1 25.8 19.8 15.6 Span Type Load Type 3.5 4.5 5.0 43.7 25.3 15.9 10.7 7.5 Span Type Load Type 3.5 4.5 5.0 44.6 37.0 8.9 7 8 9.0 Single Span Sor More Edection 171.2 107.8 72.2 50.7 37.0 27.4 13.5 9.0 6.3 Spans or More Edection 130.5 95.9 73.4 58.0 47.0 32.0 14.7 10.3 Spans or More Edection 130.5 95.9 72.2 50.7 54.8 38.1 14.7 10.3 Spans or More Edection 130.1 111.8 85.7 60.3 42.0 62.0 </td <td></td> <td>omgre span</td> <td>Deflection</td> <td>119.7</td> <td>75.4</td> <td>50.5</td> <td>35.5</td> <td>25.8</td> <td>15.0</td> <td>9.4</td> <td>6.3</td> <td>4.4</td> <td>3.2</td>		omgre span	Deflection	119.7	75.4	50.5	35.5	25.8	15.0	9.4	6.3	4.4	3.2
Spans or More Span Type Ferest 140.5 103.3 79.1 62.5 60.6 35.1 25.8 19.8 15.6 Spans or More Span Type Load Type 3.5 140.5 103.3 79.1 62.5 50.6 35.1 5.8 19.8 15.6 Single Span Type Load Type 3.5 4 4.5 5 6 7 8 9.0 Single Span Type Stress 130.5 95.9 70.7 37.0 27.4 13.5 9.0 6.3 Spans or More Espan Type Load Type 130.5 95.9 70.7 54.8 38.1 22.0 14.7 10.3 Spans or More Espan Type Load Type 152.3 111.9 85.7 60.3 34.9 22.0 14.7 10.3 Spans or More Espan Type Load Type 3.5 4 4.5 6.3 7 8 9 6 Spans or More Espan Type Load Type 3.5 14.5 <td></td> <td>2227</td> <td>Stress</td> <td>120.4</td> <td>88.5</td> <td>67.7</td> <td>53.5</td> <td>43.3</td> <td>30.1</td> <td>22.1</td> <td>16.9</td> <td>13.4</td> <td>10.8</td>		2227	Stress	120.4	88.5	67.7	53.5	43.3	30.1	22.1	16.9	13.4	10.8
Spans or More Spans or More Spans or More Spans or More Span or More Span Type Load Type Span Spans or More Span Type Single Span Span Sor More Span Type Type Span Type Type Type Type Type Type Type Type	1 29	z spans	Deflection	243.0	153.0	102.5	72.0	52.5	30.4	19.1	12.8	9.0	9.9
Spans of More Span Type Load Type 3.5 4 4.5 5.0 44.6 31.0 22.1 17.3 85.3 59.9 43.7 25.3 15.9 10.7 7.5 Fereign Span Type 3.5 4 4.5 5.0 44.6 31.0 22.7 17.4 13.8 9.0 6.3 2 5.0 44.6 31.0 22.7 17.4 13.8 9.0 6.3 2 5.0 44.6 31.0 22.7 17.4 13.8 9.0 6.3 2 5.0 44.6 31.0 22.7 17.4 13.8 13.8 130.5 95.9 73.4 58.0 47.0 32.6 24.0 18.4 14.5 12.4 14.5 12.4 14.1 141.7 99.5 72.5 42.0 26.4 17.7 12.4 16.9 12.4 14.5 12.4 14.1 12.3 14.1 12.3 14.0 12.3 14.0 12.4 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 14.1 12.3 12.3 12.3 12.3 12.3 12.3 12.3 12	nnc	2.000	Stress	140.5	103.3	79.1	62.5	9.05	35.1	25.8	19.8	15.6	12.6
Span Type Load Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 123.8 91.0 69.7 55.0 44.6 31.0 22.7 17.4 13.8 9 2 Spans Deflection 171.2 107.8 72.2 50.7 37.0 21.4 13.5 9.0 6.3 2 Spans or More Deflection 335.8 211.4 141.7 99.5 72.5 42.0 26.4 17.7 12.4 3 Spans or More Deflection 279.2 11.9 85.7 60.3 34.9 22.0 14.7 10.3 5 span Type Load Type 3.5 4 4.5 60.3 34.9 22.0 14.7 10.3 5 span Suffection 279.2 177.8 8.7 60.3 34.9 22.0 14.7 10.3 5 spans or More Stress 174.9 18.7 60.3 34.9 22.0 14.7 10.3 5 spans or More Stress		s spans or More	Deflection	202.1	127.3	85.3	59.9	43.7	25.3	15.9	10.7	7.5	5.5
Load Type 3 4.5 5.0 4.6 7 8 9 4 Stress 123.8 91.0 69.7 55.0 44.6 31.0 22.7 17.4 13.8 Deflection 171.2 107.8 72.2 50.7 37.0 21.4 13.5 9.0 6.3 Stress 130.5 95.9 73.4 58.0 47.0 32.6 24.0 18.4 14.5 Deflection 335.8 211.4 141.7 99.5 72.5 42.0 26.4 17.7 12.4 Deflection 279.2 175.8 117.8 82.7 60.3 34.9 22.0 14.7 10.3 Load Type 3 3.5 4 4.5 5 6 7 8 9 9 Stress 174.9 128.5 98.4 77.7 63.0 43.7 32.1 24.6 19.4 19.4 Stress 168.0 128.4 47.7	I	, L	7 P. C.			Gra	wity - Total	Allowable	Load in PSF	(Span in Fe	eet)		
Single Span Stress 123.8 91.0 69.7 55.0 44.6 31.0 22.7 17.4 13.8 2 Spans Stress 130.5 95.9 73.4 58.0 47.0 32.6 24.0 18.4 14.5 3 Spans or More Stress 130.5 95.9 73.4 58.0 47.0 32.6 24.0 18.4 14.5 3 Spans or More Deflection 235.8 211.4 141.7 99.5 72.5 42.0 26.4 17.7 12.4 Span Type Deflection 279.2 11.9 85.7 60.3 34.9 22.0 14.7 10.3 Span Type Load Type 3.5 4 4.5 5 6 7 8 9 Single Span Stress 174.9 128.5 98.4 77.7 63.0 43.7 12.5 8.8 Spans or More 2 Spans 168.0 128.4 100.2 70.3 51.3 20.0 13.0		Span Type	гоад туре	3	3.5	4	4.5	5	9	7	8	6	10
Spans or More Spans Deflection 171.2 107.8 72.2 50.7 37.0 21.4 13.5 9.0 6.3 6.3 9.0 6.3 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0	(10		Stress	123.8	91.0	69.7	55.0	44.6	31.0	22.7	17.4	13.8	11.1
Spans or More Spans o		Single Span	Deflection	171.2	107.8	72.2	50.7	37.0	21.4	13.5	9.0	6.3	4.6
Spans or More Spans o		2	Stress	130.5	95.9	73.4	58.0	47.0	32.6	24.0	18.4	14.5	11.7
Spans or More Span Type Stress 152.3 111.9 85.7 67.7 54.8 38.1 28.0 21.4 16.9 16.9 Span Type Deflection 279.2 175.8 117.8 82.7 60.3 34.9 22.0 14.7 10.3 10.3 10.3 14.7 10.3 10.3 10.3 14.7 10.3 10.3 14.7 10.3 14.7 10.3 12.1 24.6 19.4 19.4 10.2 17.7 63.0 43.7 24.6 19.4 19.4 19.4 19.4 10.2 70.3 51.3 29.7 18.7 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4 19.4	1 29	2 Spalls	Deflection	335.8	211.4	141.7	99.5	72.5	42.0	26.4	17.7	12.4	9.1
Spairs of Mode Span Type Deflection 279.2 175.8 117.8 82.7 60.3 34.9 22.0 14.7 10.3 9.8 Span Type Load Type 3 3.5 4 4.5 5 6 7 8 9 9 Single Span Type Stress 174.9 128.5 98.4 77.7 63.0 43.7 24.6 19.4 9 Single Span Spans or More 2 Spans 168.0 123.4 94.5 74.7 60.5 42.0 30.9 23.6 18.7 18.7 3 Spans or More 452.3 284.8 190.8 134.0 97.7 66.5 35.6 23.9 16.8 3 Spans or More Deflection 376.1 148.1 110.3 87.1 70.6 49.0 29.6 19.8 13.9	nno	2000	Stress	152.3	111.9	85.7	67.7	54.8	38.1	28.0	21.4	16.9	13.7
Span Type Load Type Gravity - Total Allowable Load in PSF (Span in Feet) Single Span Stress 174.9 128.5 98.4 77.7 63.0 43.7 32.1 24.6 19.4 Single Span Deflection 237.4 149.5 100.2 70.3 51.3 29.7 18.7 12.5 8.8 9 Spans or More Deflection 452.3 284.8 190.8 134.0 97.7 56.5 35.6 23.9 16.8 3 Spans or More Deflection 376.1 110.3 87.1 70.6 49.0 29.6 19.8 13.9		s spails or iviore	Deflection	279.2	175.8	117.8	82.7	60.3	34.9	22.0	14.7	10.3	7.5
Single Span Type Stress 174.9 128.5 98.4 77.7 63.0 43.7 32.1 24.6 19.4 19.4 1.2 Spans or More Stress 196.1 128.5 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 128.2 1			Joseph T. Joseph			Gra	ıvity - Total	Allowable	Load in PSF	(Span in Fe	eet)		
Single Span Spans or More Spans or More And Spans or More And		эрап Туре	гоаа туре	3	3.5	4	4.5	2	9	7	8	6	10
Spans or More Deflection Single Spans or More 237.4 149.5 100.2 70.3 51.3 29.7 18.7 12.5 8.8 8.8 8.8 9.5 74.7 60.5 42.0 30.9 23.6 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 18.7 47.0 29.6 19.8 13.9	(10	مدمی ماهمای	Stress	174.9	128.5	98.4	77.7	63.0	43.7	32.1	24.6	19.4	15.7
2 Spans Stress 168.0 123.4 94.5 74.7 60.5 42.0 30.9 23.6 18.7 Deflection 452.3 284.8 190.8 134.0 97.7 56.5 35.6 23.9 16.8 16.8 3 Spans or More Deflection 376.1 236.9 158.7 111.4 81.2 47.0 29.6 19.8 13.9		Jiilgie Jpaii	Deflection	237.4	149.5	100.2	70.3	51.3	29.7	18.7	12.5	8.8	6.4
A Spans or More Deflection 452.3 284.8 190.8 134.0 97.7 56.5 35.6 23.9 16.8 16.8 3 Spans or More Deflection 376.1 236.9 158.7 111.4 81.2 47.0 29.6 19.8 13.9		2000	Stress	168.0	123.4	94.5	74.7	60.5	42.0	30.9	23.6	18.7	15.1
3 Spans or More Deflection 376.1 236.9 158.7 111.4 81.2 47.0 29.6 19.8 13.9	1 28	2 Spails	Deflection	452.3	284.8	190.8	134.0	7.76	26.5	35.6	23.9	16.8	12.2
3 Spails of Model Deflection 376.1 236.9 158.7 111.4 81.2 47.0 29.6 19.8 13.9	nno	2 Case or More	Stress	196.1	144.1	110.3	87.1	9.07	49.0	36.0	27.6	21.8	17.6
	77	o Spails of More	Deflection	376.1	236.9	158.7	111.4	81.2	47.0	59.6	19.8	13.9	10.2

ssion	ma	(kip-in)	1.6256	1.7618	2.2680	
Bott. In Compression	SX	(in^3/ft)	0.0452	0.0588	0.0758	
Bott.	Χİ	(in^4/ft)	0.0317	0.0438	0.0590	
sion	ma	(kip-in)	1.2928	1.6717	2.3612	
op in Compression	SX	(in^3/ft)	0.0379	0.0558	0.0789	
dol	Хİ	(in^4/ft)	0.0376	0.0538	0.0746	
ıes	wt	(bst)	0.88	1.12	1.42	180
section Properties	łу	(ksi)	80	20	20	lection
Secti	Gauge		56	24	22	Max Deflection

Vol. 1





Sect	Section Properties	ies	Top	Top In Compression	ssion	Bott.	Bott. In Compression	ssion
Gauge	fy	1W	Хİ	XS	ma	X!	XS	ma
	(ksi)	(bst)	(in^4/ft)	(in^3/ft)	(kip-in)	(in^4/ft)	(in^3/ft)	(kip-in)
76	80	0.88	0.0376	0.0379	1.2928	0.0317	0.0452	1.6256
24	20	1.12	0.0538	0.0558	1.6717	0.0317	0.0452	1.6256
22	20	1.42	0.0746	0.0789	2.3612	0.0590	0.0758	2.2680
Max Deflection	lection	180						

NOTES:

- 2004 North American Specifications for the design of Cold-Formed Effective section properties are calculated in accordance with the Steel Structural Members.
- Ix is for the determination of deflection. 7
- Sx and Ma are for the stress determination. 3

File R40094 Vol. 1 Sec. 4 Page 1 Issued: 2020-07-21

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "MS2 $\ensuremath{\mathbb{B}}$ ".

The panels are roll-formed from No. 24 gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

The products are classified under Metal Roof Deck Panels (TJPV), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0239 in. (No. 24 MSG minimum gauge). This thickness will not include the coating or any paint finish.

DIMENSIONS

The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1. The maximum width of the panel will be 16 inches.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The 24 MSG or thicker steel shall conform to Grade 50 Specifications (ASTM A792 designation) or have a minimum yield strength of 50,000 psi.

CERTIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

The following information will be included on all Metal Roof Deck Panel (TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

METAL ROOF DECK PANEL
As To Uplift Resistance
Class 90

As Shown By Construction No. 90, 176, 180, 238, and 238A

2. Certification Marking Data for Roofing Systems (TGFU):

BUILDING UNITS FOR
ROOFING SYSTEMS
AS TO AN EXTERNAL FIRE EXPOSURE ONLY

3. Certification Marking Data for Roof-covering Materials, Impact Resistance (TGAM):

The following marking may also appear on each individual panel when the complete TGFU Certification Marking is provided on the package or bundle.

"Also Certified as to Impact Resistance; Class 4"

SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY

MARKING INFORMATION:

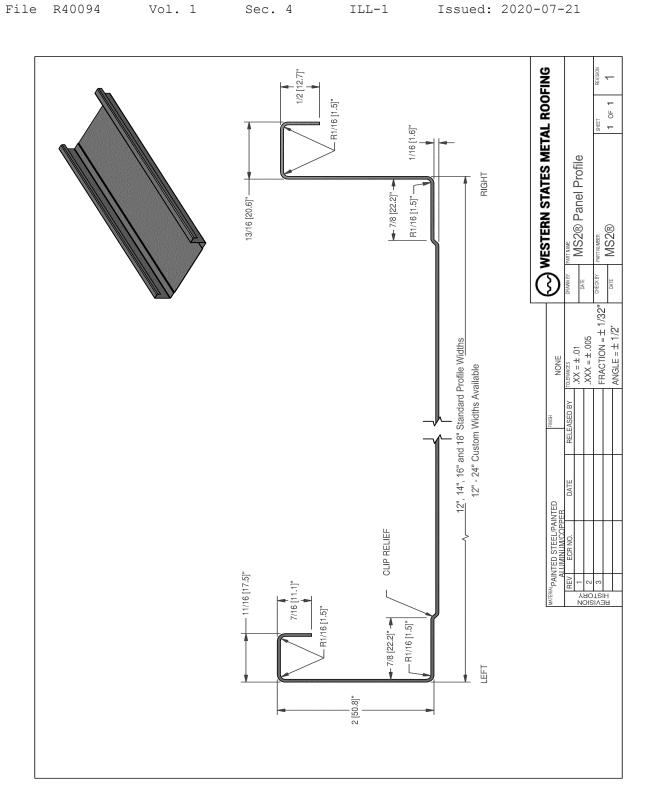
In addition, the following information will appear either on the product or package or on the Certification Marking:

Company's name or UL file number,

Product identification

and

Factory identification (if applicable).



File R40094 Vol. 1 Sec. 5 Page 1 Issued: 2020-07-22

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "Thin Lock®".

The panels are roll-formed from minimum No. 24 gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

The products are classified under Metal Roof Deck Panels (TJPV), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0239 in. (No. 24 MSG minimum gauge). This thickness will not include the coating or any paint finish.

DIMENSIONS

The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1. The maximum width of the panel will be 20 inches.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The 24 MSG or thicker steel shall conform to Grade 50 Specifications (ASTM A792) or have a minimum yield strength of 50,000 psi.

CERTIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

The following information will be included on all Metal Roof Deck Panel (TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

METAL ROOF DECK PANEL
As To Uplift Resistance
Class 90
As Shown By Construction No. 370

2. Certification Marking Data for Roofing Systems (TGFU):

BUILDING UNITS FOR

ROOFING SYSTEMS
AS TO AN EXTERNAL FIRE EXPOSURE ONLY

3. Certification Marking Data for Roof-covering Materials, Impact Resistance (TGAM):

The following marking may also appear on each individual panel when the complete TGFU Certification Marking is provided on the package or bundle.

"Also Certified as to Impact Resistance; Class 4"

SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY

MARKING INFORMATION:

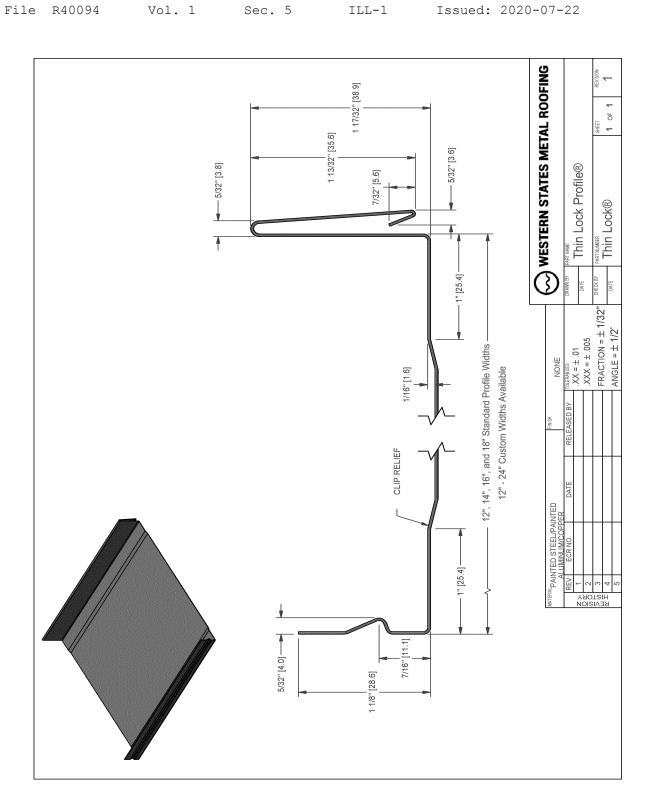
In addition, the following information will appear either on the product or package or on the Certification Marking:

Company's name or UL file number,

Product identification

and

Factory identification (if applicable).



File R40094 Vol. 1 Sec. 6 Page 1 Issued: 2020-07-23

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "Western Lock®".

The panels are roll-formed from minimum No. 24 gauge coated steel or minimum 0.032 in. thick aluminum to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

The products are classified under Metal Roof Deck Panels (TJPV), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0239 in. (No. 24 MSG minimum gauge). This thickness will not include the coating or any paint finish.

The base metal thickness of the aluminum will not be less than 0.032 in. This thickness will not include any coating or paint finish.

DIMENSIONS

The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1. The maximum width of the panel will be 18 inches.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The 24 MSG and thicker steel shall conform to Grade 50 Specifications (ASTM A792 designation) or have a minimum yield strength of 50,000 psi.

CERTIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

The following information will be included on all Metal Roof Deck Panel (TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

METAL ROOF DECK PANEL
As To Uplift Resistance
Class 90

As Shown By Construction No. 261, 508, 508A

2. Certification Marking Data for Roofing Systems (TGFU):

BUILDING UNITS FOR

ROOFING SYSTEMS

AS TO AN EXTERNAL FIRE EXPOSURE ONLY

3. Certification Marking Data for Roof-covering Materials, Impact Resistance (TGAM):

The following marking may also appear on each individual panel when the complete TGFU Certification Marking is provided on the package or bundle.

"Also Certified as to Impact Resistance; Class 4"

SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY

MARKING INFORMATION:

In addition, the following information will appear either on the product or package or on the Certification Marking:

Company's name or UL file number,

Product identification

and

Factory identification (if applicable).

Vol. 1

Issued: 2020-07-23

WESTERN STATES METAL ROOFING [E.14] "8\2 1 sker 1 of 1 R1/16" [1.6]-— 1" [25.4] — Western Lock Profile® 1" [25.6] Western Lock® 3/8" [9.5]— 1/16" [1.6] TOLEWICES

XX = ± .01

XXX = ± .005

FRACTION = ± 1/32"

ANGLE = ± 1/2 NONE 12", 14", 16" & 18" Standard Profile Widths 12" to 24" Custom Widths Available FRAINTED STEEL/PAINTED AI I IMINI IM/COPPER CLIP RELIEF - 1/2" [12.7] -1"[25.4]--3/16" [4.8] ,30° --- [2.05] "81\E 1

- 1 26/32" [45.2] -

File R40094 Vol. 1 Sec. 7 Page 1 Issued: 2020-07-24

DESCRIPTION

PRODUCT COVERED:

This section of the Procedure covers a roof panel which is identified as "Western Seam®".

The panels are roll-formed from minimum No. 29 gauge coated steel to the configuration shown in ILL. 1. The panel may also have a paint finish over the coating.

The products are classified under Metal Roof Deck Panels (TJPV), Roof-Covering Materials - Impact Resistance (TGAM) and Roofing Systems (TGFU).

SPECIFICATIONS OF FINISHED PRODUCT:

THICKNESS

The base metal thickness of the steel used in the fabrication of the panel will be not less than 0.0128 in. (No. 29 MSG minimum gauge). This thickness will not include the coating or any paint finish.

DIMENSIONS

The cross-sectional dimensions of the panel or panel piece will be in accordance with the cross-section shown in ILL. 1. The maximum width of the panel will be 24 inches.

STRENGTH

The strength records of the manufacturer of the steel will be reviewed. The 29 MSG steel will conform to Grade 80 Specifications (ASTM A653 designation) or the minimum yield point will be 80,000 psi. The 24 MSG and thicker steel shall conform to Grade 50 Specifications (ASTM A653 designation) or have a minimum yield strength of 50,000 psi.

CERTIFICATION MARKING:

The finished material complying with all the specifications set forth in this section is eligible to bear the Markings shown in the Certification Marking Data Pages in the front of this Volume.

The following information will be included on all Metal Roof Deck Panel (TJPV) Certification Markings pertaining to products described in this Section:

1. Certification Marking Data for Metal Roof Deck Panels (TJPV):

METAL ROOF DECK PANEL
As To Uplift Resistance
Class 90
As Shown By Construction No. 529

2. Certification Marking Data for Roofing Systems (TGFU):

BUILDING UNITS FOR

ROOFING SYSTEMS

AS TO AN EXTERNAL FIRE EXPOSURE ONLY

3. Certification Marking Data for Roof-covering Materials, Impact Resistance (TGAM):

The following marking may also appear on each individual panel when the complete TGFU Certification Marking is provided on the package or bundle.

"Also Certified as to Impact Resistance; Class 4"

SEE UL ROOFING MATERIALS AND SYSTEMS DIRECTORY

MARKING INFORMATION:

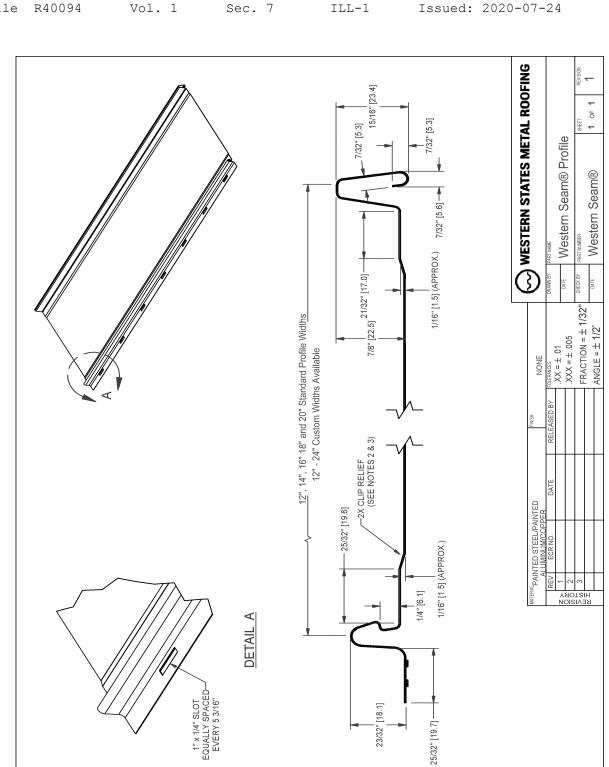
In addition, the following information will appear either on the product or package or on the Certification Marking:

Company's name or UL file number,

Product identification

and

Factory identification (if applicable).



File R40094 Page 1 Issued: 2019-11-26

Revised: 2020-07-21

DESCRIPTION

PRODUCT COVERED:

* The product covered by this Report are metal roof deck panels designated "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS2 $^{\circ}$ ", "Thin Lock $^{\circ}$ ", "Western Lock $^{\circ}$ ", and "Western Seam $^{\circ}$ ".

The products in this Report are Certified as to uplift resistance, external fire exposure and impact resistance.

USE:

The products are intended for use as building materials as permitted by authorities having jurisdiction.

File R40094 Page T2-1 of 5 Issued: 2019-11-26

New: 2020-07-21

TEST RECORD NO. 2

GENERAL:

Results relate only to the items evaluated.

INVESTIGATION:

The scope of the investigation sponsored under Project 4789493641 was to establish Follow Up Service and Certification of four new metal roof deck panels, designated "MS2®", "Thin Lock®", "Western Lock®", and "Western Seam®". These panels were under investigation for Certification under the product categories Metal Roof Deck Panels (TJPV), Roofing Systems (TGFU), and Roof-covering Materials, Impact Resistance (TGAM).

STUDY FOR CERTIFICATION:

ANSI/UL 580 wind uplift, ANSI/UL 790 fire, and UL 2218A testing was not considered necessary based on the profile design and strength characteristics of the panels in combination with UL's general wind uplift, fire, and impact test experience and a review of UL's Online Product iQ^{TM} Database for the Certifications published for Constructions 90, 176, 180, 238, 238A, 261, 370, 508, 508A, and 529 under the product category Metal Roof Deck Panels (TJPV).

CERTIFICATION:

The following represents the judgment of UL based on the results of the examination and data analysis presented in this Test Record, as they relate to established principles and previously recorded data.

Under the Follow Up Service program of UL, the manufacturer is authorized to continue to apply UL's Certification Mark on such products that comply with the Follow Up Service Procedure and any other applicable requirements of UL. Only those products that properly bear UL's Certification Mark are considered to be Certified by UL.

Revisions to the listing published for Western States Metal Roofing under the product category Metal Roof Deck Panels (TJPV) were made as indicated below (revisions in italics):

Metal Roof Deck Panels

Coated steel panels, identified as "MS2 $^{\circ}$ " for use in Construction Nos. 90, 176, 180, 238, 238A

Coated steel panels identified as "Thin Lock®" for use in Construction No. 370

Coated steel panels identified as "Western Lock®" for use in Construction Nos. 261, 508, 508A

Coated steel panels, identified as "Western Seam®" for use in Construction No. 529

File R40094 Page T2-2 of 5 Issued: 2019-11-26

New: 2020-07-21

Revisions to the listing published for Western States Metal Roofing under the product category Roofing Systems (TGFU) were made as indicated below (revisions in italics):

Roofing Systems

OTHER SYSTEMS

CLASS A

1. Deck: C-15/32 | Incline: Unlimited | Impact: Class 4

Barrier Board: -1/4 in. min. G-P Gypsum DensDeck®, United States Gypsum Co, SECUROCK® Glass-Mat Roof Board (Type SGMRX), National Gypsum "DEXcell Glass Mat Roof Board" or "DEXcell FV glass Mat Roof Board", mechanically fastened with all joints staggered a min of 6 in. from the plywood joints.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet; Type 15, 20 or 30 felt; or UL Classified prepared roofing accessory.

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS2@'', "Thin Lock@'', "Western Lock@'', or "Western Seam®" coated steel roofing panels, mechanically fastened.

2. Deck: NC Incline: Unlimited Impact: Class 4

Barrier Board (Optional): -1/4 in. min. G-P Gypsum DensDeck®, United States Gypsum Co, SECUROCK® Glass-Mat Roof Board (Type SGMRX), National Gypsum "DEXcell Glass Mat Roof Board" or "DEXcell FV glass Mat Roof Board".

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet; Type 15, 20 or 30 felt; or UL Classified prepared roofing accessory.

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS2@", "Thin Lock@", "Western Lock@", or "Western Seam" coated steel roofing panels, mechanically fastened.

3. Deck: NC Incline: Unlimited Impact: Class 4

Barrier Board: -7/16 OBS or 5/8 in. plywood over UL Classified polyisocyanurate insulation board or UL Classified polyisocyanurate composite board, any thickness.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet; Type 15, 20 or 30 felt; or UL Classified prepared roofing accessory.

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS28", "Thin Lock8", "Western Lock8", or "Western Seam8" coated steel roofing panels, mechanically fastened.

4. Deck: NC Incline: Unlimited Impact: Class 4

Barrier Board: — UL Classified polyisocyanurate, glass fiber, perlite or wood fiber, any thickness.

Ply Sheet (Optional): — Any UL Classified Type G1, G2 or G3 base/ply sheet; Type 15, 20 or 30 felt; or UL Classified prepared roofing accessory.

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS28", "Thin Lock8", "Western Lock8", or "Western Seam8" coated steel roofing panels, mechanically fastened.

File R40094 Page T2-3 of 5 Issued: 2019-11-26

New: 2020-07-21

5. Deck: NC Incline: Unlimited Impact: Class 4

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS28", "Thin Lock8", "Western Lock8", or "Western Seam8" coated steel roofing panels, mechanically fastened.

6. Deck: C-15/32 Incline: Unlimited Impact: Class 4

Underlayment: — One or more plies GAF "VersaShield® Fire-Resistant Roof Deck Protection" or GAF "VersaShield® Solo $^{\mathbb{M}}$ Fire Resistant Slip Sheet", mechanically fastened.

Ply Sheet: — One layer Type 30 base sheet or GAF "VersaShield", mechanically fastened.

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS2@'', "Thin Lock@'', "Western Lock@'', or "Western Seam®" coated steel roofing panels, mechanically fastened.

7. Deck: C-15/32 Incline: Unlimited Impact: Class 4

Underlayment: — One or more plies GAF "VersaShield® Fire-Resistant Roof Deck Protection" or GAF "VersaShield® Solo $^{\mathbb{M}}$ Fire Resistant Slip Sheet", mechanically fastened.

Surfacing: - "7/8" Corrugated", "Western Rib", "Western R-Panel", "MS28", "Thin Lock8", "Western Lock8", or "Western Seam8" coated steel roofing panels, mechanically fastened.

Revisions to the listing published for Western States Metal Roofing under the product category Roofing Systems, Impact Resistance (TGAM) were made as indicated below (revisions in italics):

Roof-covering Materials, Impact Resistance

Class 4 formed coated steel panels, Model(s) 7/8" Corrugated (Report Date: 2019-11-26), Western Rib (Report Date: 2019-11-26), and Western R-Panel (Report Date: 2019-11-26) "MS28" (Report Date: 2019-11-28), "Thin Lock8" (Report Date: 2019-11-28), "Western Lock8" (Report Date: 2019-11-28), or "Western Seam8" (Report Date: 2019-11-28)

CERTIFICATION MARKING:

US CERTIFICATION (TJPV):

The Certification Marking to be used with the product designated "MS2®" is described below:



METAL ROOF DECK PANELS
AS TO UPLIFT RESISTANCE
CLASS 90

AS SHOWN BY CONSTRUCTION NOS. 90, 176, 180, 238, and 238A

File R40094 Page T2-4 of 5 Issued: 2019-11-26

New: 2020-07-21

The Certification Marking to be used with the product designated "Thin Lock" is described below:



METAL ROOF DECK PANELS
AS TO UPLIFT RESISTANCE
CLASS 90
CHOWN BY CONSTRUCTION NO. 37

AS SHOWN BY CONSTRUCTION NO. 370

The Certification Marking to be used with the product designated "Western Lock" is described below:



METAL ROOF DECK PANELS
AS TO UPLIFT RESISTANCE
CLASS 90

AS SHOWN BY CONSTRUCTION NOS. 261, 508, and 508A

The Certification Marking to be used with the product designated "Western Seam®" is described below:



METAL ROOF DECK PANELS
AS TO UPLIFT RESISTANCE
CLASS 90
AS SHOWN BY CONSTRUCTION NO. 529

US CERTIFICATION (TGFU):

The Certification Marking for the Roofing Systems (TGFU) category to be used on the products designated "MS2®", "Thin Lock®", "Western Lock®", and "Western Seam®" is illustrated below:

BUILDING UNITS
FOR ROOFING SYSTEMS
AS TO EXTERNAL FIRE EXPOSURE

The Certification Marking for the Roof-covering Materials, Impact Resistance (TGAM) category to be used on the products designated "MS28", "Thin Lock8", "Western Lock8", and "Western Seam8" is illustrated below:

"Also Certified as to Impact Resistance: Class 4"

New: 2020-07-21

TEST RECORD SUMMARY:

The results of this investigation, including construction review, indicate that the products evaluated comply with the applicable requirements of the standards listed below, and, therefore, the products are judged eligible to bear UL's Mark as described in the conclusion page of this report.

Any information and documentation provided to you involving UL Mark services are provided on behalf of UL LLC or any authorized licensee of UL.

Standard	Title	Edition or Publication Date	Latest Revision Date
ANSI/UL 580	Standard for Tests for Uplift Resistance of Roof Assemblies	5 th	29 March 2019
ANSI/UL 790	Standard Test Methods or Fire Tests of Roof Coverings	8 th	19 October 2018
UL 2218A	Standard for Impact Resistance of Roofing Systems	1st	2 August 2019

TEST RECORD by:

TIMOTHY PAWLICKI

Kin Uhm

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Building Materials & Systems

Reviewed by:

ALPESH PATEL Staff Engineer

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Le Pot