



**MARLYN STEEL DECKS**  
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### STEEL DECK PANELS

- CSI Sections:   **05 31 00 – Steel Deck**  
                       **05 31 13 – Steel Floor Decking**  
                       **05 31 23 – Steel Roof Decking**

### 1.0 RECOGNITION

Marlyn steel deck panels recognized in this report have been evaluated for use as a component of horizontal or sloped floor and roof systems supporting out-of-plane loads. Physical characteristics and structural performance properties comply with the intent of the provisions of the following codes and regulations:

- 2024, 2021, and 2018 International Building Code® (IBC)
- 2022 California Building Code (CBC) – attached supplement
- 2023 Florida Building Code, Building (FBC, Building) – attached supplement

### 2.0 LIMITATIONS

Use of the Marlyn steel deck panels recognized in this report is subject to the following limitations:

**2.1** The steel deck panels shall be installed in accordance with the applicable code, the approved construction documents, and this report. Where there is a conflict, the most restrictive requirements shall govern.

**2.2** Calculations and details demonstrating that the loads applied to the steel deck panels comply with this report shall be submitted to the building official for approval. Calculations and drawings shall be prepared, signed, and sealed by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

**2.3** The steel panels recognized in this report are produced by Marlyn Steel Decks in Tampa, Florida.

### 3.0 PRODUCT USE

#### 3.1 General:

Steel deck panels comply with 2024 IBC Section 2208, and 2021 and 2018 IBC Section 2210.1.1, and may be designed to resist out-of-plane loads, in-plane diaphragm shear loads, and axial loads.

#### 3.2 Design:

**3.2.1 Out-of-Plane Strength and Deflection:** Out-of-plane strength of steel deck panels shall be determined using engineering mechanics and deck panel properties presented in this report. Steel deck panels shall not be used under conditions subject to loads that are predominately cyclic in nature unless a registered design professional submits substantiating calculations to the building official in accordance with AISI S100 Chapter M.

**3.2.2 Composite Steel Deck-Slabs:** Composite steel deck-slab out-of-plane load strength (superimposed loads) shall be determined in accordance with ANSI/SD using properties in this report. The use of concrete-filled composite steel deck slabs to support loads that are predominantly vibratory is beyond the scope of this report.

**3.2.3 Reactions:** The strength of steel deck panels to resist reaction loads at supports and locations of concentrated loads shall be determined based on either web crippling strength or web shear strength. Web crippling strength shall be determined in accordance with AISI S100 Section G5 and the properties in this report. The deck panel web shear strength of deck panel webs shall be determined in accordance with AISI S100 Section G2.1 and the properties in this report. See Tables 2, 7, 12, 22, and 34 for shear and web crippling.

**3.2.4 Diaphragms:** Non-acoustical steel floor and roof decks may resist in-plane loads as determined by AISI S310-20. In-plane loads include diaphragm shear and axial compression parallel to the flutes.

The diaphragm length and width shall be limited by; 1) engineering mechanics, 2) the applied loads, 3) the shear capacity of the diaphragm, 4) the diaphragm shear deflection limited by the requirements of ASCE/SEI 7 in Section 12.8.6 entitled, “Story Drift Determination” and Section 12.12 entitled, “Drift and Deformation”. The shear web deflection is based on the stiffness or flexibility factors for the diaphragm and equations of mechanics. The shear web deflection equations of mechanics, diagrams, notations, and symbols in Attachment A of this report are an aid to designers in determining the diaphragm deflection. The total diaphragm deflection is comprised of both the flexural and shear web deflection. Beam theory may be used to determine the flexural deflection and the equations in Attachment A of this report may be used to determine the shear web deflection.

#### 3.3 Installation:

Steel deck panel erection sequence and installation method is the responsibility of the contractor(s) performing installation of the steel deck panels. Installation shall be in accordance

*The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with Section 104.2.3 of the 2024 IBC and Section 104.11 of previous editions. This document shall only be reproduced in its entirety.*





with this report and ANSI/SDI SD. Additional installation information is available in the Steel Deck Institute (SDI MOC) Manual of Construction with Steel Deck and manufacturer's recommendations. Quality control during installation shall comply with ANSI/SDI QA/QC.

### 3.4 Inspections:

**3.4.1 General:** Special inspection is required in accordance with IBC Chapter 17, including Section 1705.2.2. Quality control and quality assurance for deck installation shall comply with ANSI/SDI QA/QC, where the special inspector duties are as set forth for the quality assurance inspector. Structural observations shall be provided where required in IBC Section 1704.6.

**3.4.2 Concrete:** Continuous and periodic special inspection for concrete and concrete reinforcement shall be in accordance with Section 1705.3 of the IBC. The inspector's duties include sampling and testing and verification of concrete mixes, reinforcement types and placement, and concrete placement.

### 4.0 PRODUCT DESCRIPTION

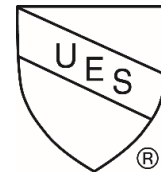
**4.1 Steel Deck Panels:** The steel deck panels described in this report are cold-formed from steel sheets into panels with fluted sections. Panel characteristics are described in Tables 1 through 44 and Figures 1 through 4 of this report.

The galvanized deck panels are formed from either ASTM A653 or A1063 steel, with a minimum G60 galvanized coating designation.

**4.2 Concrete:** Concrete shall be either lightweight concrete or normalweight concrete and comply with Chapter 19 of the IBC. Calcium chloride or admixtures containing chloride ions shall be limited in accordance with ACI 318-19 Sections 19.3.4.1 and 26.4.2.2(g), or ACI 318-14 Section 26.4.1.4.1(c). The minimum compressive strength shall be as indicated in the tables and figures of this report.

### 5.0 IDENTIFICATION

Each bundle of deck panels is identified with a visible label. The label includes the manufacturer's name (Marlyn Steel Decks, Inc.), production location (Tampa, Florida), deck type, steel gage and evaluation report number (ER-0931). The IAPMO Uniform Evaluation Service Mark of Conformity may also be used as noted below.



**IAPMO UES ER-0931**

### 6.0 SUBSTANTIATING DATA

**6.1** Test reports are from laboratories in compliance with ISO/IEC 17025.

**6.2** Data in accordance with the IAPMO Uniform Evaluation Service Evaluation Criteria EC007-2024, Evaluation Criteria for Steel Composite, Non-composite, and Roof Deck Construction.

### 7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on Marlyn Steel Decks, Inc. steel deck panels to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.3 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)



## ATTACHMENT A

### Diaphragm Shear Web Deflection Equations

Type of Loading	Loading Condition	Shear Deflection	
Simple Beam at Center	Uniform Load, $w$	$\Delta_w = \frac{wL^2}{8bG'}$	
Simple Beam at $L_1$	Uniform Load, $w$	$\Delta_w = \frac{q_{ave}L_1}{G'}$	
Simple Beam at center	Point Load, $P$	$\Delta_w = \frac{PL}{4bG'}$	
Simple Beam at 1/3 points	Point Loads, $P$	$\Delta_w = \frac{PL}{3bG'}$	
Cantilever Beam at End	Uniform Load, $w$	$\Delta_w = \frac{PL^2}{2bG'}$	
Cantilever Beam at End	Point Load, $P$	$\Delta_w = \frac{PL}{bG'}$	
Relationship between flexibility factor and stiffness factor		$f = \frac{1000}{G'}$	

$b$  = Depth of diaphragm (ft)

$f$  = Flexibility factor (micro in/lbs)

$G'$  = Stiffness factor (kips/in)

$L$  = Diaphragm Length (ft)

$L_1$  = Distance to the point where deflection is calculated (ft)

$P$  = Concentrated load (lbs)

$q_{ave}$  = Average diaphragm shear (lbs/ft)

$w$  = Uniform load (lbs/ft)

$\Delta_w$  = Web deflection (in)



**Notes to Tables 1 through 10.8:**

1. Steel deck is manufactured from steel conforming to ASTM A653, SS, Grade 50.
2. Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.
3. Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.
4. Concrete fill used in composite deck construction shall have a minimum  $f_c = 3000$  psi.

**Table 1—Section Properties and Flexural Resistance  
(Bare Deck) - (2x12 Composite and 2x12 Form)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> ksi	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω inch-lbs per ft	M <sub>n</sub> /Ω inch-lbs per foot		
2x12	22	0.0295	1.6	50	0.235	0.246	7037	7351	0.297	0.277
2x12	20	0.0358	1.9	50	0.314	0.326	9401	9760	0.373	0.357
2x12	18	0.0474	2.5	50	0.473	0.486	14172	14551	0.522	0.507
2x12	16	0.0598	3.2	50	0.645	0.643	19301	19251	0.680	0.670

**Table 2—Shear and Web Crippling  
(Bare Deck) - (2x12 Composite and 2x12 Form) (50 ksi)**

Profile	Gauge Number	V <sub>n</sub> /Ω lbs per ft	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			2 inches	3 inches	4 inches	2 inches	3 inches	4 inches
			2x12	22	1566	421	485	539
2x12	20	2166	601	689	763	942	1061	1161
2x12	18	3131	1002	1142	1259	1589	1776	1934
2x12	16	3932	1530	1734	1905	2446	2719	2949

**Table 3.1—2x12 Composite and 2x12 Form (50 ksi)  
ASD Uniform Superimposed Downward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)										
		6-00	7-00	8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00
Single	22	130	96	73	58	47	39	33	28	24	21	18
	20	174	128	98	77	63	52	44	37	32	28	24
	18	262	193	148	117	94	78	66	56	48	42	37
	16	357	263	201	159	129	106	89	76	66	57	50
Double	22	136	100	77	61	49	41	34	29	25	22	19
	20	181	133	102	80	65	54	45	39	33	29	25
	18	269	198	152	120	97	80	67	57	49	43	38
	16	357	262	201	158	128	106	89	76	65	57	50
Triple	22	170	125	96	76	61	51	43	36	31	27	24
	20	226	166	127	100	81	67	56	48	41	36	32
	18	337	247	189	150	121	100	84	72	62	54	47
	16	446	327	251	198	160	133	111	95	82	71	63



**Table 3.2—2x12 Composite and 2x12 Form (50 ksi)  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)										
		6-00	7-00	8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00
Single	22	84	53	35	25	18	14	11	8	7	5	4
	20	108	68	46	32	23	18	14	11	9	7	6
	18	154	97	65	46	33	25	19	15	12	10	8
	16	204	128	86	60	44	33	25	20	16	13	11
Double	22	202	128	85	60	44	33	25	20	16	13	11
	20	261	164	110	77	56	42	33	26	21	17	14
	18	371	233	156	110	80	60	46	36	29	24	20
	16	490	309	207	145	106	80	61	48	39	31	26
Triple	22	158	100	67	47	34	26	20	16	12	10	8
	20	204	129	86	61	44	33	26	20	16	13	11
	18	290	183	122	86	63	47	36	29	23	19	15
	16	384	242	162	114	83	62	48	38	30	25	20

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

**Table 4 – Construction Span Table – 2x12 Composite and 2x12 Form (F<sub>y</sub> = 50 ksi)  
20 psf Construction Load**

Normal Weight Concrete (145 pcf)					Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Gauge No.	Maximum Unshored Clear Span (feet-inches)			Total Slab Depth	Deck Gauge	Maximum Unshored Clear Span (feet-inches)		
		1 span	2 span	3 span			1 span	2 span	3 span
4.00 (t=2.00) 39 PSF	22 ga	7-9	9-1	9-2	4.00 (t=2.00) 31 PSF	22 ga	8-5	9-10	9-11
	20 ga	9-5	10-6	10-10		20 ga	10-2	11-4	11-8
	18 ga	10-7	12-10	13-3		18 ga	11-5	13-9	14-3
	16 ga	11-6	14-9	15-3		16 ga	12-5	15-10	16-5
4.50 (t=2.50) 45 PSF	22 ga	7-5	8-8	8-9	4.50 (t=2.50) 35 PSF	22 ga	8-1	9-5	9-7
	20 ga	8-11	10-0	10-4		20 ga	9-9	10-11	11-3
	18 ga	10-1	12-3	12-8		18 ga	10-11	13-3	13-9
	16 ga	11-0	14-1	14-6		16 ga	11-11	15-3	15-9
5.00 (t=3.00) 51 PSF	22 ga	7-1	8-3	8-4	5.00 (t=3.00) 39 PSF	22 ga	7-9	9-1	9-2
	20 ga	8-9	10-5	10-9		20 ga	9-6	11-6	11-11
	18 ga	9-8	11-8	12-1		18 ga	10-7	12-10	13-3
	16 ga	10-6	13-5	13-11		16 ga	11-6	14-9	15-3
5.50 (t=3.50) 57 PSF	22 ga	6-10	7-11	8-0	5.50 (t=3.50) 44 PSF	22 ga	7-6	8-9	8-10
	20 ga	8-2	9-2	9-6		20 ga	9-0	10-1	10-5
	18 ga	9-3	11-3	11-7		18 ga	10-2	12-4	12-9
	16 ga	10-2	12-11	13-4		16 ga	11-1	14-2	14-8
6.00 (t=4.00) 63 PSF	22 ga	6-7	7-8	7-9	6.00 (t=4.00) 48 PSF	22 ga	7-3	8-5	8-7
	20 ga	7-10	8-10	9-2		20 ga	8-9	9-9	10-1
	18 ga	9-0	10-10	11-2		18 ga	9-10	11-11	12-4
	16 ga	9-10	12-5	12-10		16 ga	10-9	13-9	14-2
6.50 (t=4.50) 69 PSF	22 ga	6-4	7-5	7-6	6.50 (t=4.50) 53 PSF	22 ga	7-0	8-2	8-3
	20 ga	7-7	8-7	8-10		20 ga	8-5	9-5	9-9
	18 ga	8-9	10-5	10-9		18 ga	9-6	11-6	11-11
	16 ga	9-6	12-0	12-5		16 ga	10-5	13-3	13-8



**Table 5.1 – No. 22 Gauge 2 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	39	322	277	241	211	186	164	146	131
4.5	45	390	336	293	256	226	200	178	159
5	51	400	398	347	304	268	237	211	189
5.5	57	400	400	400	352	311	276	246	220
6	63	400	400	400	400	355	315	281	251
6.5	69	400	400	400	400	400	355	316	283

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	39	117	105	95	86	77	70	64	---
4.5	45	143	128	116	105	95	86	78	---
5	51	170	153	138	125	113	103	94	---
5.5	57	197	178	161	145	132	120	109	---
6	63	226	204	184	167	151	138	126	---
6.5	69	255	230	208	188	171	156	142	---

**Table 5.2 – No. 20 Gauge 2 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	39	388	335	292	256	226	200	179	160
4.5	45	400	400	354	311	274	244	217	195
5	51	400	400	400	368	325	289	258	231
5.5	57	400	400	400	400	378	336	300	269
6	63	400	400	400	400	400	384	343	307
6.5	69	400	400	400	400	400	400	386	347

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	39	144	130	117	106	97	88	80	---
4.5	45	175	158	143	130	118	108	98	---
5	51	208	188	170	155	141	128	117	---
5.5	57	242	219	198	180	164	150	137	---
6	63	277	250	227	206	188	172	157	---
6.5	69	312	283	256	233	213	194	178	---



**Table 5.3 – 18 Gauge 2 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	39	400	400	383	337	298	265	237	213
4.5	45	400	400	400	400	361	322	288	259
5	51	400	400	400	400	400	381	341	307
5.5	57	400	400	400	400	400	400	397	357
6	63	400	400	400	400	400	400	400	400
6.5	69	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	39	192	174	158	144	131	120	110	---
4.5	45	233	211	192	175	160	146	134	---
5	51	277	251	228	208	190	174	160	---
5.5	57	322	292	265	242	221	203	186	---
6	63	369	334	304	277	254	233	214	---
6.5	69	400	377	343	313	287	263	242	---

**Table 5.4 – No. 16 Gauge 2 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	39	400	400	400	400	371	331	297	267
4.5	45	400	400	400	400	400	400	360	324
5	51	400	400	400	400	400	400	400	384
5.5	57	400	400	400	400	400	400	400	400
6	63	400	400	400	400	400	400	400	400
6.5	69	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	39	241	219	199	182	166	153	140	---
4.5	45	293	266	242	221	202	186	171	---
5	51	347	315	287	263	241	221	203	---
5.5	57	400	367	335	306	280	258	237	---
6	63	400	400	383	350	321	295	272	---
6.5	69	400	400	400	396	363	334	308	---



**Table 5.5 – No. 22 Gauge 2 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	31	313	270	235	206	182	162	144	129
4.5	35	380	329	287	252	222	197	176	158
5	39	400	390	340	299	264	235	210	188
5.5	44	400	400	395	347	307	273	244	219
6	48	400	400	400	398	352	313	280	251
6.5	53	400	400	400	400	397	353	315	283
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	31	116	105	95	86	78	71	65	---
4.5	35	142	128	116	106	96	88	80	---
5	39	170	153	139	126	115	105	96	---
5.5	44	197	178	162	147	134	123	112	---
6	48	226	205	186	169	154	141	129	---
6.5	53	255	231	210	191	174	159	146	---

**Table 5.6 – No. 20 Gauge 2 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	31	375	325	283	249	220	196	175	157
4.5	35	400	395	345	303	268	239	213	192
5	39	400	400	400	360	319	284	254	228
5.5	44	400	400	400	400	371	330	296	266
6	48	400	400	400	400	400	378	339	305
6.5	53	400	400	400	400	400	400	382	344
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	31	141	128	116	106	96	88	81	---
4.5	35	173	157	142	129	118	108	99	---
5	39	206	187	170	155	141	129	119	---
5.5	44	240	217	198	180	165	151	138	---
6	48	275	249	227	207	189	174	159	---
6.5	53	311	282	256	234	214	196	180	---





**Table 5.7 – No. 18 Gauge 2 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	31	400	400	369	325	288	256	230	207
4.5	35	400	400	400	395	350	312	280	252
5	39	400	400	400	400	400	371	333	300
5.5	44	400	400	400	400	400	400	387	349
6	48	400	400	400	400	400	400	400	400
6.5	53	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11'-0	11'-6	12'-0	12'-6	13'-0	13'-6	14'-0	---
4	31	187	169	154	141	129	118	109	---
4.5	35	228	207	188	172	157	144	133	---
5	39	271	246	224	205	188	172	159	---
5.5	44	316	287	261	239	219	201	185	---
6	48	362	329	300	274	252	231	213	---
6.5	53	400	372	339	310	284	262	241	---

**Table 5.8 – No. 16 Gauge 2 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		7-0	7-6	8-0	8-6	9-0	9-6	10-0	10-6
4	31	400	400	400	400	357	318	285	257
4.5	35	400	400	400	400	400	387	347	313
5	39	400	400	400	400	400	400	400	372
5.5	44	400	400	400	400	400	400	400	400
6	48	400	400	400	400	400	400	400	400
6.5	53	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		11-0	11-6	12-0	12-6	13-0	13-6	14-0	---
4	31	233	212	193	176	162	149	137	---
4.5	35	283	258	235	215	197	181	167	---
5	39	337	307	280	256	235	216	200	---
5.5	44	393	358	326	299	274	253	233	---
6	48	400	400	375	343	315	290	268	---
6.5	53	400	400	400	388	357	329	304	---



**Table 6 – Section Properties and Flexural Resistance  
(Bare Deck) - (3x12 Composite and 3x12 Form)**

Profile	Gage Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per foot)		
3x12	22	0.0295	1.7	50	0.393	0.432	11754	12927	0.733	0.703
3x12	20	0.0358	2.1	50	0.521	0.566	15585	16951	0.923	0.896
3x12	18	0.0474	2.7	50	0.779	0.828	23308	24793	1.286	1.265
3x12	16	0.0598	3.5	50	1.055	1.051	31584	31481	1.670	1.645

**Table 7 – Shear and Web Crippling  
(Bare Deck) (3x12 Composite and 3x12 Form) (50 ksi)**

Profile	Gage Number	V <sub>n</sub> /Ω (lbs per ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			2 inches	3 inches	4 inches	2 inches	3 inches	4 inches
			3x12	22	1715	409	471	523
3x12	20	2488	588	674	747	944	1062	1162
3x12	18	4121	991	1129	1245	1601	1789	1949
3x12	16	5906	1523	1725	1895	2476	2751	2984

**Table 8.1—3x12 Composite and 3x12 Form (50 ksi)  
ASD Uniform Superimposed Downward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)										
		6-00	7-00	8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00
Single	22	218	160	122	97	78	65	54	46	40	35	31
	20	289	212	162	128	104	86	72	61	53	46	41
	18	432	317	243	192	155	128	108	92	79	69	61
	16	585	430	329	260	211	174	146	125	107	94	82
Double	22	239	176	135	106	86	71	60	51	44	38	34
	20	314	231	177	140	113	93	78	67	58	50	44
	18	459	337	258	204	165	137	115	98	84	73	65
	16	583	428	328	259	210	173	146	124	107	93	82
Triple	22	299	220	168	133	108	89	75	64	55	48	42
	20	392	288	221	174	141	117	98	84	72	63	55
	18	574	422	323	255	207	171	143	122	105	92	81
	16	729	535	410	324	262	217	182	155	134	117	102



**Table 8.2—3x12 Composite and 3x12 Form (50 ksi)  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)										
		6-00	7-00	8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00
Single	22	214	134	90	63	46	35	27	21	17	14	11
	20	272	171	115	81	59	44	34	27	21	17	14
	18	384	242	162	114	83	62	48	38	30	25	20
	16	500	315	211	148	108	81	63	49	39	32	26
Double	22	514	324	217	152	111	83	64	51	40	33	27
	20	655	413	276	194	142	106	82	64	52	42	35
	18	925	583	390	274	200	150	116	91	73	59	49
	16	1204	758	508	357	260	195	150	118	95	77	63
Triple	22	402	253	170	119	87	65	50	40	32	26	21
	20	513	323	216	152	111	83	64	50	40	33	27
	18	724	456	306	215	156	118	91	71	57	46	38
	16	942	593	397	279	204	153	118	93	74	60	50

<sup>1</sup> For loads that cause L/120 Deflection, the tabulated values are multiplied by 2.0. For loads that cause L/180 Deflection, the tabulated values are multiplied by 1.5. For loads that cause L/360 Deflection, the tabulated values are multiplied by 0.667.

**Table 9 – Construction Span Table – 3x12 Composite and 3x12 Form (F<sub>y</sub> = 50 ksi)  
20 psf Construction Load**

Normal Weight Concrete (145 pcf)					Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Gauge	Maximum Unshored Clear Span (feet-inches)			Total Slab Depth	Deck Gauge	Maximum Unshored Clear Span (feet-inches)		
		1 span	2 span	3 span			1 span	2 span	3 span
5.00 (t=2.00) 46 PSF	3x12x22 ga	10-2	11-5	11-10	5.00 (t=2.00) 37 PSF	3x12x22 ga	11-1	12-4	12-9
	3x12x20 ga	12-1	13-1	13-6		3x12x20 ga	13-0	14-1	14-7
	3x12x18 ga	13-6	15-10	16-4		3x12x18 ga	14-6	17-0	17-7
	3x12x16 ga	14-8	17-10	18-5		3x12x16 ga	15-10	19-2	19-10
5.50 (t=2.50) 52 PSF	3x12x22 ga	9-9	10-11	11-4	5.50 (t=2.50) 42 PSF	3x12x22 ga	10-7	11-9	12-2
	3x12x20 ga	11-7	12-6	12-11		3x12x20 ga	12-5	13-6	13-11
	3x12x18 ga	12-11	15-2	15-8		3x12x18 ga	13-11	16-4	16-11
	3x12x16 ga	14-1	17-1	17-8		3x12x16 ga	15-2	18-5	19-0
6.00 (t=3.00) 58 PSF	3x12x22 ga	9-4	10-6	10-10	6.00 (t=3.00) 47 PSF	3x12x22 ga	10-1	11-4	11-9
	3x12x20 ga	11-5	13-1	13-7		3x12x20 ga	12-5	14-6	14-11
	3x12x18 ga	12-6	14-7	15-1		3x12x18 ga	13-5	15-8	16-3
	3x12x16 ga	13-7	16-5	16-11		3x12x16 ga	14-7	17-8	18-4
6.50 (t=3.50) 64 PSF	3x12x22 ga	9-0	10-2	10-6	6.50 (t=3.50) 49 PSF	3x12x22 ga	9-11	11-2	11-7
	3x12x20 ga	10-7	11-7	12-0		3x12x20 ga	11-10	12-10	13-3
	3x12x18 ga	12-1	14-0	14-6		3x12x18 ga	13-2	15-6	16-0
	3x12x16 ga	13-2	15-10	16-4		3x12x16 ga	14-5	17-5	18-0
7.00 (t=4.00) 70 PSF	3x12x22 ga	8-8	9-9	10-1	7.00 (t=4.00) 52 PSF	3x12x22 ga	9-9	10-11	11-4
	3x12x20 ga	10-3	11-2	11-7		3x12x20 ga	11-7	12-6	12-11
	3x12x18 ga	11-9	13-7	14-0		3x12x18 ga	12-11	15-2	15-8
	3x12x16 ga	12-9	15-3	15-9		3x12x16 ga	14-1	17-1	17-8
7.50 (t=4.50) 76 PSF	3x12x22 ga	8-4	9-6	9-10	7.50 (t=4.50) 59 PSF	3x12x22 ga	9-3	10-5	10-10
	3x12x20 ga	9-11	10-10	11-3		3x12x20 ga	11-0	11-12	12-4
	3x12x18 ga	11-5	13-1	13-7		3x12x18 ga	12-5	14-6	14-11
	3x12x16 ga	12-5	14-9	15-3		3x12x16 ga	13-6	16-4	16-10



**Table 10.1 – 22 Gauge 3 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	46	317	278	245	217	193	173	155	140
5.5	52	372	326	288	255	228	204	183	165
6	58	400	378	333	296	264	236	212	191
6.5	64	400	400	380	338	301	270	243	219
7	70	400	400	400	381	340	305	274	247
7.5	76	400	400	400	400	380	340	306	276

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	46	126	114	104	94	86	78	71	---
5.5	52	149	135	122	111	102	93	85	---
6	58	173	157	142	130	118	108	99	---
6.5	64	198	180	163	149	136	124	114	---
7	70	224	203	185	168	154	141	129	---
7.5	76	250	227	207	189	172	158	145	---

**Table 10.2 – 20 Gauge 3 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	46	384	337	298	265	236	212	191	172
5.5	52	400	396	350	311	278	249	224	203
6	58	400	400	400	360	322	289	260	235
6.5	64	400	400	400	400	367	330	297	269
7	70	400	400	400	400	400	372	335	303
7.5	76	400	400	400	400	400	400	375	339

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	46	156	142	129	118	108	99	90	---
5.5	52	184	167	152	139	127	117	107	---
6	58	213	194	177	161	148	136	125	---
6.5	64	244	222	202	185	169	155	143	---
7	70	275	251	229	209	192	176	162	---
7.5	76	308	280	256	234	215	197	181	---



**Table 10.3– 18 Gauge 3 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	46	400	400	394	351	314	282	255	231
5.5	52	400	400	400	400	368	331	299	271
6	58	400	400	400	400	400	383	346	313
6.5	64	400	400	400	400	400	400	395	358
7	70	400	400	400	400	400	400	400	400
7.5	76	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	46	210	192	175	160	147	136	125	---
5.5	52	246	225	206	188	173	159	147	---
6	58	285	260	238	218	201	185	171	---
6.5	64	326	297	272	250	230	212	195	---
7	70	368	336	307	282	260	239	221	---
7.5	76	400	375	344	316	290	268	247	---

**Table 10.4 – 16 Gauge 3 x 12 Composite Deck-Slab with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	46	400	400	400	400	394	355	321	291
5.5	52	400	400	400	400	400	400	375	341
6	58	400	400	400	400	400	400	400	394
6.5	64	400	400	400	400	400	400	400	400
7	70	400	400	400	400	400	400	400	400
7.5	76	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	46	265	242	222	204	188	173	160	---
5.5	52	310	284	260	239	220	203	188	---
6	58	359	328	301	277	255	235	218	---
6.5	64	400	375	344	316	291	269	249	---
7	70	400	400	388	357	329	304	282	---
7.5	76	400	400	400	399	368	340	315	---



**Table 10.5 – No. 22 Gauge 3 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	37	309	271	240	213	190	170	153	139
5.5	42	363	319	282	250	224	201	181	163
6	47	400	369	326	290	259	233	210	190
6.5	49	400	400	375	334	298	268	242	219
7	52	400	400	400	378	338	304	274	248
7.5	59	400	400	400	400	376	338	305	276
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	37	126	114	104	95	87	79	73	---
5.5	42	148	135	123	112	102	94	86	---
6	47	172	156	143	130	119	109	100	---
6.5	49	199	181	165	151	138	127	117	---
7	52	226	206	188	172	158	145	134	---
7.5	59	251	229	209	191	175	161	148	---

**Table 10.6 – No. 20 Gauge 3 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	37	373	328	290	258	231	208	187	170
5.5	42	400	385	341	303	271	244	220	199
6	47	400	400	394	351	314	283	255	231
6.5	49	400	400	400	400	361	325	293	266
7	52	400	400	400	400	400	368	333	302
7.5	59	400	400	400	400	400	400	370	336
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	37	154	140	128	117	108	99	91	---
5.5	42	181	165	151	138	127	116	107	---
6	47	210	191	175	160	147	135	125	---
6.5	49	242	221	202	185	170	157	145	---
7	52	275	251	230	211	194	179	165	---
7.5	59	306	279	256	235	216	199	184	---

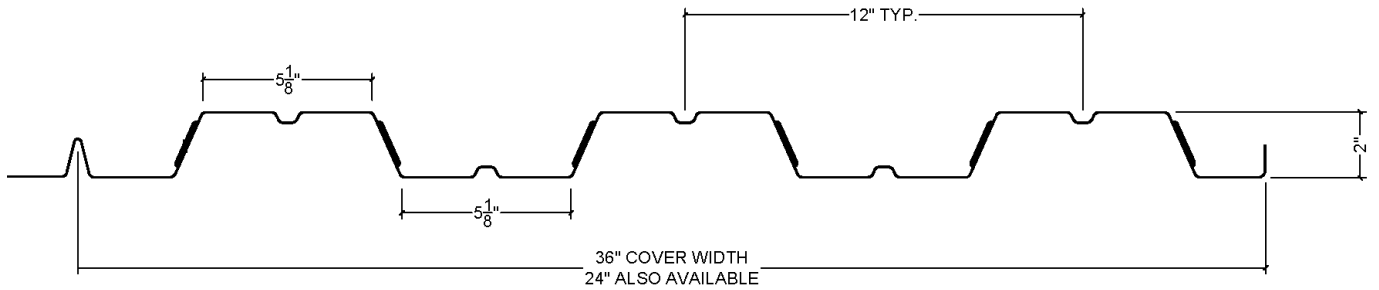


**Table 10.7 – No. 18 Gauge 3 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

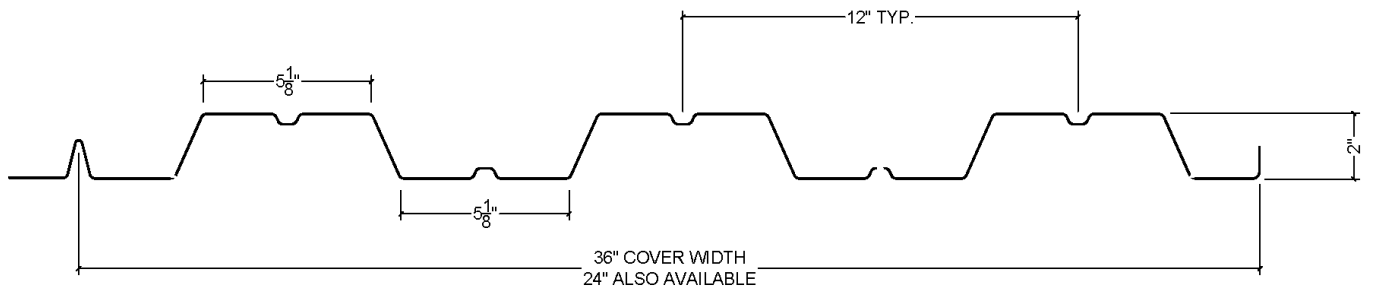
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	37	400	400	381	340	304	274	248	225
5.5	42	400	400	400	398	356	321	290	264
6	47	400	400	400	400	400	371	336	305
6.5	49	400	400	400	400	400	400	386	350
7	52	400	400	400	400	400	400	400	397
7.5	59	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	37	205	187	172	158	145	134	124	---
5.5	42	240	220	201	185	170	157	145	---
6	47	278	254	233	214	197	182	168	---
6.5	49	320	292	268	247	227	210	194	---
7	52	362	331	304	280	258	239	221	---
7.5	59	400	369	339	312	288	266	246	---

**Table 10.8 – No. 16 Gauge 3 x 12 Composite Deck-Slab with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

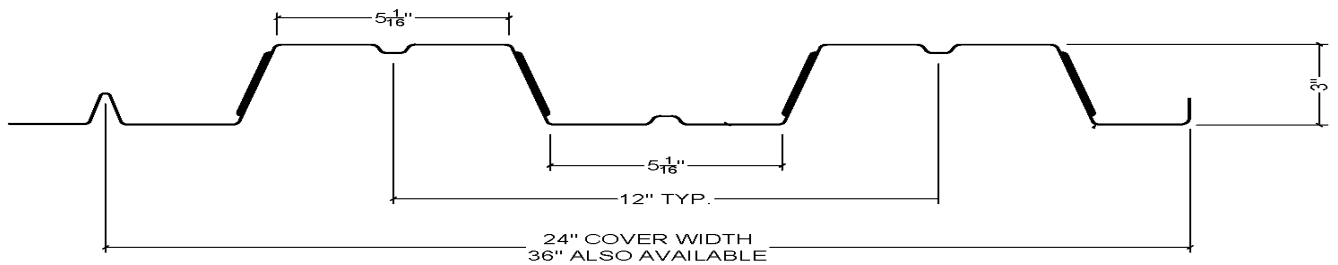
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		8-0	8-6	9-0	9-6	10-0	10-6	11-0	11-6
5	37	400	400	400	400	380	342	310	282
5.5	42	400	400	400	400	400	400	362	329
6	47	400	400	400	400	400	400	400	381
6.5	49	400	400	400	400	400	400	400	400
7	52	400	400	400	400	400	400	400	400
7.5	59	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		12-0	12-6	13-0	13-6	14-0	14-6	15-0	---
5	37	257	235	216	199	183	169	157	---
5.5	42	300	275	252	232	214	198	184	---
6	47	347	318	292	269	248	229	213	---
6.5	49	399	365	335	309	285	264	245	---
7	52	400	400	380	350	324	300	278	---
7.5	59	400	400	400	391	361	334	310	---



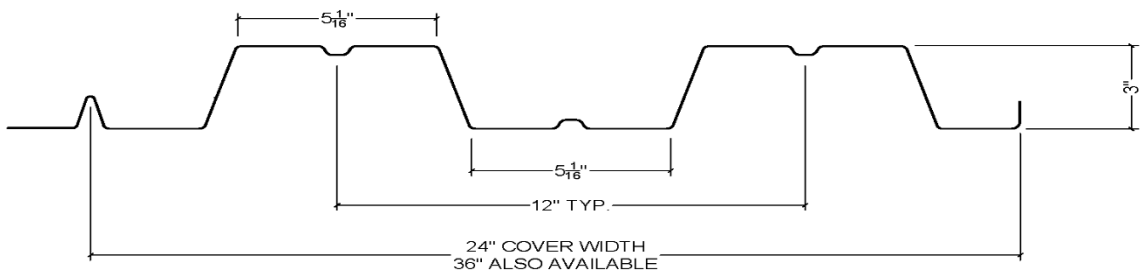
MARLYN STEEL DECKS TYPE 2.0" CF



MARLYN STEEL DECKS TYPE 2.0" NCF NON COMPOSITE FORM DECK



MARLYN STEEL DECKS TYPE 3.0" CF



MARLYN STEEL DECKS TYPE 3.0" NCF NON COMPOSITE FORM DECK

FIGURE 1—2x12 AND 3x12 DECK





**Notes to Tables 11 through 20.4:**

1. For Tables 11 through 15.4, the steel deck is manufactured from steel conforming to ASTM A653, SS, Grade 50.  
For Tables 16 through 20.4, the steel deck is manufactured from steel conforming to ASTM A653, SS, Grade 80.
2. Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.
3. Web crippling and shear have not been accounted for in these tables. The required bearing should be determined based on specific span conditions.
4. Concrete fill used in composite deck construction shall have a minimum  $f_c = 3000$  psi.

**Table 11—1.5CF, EF, EVF Grade 50 Floor Deck Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per ft)		
1.5	22	0.0295	1.6	50	0.173	0.171	5175	5111	0.151	0.173
1.5	20	0.0358	2.0	50	0.222	0.219	6634	6549	0.191	0.216
1.5	18	0.0474	2.6	50	0.301	0.303	9022	9072	0.270	0.292
1.5	16	0.0598	3.0	50	0.387	0.383	11587	11457	0.359	0.370

**Table 12—1.5CF, EF, EVF Grade 50 Floor Deck Shear and Web Crippling (Bare Deck) (50 ksi)**

Profile	Gauge Number	V <sub>n</sub> /Ω (lbs per ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
			1.5	22	2552	829	911	1049
1.5	20	3096	1181	1294	1484	1780	1924	2166
1.5	18	4072	1973	2151	2451	3029	3258	3642
1.5	16	5097	3016	3275	3710	4698	5033	5593

**Table 13.1—1.5CF, EF, EVF Grade 50 Floor Bare Floor Deck (50 ksi)  
ASD Uniform Downward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	138	114	96	82	70	61	54	48	43	38	34
	20	177	146	123	105	90	79	69	61	55	49	44
	18	241	199	167	142	123	107	94	83	74	67	60
	16	309	255	215	183	158	137	121	107	95	86	77
Double	22	136	113	95	81	70	61	53	47	42	38	34
	20	175	144	121	103	89	78	68	60	54	48	44
	18	242	200	168	143	123	108	94	84	75	67	60
	16	306	252	212	181	156	136	119	106	94	85	76
Triple	22	170	141	118	101	87	76	67	59	53	47	43
	20	218	180	152	129	111	97	85	76	67	60	55
	18	302	250	210	179	154	134	118	105	93	84	76
	16	382	316	265	226	195	170	149	132	118	106	95



**Table 13.2—1.5CF, EF, EVF Grade 50 Floor Deck  
Uniform Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	79	60	46	36	29	24	19	16	14	12	10
	20	100	75	58	46	37	30	25	20	17	15	13
	18	142	107	82	65	52	42	35	29	24	21	18
	16	189	142	109	86	69	56	46	38	32	27	24
Double	22	191	144	111	87	70	57	47	39	33	28	24
	20	242	182	140	110	88	72	59	49	41	35	30
	18	341	257	198	155	124	101	83	69	59	50	43
	16	454	341	263	207	165	134	111	92	78	66	57
Triple	22	150	112	87	68	55	44	37	30	26	22	19
	20	189	142	109	86	69	56	46	38	32	28	24
	18	267	201	155	122	97	79	65	54	46	39	33
	16	355	267	206	162	129	105	87	72	61	52	44

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.



**Table 14—Construction Span Table – 1.5CF, EF, EVF Grade 50 Floor Deck  
20 psf Construction Load**

Normal Weight Concrete (145 pcf)					Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span			Total Slab Depth	Deck Type	Maximum Unshored Clear Span		
		1 span	2 span	3 span			1 span	2 span	3 span
3.50 (t=2.00) 31 PSF	1.5x6x22 ga	6' 9"	8' 0"	8' 1"	3.50 (t=2.00) 23 PSF	1.5x6x22 ga	7' 4"	8' 8"	8' 10"
	1.5x6x20 ga	8' 1"	9' 3"	9' 7"		1.5x6x20 ga	8' 10"	10' 1"	10' 5"
	1.5x6x18 ga	9' 2"	10' 11"	11' 3"		1.5x6x18 ga	10' 1"	11' 10"	12' 3"
	1.5x6x16 ga	10' 1"	12' 3"	12' 8"		1.5x6x16 ga	11' 1"	13' 4"	13' 9"
4.00 (t=2.50) 37 PSF	1.5x6x22 ga	6' 5"	7' 6"	7' 8"	4.00 (t=2.50) 28 PSF	1.5x6x22 ga	6' 12"	8' 3"	8' 4"
	1.5x6x20 ga	7' 7"	8' 9"	9' 0"		1.5x6x20 ga	8' 4"	9' 6"	9' 10"
	1.5x6x18 ga	8' 7"	10' 4"	10' 8"		1.5x6x18 ga	9' 5"	11' 3"	11' 7"
	1.5x6x16 ga	9' 6"	11' 7"	12' 0"		1.5x6x16 ga	10' 5"	12' 7"	13' 0"
4.50 (t=3.00) 43 PSF	1.5x6x22 ga	6' 1"	7' 2"	7' 3"	4.50 (t=3.00) 33 PSF	1.5x6x22 ga	6' 8"	7' 10"	7' 11"
	1.5x6x20 ga	7' 3"	8' 8"	8' 11"		1.5x6x20 ga	8' 0"	9' 7"	9' 11"
	1.5x6x18 ga	8' 2"	9' 10"	10' 2"		1.5x6x18 ga	8' 11"	10' 8"	11' 0"
	1.5x6x16 ga	9' 0"	11' 0"	11' 5"		1.5x6x16 ga	9' 10"	12' 0"	12' 5"
5.00 (t=3.50) 49 PSF	1.5x6x22 ga	5' 10"	6' 10"	6' 11"	5.00 (t=3.50) 37 PSF	1.5x6x22 ga	6' 5"	7' 6"	7' 8"
	1.5x6x20 ga	6' 11"	7' 11"	8' 2"		1.5x6x20 ga	7' 7"	8' 9"	9' 0"
	1.5x6x18 ga	7' 10"	9' 4"	9' 8"		1.5x6x18 ga	8' 7"	10' 4"	10' 8"
	1.5x6x16 ga	8' 7"	10' 6"	10' 10"		1.5x6x16 ga	9' 6"	11' 7"	12' 0"
5.50 (t=4.00) 55 PSF	1.5x6x22 ga	5' 8"	6' 7"	6' 8"	5.50 (t=4.00) 42 PSF	1.5x6x22 ga	6' 2"	7' 3"	7' 4"
	1.5x6x20 ga	6' 8"	7' 8"	7' 10"		1.5x6x20 ga	7' 4"	8' 5"	8' 8"
	1.5x6x18 ga	7' 7"	9' 0"	9' 3"		1.5x6x18 ga	8' 3"	9' 11"	10' 3"
	1.5x6x16 ga	8' 4"	10' 1"	10' 5"		1.5x6x16 ga	9' 1"	11' 1"	11' 6"
6.00 (t=4.50) 61 PSF	1.5x6x22 ga	5' 5"	6' 4"	6' 5"	6.00 (t=4.50) 46 PSF	1.5x6x22 ga	5' 12"	7' 0"	7' 1"
	1.5x6x20 ga	6' 5"	7' 4"	7' 7"		1.5x6x20 ga	7' 1"	8' 2"	8' 4"
	1.5x6x18 ga	7' 3"	8' 8"	8' 11"		1.5x6x18 ga	8' 0"	9' 7"	9' 11"
	1.5x6x16 ga	8' 0"	9' 9"	10' 0"		1.5x6x16 ga	8' 10"	10' 9"	11' 1"



**Table 15.1—No. 22 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab  
with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	358	305	263	228	200
4	37	400	400	400	400	383	330	287	251
4.5	43	400	400	400	400	400	400	348	304
5	49	400	400	400	400	400	400	400	359
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	176	155	138	123	110	99	89	---
4	37	221	195	173	155	139	124	112	---
4.5	43	268	237	211	188	169	152	137	---
5	49	316	280	249	223	200	180	162	---
5.5	55	366	324	289	258	231	208	188	---
6	61	400	369	329	294	264	237	214	---

**Table 15.2—No. 20 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab  
with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	400	367	317	275	241
4	37	400	400	400	400	400	398	346	303
4.5	43	400	400	400	400	400	400	400	368
5	49	400	400	400	400	400	400	400	400
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	213	189	168	150	135	121	110	---
4	37	268	237	211	189	170	153	138	---
4.5	43	325	288	257	230	207	187	169	---
5	49	384	341	304	273	245	221	200	---
5.5	55	400	395	353	316	284	256	232	---
6	61	400	400	400	360	324	292	265	---



**Table 15.3—No. 18 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab with Normal Weight Concrete (145 pcf) Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	400	400	400	358	315
4	37	400	400	400	400	400	400	400	396
4.5	43	400	400	400	400	400	400	400	400
5	49	400	400	400	400	400	400	400	400
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	278	247	221	198	178	161	146	---
4	37	350	311	278	250	225	204	185	---
4.5	43	400	379	339	304	275	248	226	---
5	49	400	400	400	361	326	295	268	---
5.5	55	400	400	400	400	378	342	311	---
6	61	400	400	400	400	400	391	355	---

**Table 15.4—No. 16 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab with Normal Weight Concrete (145 pcf) Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	400	400	400	400	388
4	37	400	400	400	400	400	400	400	400
4.5	43	400	400	400	400	400	400	400	400
5	49	400	400	400	400	400	400	400	400
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	344	306	274	246	222	202	183	---
4	37	400	386	346	311	281	255	232	---
4.5	43	400	400	400	380	343	311	283	---
5	49	400	400	400	400	400	370	337	---
5.5	55	400	400	400	400	400	400	392	---
6	61	400	400	400	400	400	400	400	---



**Table 15.5—No. 22 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab  
with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	347	297	256	223	196
4	28	400	400	400	400	373	322	281	246
4.5	33	400	400	400	400	400	391	341	299
5	37	400	400	400	400	400	400	400	355
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	173	153	137	122	110	99	90	---
4	28	217	193	172	154	139	125	113	---
4.5	33	264	235	209	188	169	152	138	---
5	37	313	278	248	223	201	181	164	---
5.5	42	363	322	288	258	232	210	190	---
6	46	400	368	329	295	266	240	218	---

**Table 15.6—No. 20 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab  
with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	400	354	306	267	235
4	28	400	400	400	400	400	386	336	296
4.5	33	400	400	400	400	400	400	400	360
5	37	400	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	207	184	165	148	133	120	109	---
4	28	261	232	208	186	168	152	138	---
4.5	33	318	283	253	227	205	185	168	---
5	37	378	336	301	270	244	220	200	---
5.5	42	400	390	349	313	283	256	232	---
6	46	400	400	398	358	323	293	266	---



**Table 15.7—No. 18 Gauge 1.5CF, EF, EVF Grade 50 Composite Floor Deck-Slab with Lightweight Concrete (115 pcf) Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	400	400	394	344	303
4	28	400	400	400	400	400	400	400	382
4.5	33	400	400	400	400	400	400	400	400
5	37	400	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	268	239	214	192	174	157	143	---
4	28	338	301	270	243	220	199	181	---
4.5	33	400	368	330	297	268	243	221	---
5	37	400	400	392	353	319	290	264	---
5.5	42	400	400	400	400	371	337	307	---
6	46	400	400	400	400	400	386	352	---

**Table 15.8—No. 16 Gauge 1.5CF, EF, EVF Grade 50 Composite Deck-Slab with Lightweight Concrete (115 pcf) Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	400	400	400	400	360
4	28	400	400	400	400	400	400	400	400
4.5	33	400	400	400	400	400	400	400	400
5	37	400	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	320	285	256	230	208	189	172	---
4	28	400	371	333	300	271	246	225	---
4.5	33	400	400	400	367	332	302	275	---
5	37	400	400	400	400	396	360	329	---
5.5	42	400	400	400	400	400	400	383	---
6	46	400	400	400	400	400	400	400	---



**Table 16—1.5CF, EF, EVF Grade 80 Floor Deck Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per ft)		
CF EF EVF	24	0.0239	1.3	60	0.123	0.126	4411	4528	0.117	0.134
CF EF EVF	22	0.0295	1.6	60	0.166	0.166	5956	5958	0.149	0.171
CF EF EVF	20	0.0358	2.0	60	0.220	0.213	7904	7647	0.189	0.213
CF EF EVF	18	0.0474	2.6	60	0.298	0.302	10719	10850	0.263	0.292

**Table 17—1.5CF, EF, EVF Grade 80 Floor Deck Shear and Web Crippling (Bare Deck)**

Profile	Gauge Number	V <sub>n</sub> /Ω (lbs per ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
			CF EF EVF	24	2153	676	745	862
CF EF EVF	22	2985	995	1093	1259	1478	1603	1813
CF EF EVF	20	3715	1418	1553	1781	2136	2309	2599
CF EF EVF	18	4886	2367	2582	2941	3635	3910	4371

**Table 18.1—1.5CF, EF, EVF Grade 80 Bare Floor Deck  
ASD Uniform Downward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	24	118	97	82	70	60	52	46	41	36	33	29
	22	159	131	110	94	81	71	62	55	49	44	40
	20	211	174	146	125	108	94	82	73	65	58	53
	18	286	236	198	169	146	127	112	99	88	79	71
Double	24	121	100	84	71	62	54	47	42	37	33	30
	22	159	131	110	94	81	71	62	55	49	44	40
	20	204	169	142	121	104	91	80	71	63	56	51
	18	289	239	201	171	148	129	113	100	89	80	72
Triple	24	151	125	105	89	77	67	59	52	47	42	38
	22	199	164	138	118	101	88	78	69	61	55	50
	20	255	211	177	151	130	113	100	88	79	71	64
	18	362	299	251	214	185	161	141	125	112	100	90





**Table 18.2—1.5CF, EF, EVF Grade 80 Floor Deck  
Uniform Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	24	61	46	36	28	22	18	15	12	11	9	8
	22	78	59	45	36	29	23	19	16	13	11	10
	20	99	75	57	45	36	29	24	20	17	14	12
	18	138	104	80	63	50	41	34	28	24	20	17
Double	24	148	111	86	67	54	44	36	30	25	22	18
	22	188	141	109	86	69	56	46	38	32	27	24
	20	239	179	138	109	87	71	58	49	41	35	30
	18	333	250	193	152	121	99	81	68	57	49	42
Triple	24	116	87	67	53	42	34	28	24	20	17	14
	22	147	111	85	67	54	44	36	30	25	21	18
	20	187	140	108	85	68	55	46	38	32	27	23
	18	261	196	151	119	95	77	64	53	45	38	33

<sup>1</sup> For loads that cause L/120 Deflection, the tabulated values are multiplied by 2.0. For loads that cause L/180 Deflection, the tabulated values are multiplied by 1.5. For loads that cause L/360 Deflection, the tabulated values are multiplied by 0.667.

**Table 19—Construction Span Table – 1.5CF, EF, EVF Grade 80 Floor Deck  
20 psf Construction Load**

Normal Weight Concrete (145 pcf)					Lightweight Concrete (115 pcf)				
Total Slab Depth	Deck Type	Maximum Unshored Clear Span (feet-inches)			Total Slab Depth	Deck Type	Maximum Unshored Clear Span (feet-inches)		
		1 span	2 span	3 span			1 span	2 span	3 span
3.50 (t=2.00) 31 PSF	1.5x6x24 ga	6-0	7-1	7-2	3.50 (t=2.00) 31 PSF	1.5x6x24 ga	6-6	7-9	7-10
	1.5x6x22 ga	7-6	8-9	8-11		1.5x6x22 ga	8-2	9-7	9-9
	1.5x6x20 ga	8-1	10-0	10-4		1.5x6x20 ga	8-11	10-11	11-3
	1.5x6x18 ga	9-1	11-11	12-4		1.5x6x18 ga	10-0	13-0	13-5
4.00 (t=2.50) 37 PSF	1.5x6x24 ga	5-9	6-9	6-10	4.00 (t=2.50) 37 PSF	1.5x6x24 ga	6-2	7-4	7-5
	1.5x6x22 ga	7-1	8-3	8-5		1.5x6x22 ga	7-8	9-1	9-2
	1.5x6x20 ga	7-8	9-5	9-9		1.5x6x20 ga	8-5	10-4	10-8
	1.5x6x18 ga	8-6	11-3	11-8		1.5x6x18 ga	9-4	12-3	12-8
4.50 (t=3.00) 43 PSF	1.5x6x24 ga	5-6	6-5	6-6	4.50 (t=3.00) 43 PSF	1.5x6x24 ga	5-11	6-12	7-1
	1.5x6x22 ga	6-6	7-11	8-2		1.5x6x22 ga	7-1	8-9	9-1
	1.5x6x20 ga	7-3	9-0	9-4		1.5x6x20 ga	7-11	9-10	10-2
	1.5x6x18 ga	8-1	10-9	11-1		1.5x6x18 ga	8-10	11-8	12-1
5.00 (t=3.50) 49 PSF	1.5x6x24 ga	5-3	6-2	6-3	5.00 (t=3.50) 49 PSF	1.5x6x24 ga	5-9	6-9	6-10
	1.5x6x22 ga	6-5	7-6	7-7		1.5x6x22 ga	7-1	8-3	8-5
	1.5x6x20 ga	7-0	8-7	8-11		1.5x6x20 ga	7-8	9-5	9-9
	1.5x6x18 ga	7-9	10-3	10-7		1.5x6x18 ga	8-6	11-3	11-8
5.50 (t=4.00) 55 PSF	1.5x6x24 ga	5-1	5-11	6-0	5.50 (t=4.00) 55 PSF	1.5x6x24 ga	5-6	6-6	6-7
	1.5x6x22 ga	6-2	7-3	7-4		1.5x6x22 ga	6-9	7-11	8-0
	1.5x6x20 ga	6-8	8-3	8-6		1.5x6x20 ga	7-4	9-1	9-4
	1.5x6x18 ga	7-6	9-10	10-2		1.5x6x18 ga	8-2	10-10	11-2
6.00 (t=4.50) 61 PSF	1.5x6x24 ga	4-11	5-9	5-10	6.00 (t=4.50) 61 PSF	1.5x6x24 ga	5-4	6-4	6-5
	1.5x6x22 ga	6-0	7-0	7-1		1.5x6x22 ga	6-7	7-8	7-10
	1.5x6x20 ga	6-6	7-11	8-2		1.5x6x20 ga	7-1	8-9	9-1
	1.5x6x18 ga	7-3	9-5	9-9		1.5x6x18 ga	7-11	10-6	10-10



**Table 20.1—No. 22 Gauge 1.5CF, EF, EVF Grade 80 Composite Floor Deck-Slab  
with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	358	305	263	228	200
4	37	400	400	400	400	383	330	287	251
4.5	43	400	400	400	400	400	400	348	304
5	49	400	400	400	400	400	400	400	359
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	176	155	138	123	110	99	89	---
4	37	221	195	173	155	139	124	112	---
4.5	43	268	237	211	188	169	152	137	---
5	49	316	280	249	223	200	180	162	---
5.5	55	366	324	289	258	231	208	188	---
6	61	400	369	329	294	264	237	214	---

**Table 20.2—No. 20 Gauge 1.5CF, EF, EVF Grade 80 Composite Floor Deck-Slab  
with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	400	367	317	275	241
4	37	400	400	400	400	400	398	346	303
4.5	43	400	400	400	400	400	400	400	368
5	49	400	400	400	400	400	400	400	400
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	213	189	168	150	135	121	110	---
4	37	268	237	211	189	170	153	138	---
4.5	43	325	288	257	230	207	187	169	---
5	49	384	341	304	273	245	221	200	---
5.5	55	400	395	353	316	284	256	232	---
6	61	400	400	400	360	324	292	265	---



**Table 20.3—No. 18 Gauge 1.5CF, EF, EVF Grade 80 Composite Floor Deck-Slab  
with Normal Weight Concrete (145 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	31	400	400	400	400	400	400	358	315
4	37	400	400	400	400	400	400	400	396
4.5	43	400	400	400	400	400	400	400	400
5	49	400	400	400	400	400	400	400	400
5.5	55	400	400	400	400	400	400	400	400
6	61	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	31	278	247	221	198	178	161	146	---
4	37	350	311	278	250	225	204	185	---
4.5	43	400	379	339	304	275	248	226	---
5	49	400	400	400	361	326	295	268	---
5.5	55	400	400	400	400	378	342	311	---
6	61	400	400	400	400	400	391	355	---

**Table 20.4—No. 22 Gauge 1.5CF, EF, EVF Grade 80 Composite Floor Deck-Slab  
with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	347	297	256	223	196
4	28	400	400	400	400	373	322	281	246
4.5	33	400	400	400	400	400	391	341	299
5	37	400	400	400	400	400	400	400	355
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	173	153	137	122	110	99	90	---
4	28	217	193	172	154	139	125	113	---
4.5	33	264	235	209	188	169	152	138	---
5	37	313	278	248	223	201	181	164	---
5.5	42	363	322	288	258	232	210	190	---
6	46	400	368	329	295	266	240	218	---

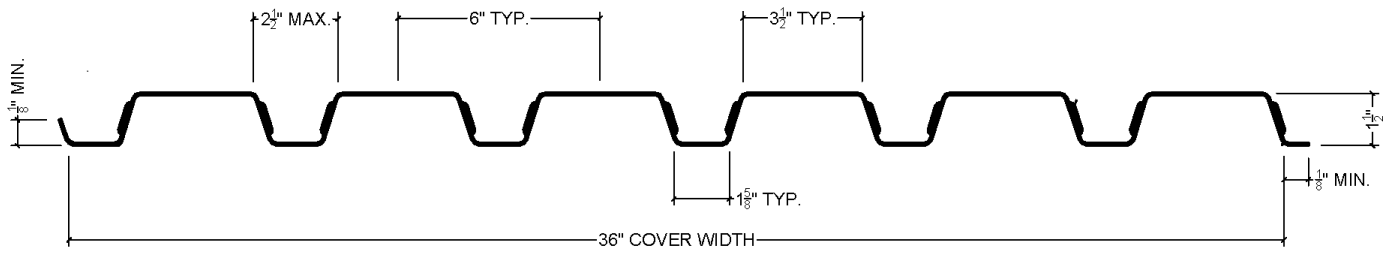


**Table 20.5—No. 20 Gauge 1.5CF, EF, EVF Grade 80 Composite Floor Deck-Slab  
with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

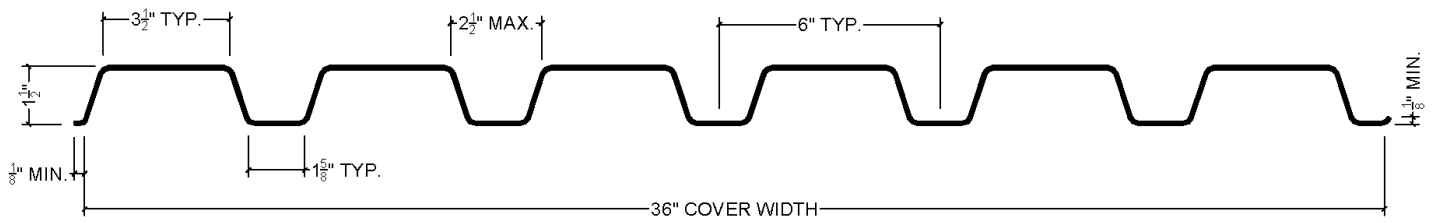
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	400	354	306	267	235
4	28	400	400	400	400	400	386	336	296
4.5	33	400	400	400	400	400	400	400	360
5	37	400	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	207	184	165	148	133	120	109	---
4	28	261	232	208	186	168	152	138	---
4.5	33	318	283	253	227	205	185	168	---
5	37	378	336	301	270	244	220	200	---
5.5	42	400	390	349	313	283	256	232	---
6	46	400	400	398	358	323	293	266	---

**Table 20.6—No. 18 Gauge 1.5CF, EF, EVF Grade 80 Composite Floor Deck-Slab  
with Lightweight Concrete (115 pcf)  
Allowable Superimposed Load (ASD), psf**

Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		5-0	5-6	6-0	6-6	7-0	7-6	8-0	8-6
3.5	23	400	400	400	400	400	394	344	303
4	28	400	400	400	400	400	400	400	382
4.5	33	400	400	400	400	400	400	400	400
5	37	400	400	400	400	400	400	400	400
5.5	42	400	400	400	400	400	400	400	400
6	46	400	400	400	400	400	400	400	400
Slab Thickness (Inches)	Weight (psf)	SPAN (feet-inches)							
		9-0	9-6	10-0	10-6	11-0	11-6	12-0	---
3.5	23	268	239	214	192	174	157	143	---
4	28	338	301	270	243	220	199	181	---
4.5	33	400	368	330	297	268	243	221	---
5	37	400	400	392	353	319	290	264	---
5.5	42	400	400	400	400	371	337	307	---
6	46	400	400	400	400	400	386	352	---



MARLYN STEEL DECKS TYPE "1.5" CF



MARLYN STEEL DECKS TYPE "EF" OR "EVF"

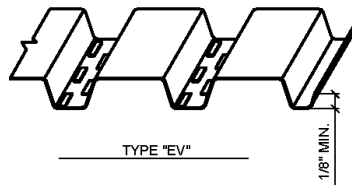


FIGURE 2—1.5CF, EF, AND EVF COMPOSITE FLOOR DECK-SLAB



**Notes to Tables 21 through 32:**

1. Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.
2. Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

**Table 21—3N Roof Deck Grade 40 Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> ksi	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω inch-lbs per ft	M <sub>n</sub> /Ω inch-lbs per ft		
3N	22	0.0295	1.8	40	0.357	0.405	8554	9704	0.653	0.798
3N	20	0.0358	2.2	40	0.468	0.515	11211	12341	0.816	0.990
3N	18	0.0474	2.9	40	0.651	0.703	15583	16836	1.139	1.330
3N	16	0.0598	3.7	40	0.843	0.893	20193	21388	1.510	1.687

**Table 22—3N Roof Deck Grade 40 Shear and Web Crippling (Bare Deck)**

Profile	Gauge Number	V <sub>n</sub> /Ω lbs per ft	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
3N	22	2280	461	507	584	747	810	916
3N	20	3276	665	728	835	1081	1168	1315
3N	18	5250	1125	1227	1398	1842	1981	2215
3N	16	7059	1736	1885	2135	2860	3063	3404

**Table 23.1—3N Roof Deck Grade 40  
ASD Uniform Superimposed Downward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	89	70	57	47	40	34	29	25	22	20	18	16	14
	20	117	92	75	62	52	44	38	33	29	26	23	21	19
	18	162	128	104	86	72	61	53	46	41	36	32	29	26
	16	210	166	135	111	93	80	69	60	53	47	42	37	34
Double	22	101	80	65	53	45	38	33	29	25	22	20	18	16
	20	129	102	82	68	57	49	42	37	32	28	25	23	21
	18	175	139	112	93	78	66	57	50	44	39	35	31	28
	16	223	176	143	118	99	84	73	63	56	49	44	39	36
Triple	22	126	100	81	67	56	48	41	36	32	28	25	22	20
	20	161	127	103	85	71	61	52	46	40	36	32	28	26
	18	219	173	140	116	97	83	72	62	55	49	43	39	35
	16	278	220	178	147	124	105	91	79	70	62	55	49	45



**Table 23.2—3N Roof Deck Grade 40  
ASD Uniform Superimposed Upward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	101	80	65	53	45	38	33	29	25	22	20	18	16
	20	129	102	82	68	57	49	42	37	32	28	25	23	21
	18	175	139	112	93	78	66	57	50	44	39	35	31	28
	16	223	176	143	118	99	84	73	63	56	49	44	39	36
Double	22	89	70	57	47	40	34	29	25	22	20	18	16	14
	20	117	92	75	62	52	44	38	33	29	26	23	21	19
	18	162	128	104	86	72	61	53	46	41	36	32	29	26
	16	210	166	135	111	93	80	69	60	53	47	42	37	34
Triple	22	111	88	71	59	50	42	36	32	28	25	22	20	18
	20	146	115	93	77	65	55	48	42	36	32	29	26	23
	18	203	160	130	107	90	77	66	58	51	45	40	36	32
	16	263	208	168	139	117	100	86	75	66	58	52	47	42

**Table 23.3—3N Roof Deck Grade 40  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	84	59	43	32	25	20	16	13	10	9	7	6	5
	20	105	73	54	40	31	24	20	16	13	11	9	8	7
	18	146	103	75	56	43	34	27	22	18	15	13	11	9
	16	194	136	99	74	57	45	36	29	24	20	17	14	12
Double	22	202	142	103	78	60	47	38	31	25	21	18	15	13
	20	252	177	129	97	75	59	47	38	31	26	22	19	16
	18	352	247	180	135	104	82	66	53	44	37	31	26	22
	16	466	327	239	179	138	109	87	71	58	49	41	35	30
Triple	22	158	111	81	61	47	37	29	24	20	16	14	12	10
	20	197	138	101	76	58	46	37	30	25	21	17	15	13
	18	275	193	141	106	82	64	51	42	34	29	24	21	18
	16	365	256	187	140	108	85	68	55	46	38	32	27	23

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

**Table 24—3N Roof Deck Grade 40 Construction Spans<sup>1</sup>**

Span Condition	Gauge Number	ASD Span	ASD Cantilever Span <sup>2</sup>
Single	22	14'-03"	4'-00"
	20	18'-08"	5'-00"
	18	26'-00"	6'-10"
	16	33'-08"	8'-07"
Double or Triple	22	17'-07"	
	20	23'-00"	
	18	32'-00"	
	16	41'-05"	

<sup>1</sup> All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck.

<sup>2</sup> All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load.



**Table 25—3N Roof Deck Grade 50 Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> ksi	S <sub>e</sub> + (inch <sup>3</sup> ) per foot	S <sub>e</sub> - (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d</sub> + (inch <sup>4</sup> ) per ft.	I <sub>d</sub> - (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω inch-lbs per ft	M <sub>n</sub> /Ω inch-lbs per ft		
3N	22	0.0295	1.8	50	0.342	0.377	10253	11287	0.643	0.774
3N	20	0.0358	2.2	50	0.447	0.501	13389	15013	0.778	0.978
3N	18	0.0474	2.9	50	0.641	0.695	19187	20811	1.113	1.323
3N	16	0.0598	3.7	50	0.831	0.889	24873	26617	1.473	1.683

**Table 26—3N Roof Deck Grade 50 Shear and Web Crippling (Bare Deck)**

Profile	Gauge Number	V <sub>n</sub> /Ω lbs per ft	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
			3N	22	2564	577	634	730
3N	20	3724	831	911	1044	1351	1460	1644
3N	18	6143	1406	1534	1747	2302	2476	2768
3N	16	8679	2170	2356	2669	3575	3829	4255

**Table 27.1—3N Roof Deck Grade 50  
ASD Uniform Superimposed Downward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	107	84	68	56	47	40	35	30	27	24	21	19	17
	20	139	110	89	74	62	53	46	40	35	31	28	25	22
	18	200	158	128	106	89	76	65	57	50	44	39	35	32
	16	259	205	166	137	115	98	85	74	65	57	51	46	41
Double	22	118	93	75	62	52	45	38	33	29	26	23	21	19
	20	156	124	100	83	70	59	51	44	39	35	31	28	25
	18	217	171	139	115	96	82	71	62	54	48	43	38	35
	16	277	219	177	147	123	105	91	79	69	61	55	49	44
Triple	22	147	116	94	78	65	56	48	42	37	33	29	26	24
	20	195	154	125	103	87	74	64	56	49	43	39	35	31
	18	271	214	173	143	120	103	88	77	68	60	54	48	43
	16	347	274	222	183	154	131	113	99	87	77	68	61	55





**Table 27.2—3N Roof Deck Grade 50  
ASD Uniform Superimposed Upward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	118	93	75	62	52	45	38	33	29	26	23	21	19
	20	156	124	100	83	70	59	51	44	39	35	31	28	25
	18	217	171	139	115	96	82	71	62	54	48	43	38	35
	16	277	219	177	147	123	105	91	79	69	61	55	49	44
Double	22	107	84	68	56	47	40	35	30	27	24	21	19	17
	20	139	110	89	74	62	53	46	40	35	31	28	25	22
	18	200	158	128	106	89	76	65	57	50	44	39	35	32
	16	259	205	166	137	115	98	85	74	65	57	51	46	41
Triple	22	134	105	85	71	59	51	44	38	33	30	26	24	21
	20	174	138	112	92	77	66	57	50	44	39	34	31	28
	18	250	197	160	132	111	95	82	71	62	55	49	44	40
	16	324	256	207	171	144	123	106	92	81	72	64	57	52

**Table 27.3—3N Roof Deck Grade 50  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	82	58	42	32	24	19	15	12	10	9	7	6	5
	20	100	70	51	38	30	23	19	15	12	10	9	7	6
	18	143	100	73	55	42	33	27	22	18	15	13	11	9
	16	189	133	97	73	56	44	35	29	24	20	17	14	12
Double	22	198	139	102	76	59	46	37	30	25	21	17	15	13
	20	240	169	123	92	71	56	45	36	30	25	21	18	15
	18	344	241	176	132	102	80	64	52	43	36	30	26	22
	16	455	319	233	175	135	106	85	69	57	47	40	34	29
Triple	22	155	109	79	60	46	36	29	24	19	16	14	12	10
	20	188	132	96	72	56	44	35	29	23	20	17	14	12
	18	269	189	138	103	80	63	50	41	34	28	24	20	17
	16	356	250	182	137	105	83	66	54	44	37	31	27	23

<sup>1</sup> For loads that cause L/120 Deflection, the tabulated values are multiplied by 2.0. For loads that cause L/180 Deflection, the tabulated values are multiplied by 1.5. For loads that cause L/360 Deflection, the tabulated values are multiplied by 0.667.

**Table 28—3N Roof Deck Grade 50 Construction Spans<sup>1</sup>**

Span Condition	Gauge Number	ASD Span	ASD Cantilever Span <sup>2</sup>
Single	22	17'-01"	4'-07"
	20	22'-04"	6'-01"
	18	32'-00"	8'-05"
	16	41'-05"	10'-07"
Double or Triple	22	21'-00"	
	20	27'-06"	
	18	39'-04"	
	16	51'-00"	

<sup>1</sup> All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck.

<sup>2</sup> All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load.



**Table 29—3N Roof Deck Grade 80 Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> ksi	S <sub>e</sub> + (inch <sup>3</sup> ) per foot	S <sub>e</sub> - (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d</sub> + (inch <sup>4</sup> ) per ft.	I <sub>d</sub> - (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω inch-lbs per ft	M <sub>n</sub> /Ω inch-lbs per ft		
3N	22	0.0295	1.8	60	0.332	0.354	11910	12728	0.635	0.754
3N	20	0.0358	2.2	60	0.432	0.490	15503	17607	0.791	0.967
3N	18	0.0474	2.9	60	0.633	0.688	22743	24724	1.094	1.317
3N	16	0.0598	3.7	60	0.807	0.886	28994	31823	1.447	1.680

**Table 30—3N Roof Deck Grade 80 Shear and Web Crippling (Bare Deck)**

Profile	Gauge Number	V <sub>n</sub> /Ω lbs per ft	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
3N	22	2812	692	761	876	1120	1215	1374
3N	20	4114	997	1093	1253	1621	1752	1973
3N	18	6910	1688	1840	2096	2763	2971	3322
3N	16	10060	2603	2827	3203	4289	4595	5107

**Table 31.1—3N Roof Deck Grade 80  
ASD Uniform Superimposed Downward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	124	98	79	66	55	47	41	35	31	27	25	22	20
	20	161	128	103	85	72	61	53	46	40	36	32	29	26
	18	237	187	152	125	105	90	77	67	59	52	47	42	38
	16	302	239	193	160	134	114	99	86	76	67	60	54	48
Double	22	133	105	85	70	59	50	43	38	33	29	26	24	21
	20	183	145	117	97	82	69	60	52	46	41	36	33	29
	18	258	203	165	136	114	98	84	73	64	57	51	46	41
	16	331	262	212	175	147	126	108	94	83	73	65	59	53
Triple	22	166	131	106	88	74	63	54	47	41	37	33	29	27
	20	229	181	147	121	102	87	75	65	57	51	45	41	37
	18	322	254	206	170	143	122	105	92	80	71	64	57	52
	16	414	327	265	219	184	157	135	118	104	92	82	73	66



**Table 31.2—3N Roof Deck Grade 80  
ASD Uniform Superimposed Upward Loads (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	133	105	85	70	59	50	43	38	33	29	26	24	21
	20	183	145	117	97	82	69	60	52	46	41	36	33	29
	18	258	203	165	136	114	98	84	73	64	57	51	46	41
	16	331	262	212	175	147	126	108	94	83	73	65	59	53
Double	22	124	98	79	66	55	47	41	35	31	27	25	22	20
	20	161	128	103	85	72	61	53	46	40	36	32	29	26
	18	237	187	152	125	105	90	77	67	59	52	47	42	38
	16	302	239	193	160	134	114	99	86	76	67	60	54	48
Triple	22	155	123	99	82	69	59	51	44	39	34	31	27	25
	20	202	159	129	107	90	76	66	57	50	45	40	36	32
	18	296	234	190	157	132	112	97	84	74	66	58	52	47
	16	378	298	242	200	168	143	123	107	94	84	75	67	60

**Table 31.3—3N Roof Deck Grade 80  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	SPAN (feet-inches)												
		8-00	9-00	10-00	11-00	12-00	13-00	14-00	15-00	16-00	17-00	18-00	19-00	20-00
Single	22	81	57	42	31	24	19	15	12	10	8	7	6	5
	20	101	71	52	39	30	24	19	15	13	11	9	8	6
	18	140	99	72	54	42	33	26	21	18	15	12	10	9
	16	186	130	95	71	55	43	35	28	23	19	16	14	12
Double	22	196	138	100	75	58	46	37	30	24	20	17	15	13
	20	244	172	125	94	72	57	46	37	31	25	21	18	16
	18	338	237	173	130	100	79	63	51	42	35	30	25	22
	16	447	314	229	172	132	104	83	68	56	47	39	33	29
Triple	22	153	108	79	59	45	36	29	23	19	16	13	11	10
	20	191	134	98	74	57	45	36	29	24	20	17	14	12
	18	264	186	135	102	78	62	49	40	33	28	23	20	17
	16	350	245	179	134	104	81	65	53	44	36	31	26	22

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

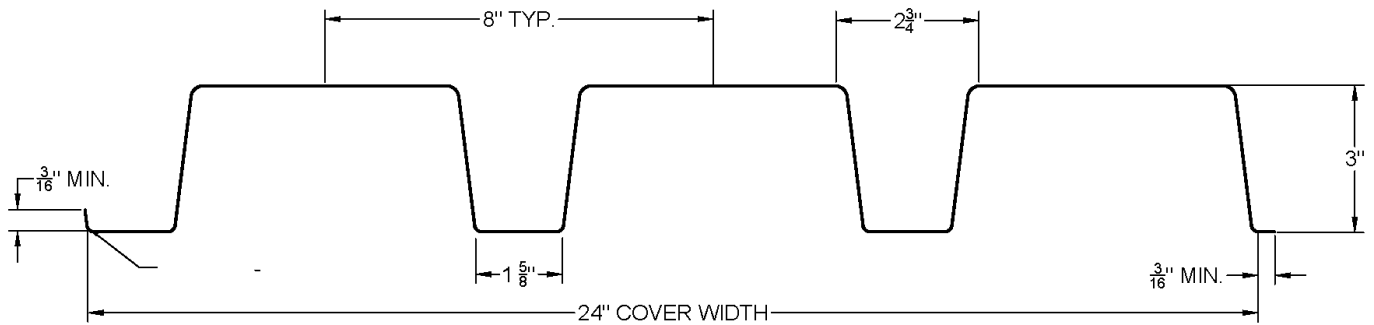


**Table 32—3N Roof Deck Grade 80 Construction Spans**

Span Cond.	Gauge Number	ASD Span	ASD Cantilever Span
Single	22	19'-10"	5'-02"
	20	25'-10"	7'-01"
	18	37'-07"	9'-11"
	16	48'-04"	12'-07"
Double or Triple	22	24'-05"	
	20	31'-10"	
	18	46'-08"	
	16	59'-06"	

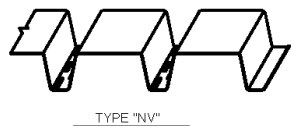
**Table 32 Notes:**

1. All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck.
2. All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load.



## MARLYN STEEL DECKS TYPE "N" OR "NV"

SLOT VENTS FOR "NV" DECK



**FIGURE 3—3N ROOF DECK**



**Tables 33 through 44 Notes:**

1. Loads shown in tables are uniformly distributed superimposed loads in psf. Span length assumes center-to-center spacing of supports. Tabulated loads shall not be increased by assuming clear span dimensions.
2. Web crippling and shear have not been accounted for in these tables. Required bearing should be determined based on specific span conditions.

**Table 33—B, BV Roof Deck Grade 40 Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gage Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per foot)		
B	22	0.0295	1.6	40	0.182	0.177	4350	4233	0.156	0.176
B	20	0.0358	2.0	40	0.225	0.226	5380	5410	0.196	0.220
B	18	0.0474	2.6	40	0.305	0.304	7305	7289	0.277	0.292
B	16	0.0598	3.0	40	0.391	0.384	9357	9206	0.366	0.370

**Table 34—B, BV Roof Deck Grade 40 Shear and Web Crippling (Bare Deck)**

Profile	Gauge Number	V <sub>n</sub> /Ω (lbs per ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
			B	22	2051	663	729	839
B	20	2477	945	1036	1187	1424	1539	1733
B	18	3258	1578	1721	1960	2423	2607	2914
B	16	4078	2413	2620	2968	3759	4026	4475

**Table 35.1—B, BV Roof Deck Grade 40  
ASD Uniform Downward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	116	96	81	69	59	52	45	40	36	32	29
	20	143	119	100	85	73	64	56	50	44	40	36
	18	195	161	135	115	99	87	76	67	60	54	49
	16	250	206	173	148	127	111	97	86	77	69	62
Double	22	113	93	78	67	58	50	44	39	35	31	28
	20	144	119	100	85	74	64	56	50	45	40	36
	18	194	161	135	115	99	86	76	67	60	54	49
	16	245	203	170	145	125	109	96	85	76	68	61
Triple	22	141	117	98	83	72	63	55	49	44	39	35
	20	180	149	125	107	92	80	70	62	56	50	45
	18	243	201	169	144	124	108	95	84	75	67	61
	16	307	254	213	182	157	136	120	106	95	85	77



**Table 35.2—B, BV Roof Deck Grade 40  
ASD Uniform Superimposed Upward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	113	93	78	67	58	50	44	39	35	31	28
	20	144	119	100	85	74	64	56	50	45	40	36
	18	194	161	135	115	99	86	76	67	60	54	49
	16	245	203	170	145	125	109	96	85	76	68	61
Double	22	116	96	81	69	59	52	45	40	36	32	29
	20	143	119	100	85	73	64	56	50	44	40	36
	18	195	161	135	115	99	87	76	67	60	54	49
	16	250	206	173	148	127	111	97	86	77	69	62
Triple	22	145	120	101	86	74	64	57	50	45	40	36
	20	179	148	125	106	92	80	70	62	55	50	45
	18	244	201	169	144	124	108	95	84	75	67	61
	16	312	258	217	185	159	139	122	108	96	86	78

**Table 35.3—B, BV Roof Deck Grade 40  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	82	61	47	37	30	24	20	17	14	12	10
	20	103	77	59	47	37	30	25	21	18	15	13
	18	145	109	84	66	53	43	35	30	25	21	18
	16	192	144	111	87	70	57	47	39	33	28	24
Double	22	197	148	114	90	72	58	48	40	34	29	25
	20	247	186	143	113	90	73	60	50	42	36	31
	18	350	263	202	159	128	104	85	71	60	51	44
	16	462	347	268	210	168	137	113	94	79	67	58
Triple	22	154	116	89	70	56	46	38	31	26	22	19
	20	194	145	112	88	71	57	47	39	33	28	24
	18	274	206	158	125	100	81	67	56	47	40	34
	16	362	272	209	165	132	107	88	74	62	53	45

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

**Table 36—B, BV Roof Deck Grade 40 Construction Spans<sup>1</sup> (feet-inches)**

Span Condition	Gauge Number	ASD Span	ASD Cantilever Span <sup>2</sup>
Single	22	7-03	1-09
	20	9-00	2-03
	18	12-02	3-00
	16	15-07	3-09
Double or Triple	22	8-11	
	20	11-00	
	18	15-00	
	16	19-02	

<sup>1</sup> All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck.

<sup>2</sup> All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load.



**Table 37—B, BV Roof Deck Grade 50 Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gage Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e+</sub> (inch <sup>3</sup> ) per foot	S <sub>e-</sub> (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d+</sub> (inch <sup>4</sup> ) per ft.	I <sub>d-</sub> (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per foot)		
B	22	0.0295	1.6	50	0.173	0.171	5175	5111	0.151	0.173
B	20	0.0358	2.0	50	0.222	0.219	6634	6549	0.191	0.216
B	18	0.0474	2.6	50	0.301	0.303	9022	9072	0.270	0.292
B	16	0.0598	3.0	50	0.387	0.383	11587	11457	0.359	0.370

**Table 38—B, BV Roof Deck Grade 50 Shear and Web Crippling (Bare Deck)**

Profile	Gage Number	V <sub>n</sub> /Ω (lbs per ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
			B	22	2552	829	911	1049
B	20	3096	1181	1294	1484	1780	1924	2166
B	18	4072	1973	2151	2451	3029	3258	3642
B	16	5097	3016	3275	3710	4698	5033	5593

**Table 39.1— B, BV Roof Deck Grade 50  
ASD Uniform Downward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	138	114	96	82	70	61	54	48	43	38	34
	20	177	146	123	105	90	79	69	61	55	49	44
	18	241	199	167	142	123	107	94	83	74	67	60
	16	309	255	215	183	158	137	121	107	95	86	77
Double	22	136	113	95	81	70	61	53	47	42	38	34
	20	175	144	121	103	89	78	68	60	54	48	44
	18	242	200	168	143	123	108	94	84	75	67	60
	16	306	252	212	181	156	136	119	106	94	85	76
Triple	22	170	141	118	101	87	76	67	59	53	47	43
	20	218	180	152	129	111	97	85	76	67	60	55
	18	302	250	210	179	154	134	118	105	93	84	76
	16	382	316	265	226	195	170	149	132	118	106	95



**Table 39.2—B, BV Roof Deck Grade 50  
ASD Uniform Superimposed Upward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	136	113	95	81	70	61	53	47	42	38	34
	20	175	144	121	103	89	78	68	60	54	48	44
	18	242	200	168	143	123	108	94	84	75	67	60
	16	306	252	212	181	156	136	119	106	94	85	76
Double	22	138	114	96	82	70	61	54	48	43	38	34
	20	177	146	123	105	90	79	69	61	55	49	44
	18	241	199	167	142	123	107	94	83	74	67	60
	16	309	255	215	183	158	137	121	107	95	86	77
Triple	22	172	143	120	102	88	77	67	60	53	48	43
	20	221	183	154	131	113	98	86	77	68	61	55
	18	301	249	209	178	153	134	117	104	93	83	75
	16	386	319	268	229	197	172	151	134	119	107	97

**Table 39.3—B, BV Roof Deck Grade 50  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	79	60	46	36	29	24	19	16	14	12	10
	20	100	75	58	46	37	30	25	20	17	15	13
	18	142	107	82	65	52	42	35	29	24	21	18
	16	189	142	109	86	69	56	46	38	32	27	24
Double	22	191	144	111	87	70	57	47	39	33	28	24
	20	242	182	140	110	88	72	59	49	41	35	30
	18	341	257	198	155	124	101	83	69	59	50	43
	16	454	341	263	207	165	134	111	92	78	66	57
Triple	22	150	112	87	68	55	44	37	30	26	22	19
	20	189	142	109	86	69	56	46	38	32	28	24
	18	267	201	155	122	97	79	65	54	46	39	33
	16	355	267	206	162	129	105	87	72	61	52	44

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

**Table 40—B, BV Roof Deck Grade 50 Construction Spans<sup>1</sup> (feet-inches)**

Span Condition	Gauge Number	ASD Span	ASD Cantilever Span <sup>2</sup>
Single	22	8-07	2-01
	20	11-01	2-08
	18	15-00	3-09
	16	19-04	4-08
Double or Triple	22	10-07	
	20	13-07	
	18	18-06	
	16	23-09	

<sup>1</sup> All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck.

<sup>2</sup> All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load.





**Table 41—B, BV Roof Deck Grade 80 Section Properties and Flexural Resistance (Bare Deck)**

Profile	Gauge Number	Design Thickness (inches)	Weight (psf)	F <sub>y</sub> (ksi)	S <sub>e</sub> + (inch <sup>3</sup> ) per foot	S <sub>e</sub> - (inch <sup>3</sup> ) per foot	ASD (Ω = 1.67)		I <sub>d</sub> + (inch <sup>4</sup> ) per ft.	I <sub>d</sub> - (inch <sup>4</sup> ) per ft.
							M <sub>p</sub> /Ω (inch-lbs per ft)	M <sub>n</sub> /Ω (inch-lbs per foot)		
B	22	0.0295	1.6	60	0.166	0.166	5956	5958	0.149	0.171
B	20	0.0358	2.0	60	0.220	0.213	7904	7647	0.189	0.213
B	18	0.0474	2.6	60	0.298	0.302	10719	10850	0.263	0.292
B	16	0.0598	3.0	60	0.383	0.381	13772	13689	0.352	0.370

**Table 42—B, BV Roof Deck Grade 80 Shear and Web Crippling (Bare Deck)**

Profile	Gage Number	V <sub>n</sub> /Ω (lbs per ft)	Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - End Bearing			Web Crippling (R <sub>n</sub> /Ω), lbs/ft One Flange Loading - Interior Bearing		
			1½ inches	2 inches	3 inches	1½ inches	2 inches	3 inches
			B	22	2985	995	1093	1259
B	20	3715	1418	1553	1781	2136	2309	2599
B	18	4886	2367	2582	2941	3635	3910	4371
B	16	6117	3619	3930	4452	5638	6039	6712

**Table 43.1— B, BV Roof Deck Grade 80  
ASD Uniform Downward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	159	131	110	94	81	71	62	55	49	44	40
	20	211	174	146	125	108	94	82	73	65	58	53
	18	286	236	198	169	146	127	112	99	88	79	71
	16	367	304	255	217	187	163	143	127	113	102	92
Double	22	159	131	110	94	81	71	62	55	49	44	40
	20	204	169	142	121	104	91	80	71	63	56	51
	18	289	239	201	171	148	129	113	100	89	80	72
	16	365	302	253	216	186	162	143	126	113	101	91
Triple	22	199	164	138	118	101	88	78	69	61	55	50
	20	255	211	177	151	130	113	100	88	79	71	64
	18	362	299	251	214	185	161	141	125	112	100	90
	16	456	377	317	270	233	203	178	158	141	126	114



**Table 43.2—B, BV Roof Deck Grade 80  
ASD Uniform Superimposed Upward Loads (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	159	131	110	94	81	71	62	55	49	44	40
	20	204	169	142	121	104	91	80	71	63	56	51
	18	289	239	201	171	148	129	113	100	89	80	72
	16	365	302	253	216	186	162	143	126	113	101	91
Double	22	159	131	110	94	81	71	62	55	49	44	40
	20	211	174	146	125	108	94	82	73	65	58	53
	18	286	236	198	169	146	127	112	99	88	79	71
	16	367	304	255	217	187	163	143	127	113	102	92
Triple	22	199	164	138	117	101	88	78	69	61	55	50
	20	263	218	183	156	134	117	103	91	81	73	66
	18	357	295	248	211	182	159	140	124	110	99	89
	16	459	379	319	272	234	204	179	159	142	127	115

**Table 43.3—B, BV Roof Deck Grade 80  
Uniform Superimposed Service Load that Causes L/240 Deflection<sup>1</sup> (psf)**

Span Condition	Gauge Number	Span (feet-inches)										
		5-00	5-06	6-00	6-06	7-00	7-06	8-00	8-06	9-00	9-06	10-00
Single	22	78	59	45	36	29	23	19	16	13	11	10
	20	99	75	57	45	36	29	24	20	17	14	12
	18	138	104	80	63	50	41	34	28	24	20	17
	16	185	139	107	84	67	55	45	38	32	27	23
Double	22	188	141	109	86	69	56	46	38	32	27	24
	20	239	179	138	109	87	71	58	49	41	35	30
	18	333	250	193	152	121	99	81	68	57	49	42
	16	445	335	258	203	162	132	109	91	76	65	56
Triple	22	147	111	85	67	54	44	36	30	25	21	18
	20	187	140	108	85	68	55	46	38	32	27	23
	18	261	196	151	119	95	77	64	53	45	38	33
	16	349	262	202	159	127	103	85	71	60	51	44

<sup>1</sup> For loads that cause L/120 Deflection, multiply by 2.0. For loads that cause L/180 Deflection, multiply by 1.5. For loads that cause L/360 Deflection, multiply by 0.667.

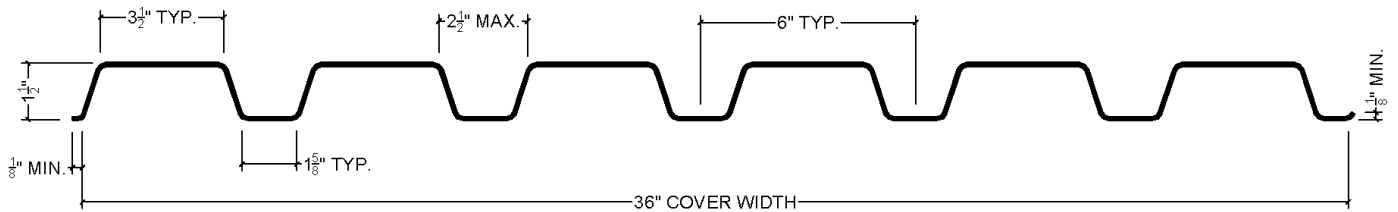


**Table 44—B, BV Roof Deck Grade 80 Construction Spans<sup>1</sup> (feet-inches)**

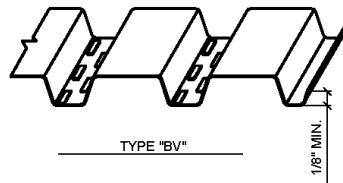
Span Condition	Gage Number	ASD Span	ASD Cantilever Span <sup>2</sup>
Single	22	9-11	2-05
	20	13-02	3-02
	18	17-10	4-05
	16	22-11	5-07
Double or Triple	22	12-03	
	20	16-03	
	18	22-00	
	16	28-03	

<sup>1</sup> All construction load spans are calculated using a 200 pound service load on a 1 foot width of deck.

<sup>2</sup> All cantilever construction load spans are calculated using a 200 pound service load on a 1 foot width of deck and a 10 psf uniform distributed load.



MARLYN STEEL DECKS TYPE "B" OR "BV"



**FIGURE 4—B AND BV ROOF DECK**



## FLORIDA SUPPLEMENT

### MARLYN STEEL DECKS

6808 Hamy Road  
Tampa, Florida 33629  
www.marlynsteel.com

### STEEL DECK PANELS

CSI Sections:   **05 31 00 – Steel Deck**  
                      **05 31 13 – Steel Floor Decking**  
                      **05 31 23 – Steel Roof Decking**

#### 1.0 RECOGNITION

Marlyn steel deck panels recognized as evaluated and represented in IAPMO UES Evaluation Report ER-931 and with changes as noted in this supplement are a satisfactory alternative for use in buildings built under the following codes (and regulations) including locations in the High-velocity Hurricane Zone:

- 2023 Florida Building Code, Building (FBC, Building)

#### 2.0 LIMITATIONS

Use of Marlyn steel deck panels recognized in this report is subject to the following limitations:

**2.1** Design requirements shall be determined in accordance with the Florida Building Code, Building.

**2.2** Construction documents, including calculations showing compliance with FBC, Building Sections 107 and 1603, and this report shall be submitted to the building official. The construction documents shall be prepared by a registered design professional where required by Chapter 471, Florida Statutes, or Chapter 481, Florida Statutes.

**2.3** Installation shall be in accordance with the requirements noted in IAPMO UES-931 for the 2021 International Building Code.

**2.4** Verification shall be provided that a quality assurance agency audits the manufacturer's quality assurance program and audits the production quality of products in accordance with Section (5)(d) of Florida Rule 61G20-3.008. The quality assurance agency shall be approved by the Commission (or the building official when the report holder does not possess an approval by the Commission).

**2.5** This supplement expires concurrently with ER-931.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)



## CALIFORNIA SUPPLEMENT

### MARLYN STEEL DECKS

6808 Hamy Road  
Tampa, Florida 33629  
www.marlynsteel.com

### STEEL DECK PANELS

CSI Sections: 05 31 00 – Steel Deck  
05 31 13 – Steel Floor Decking  
05 31 23 – Steel Roof Decking

#### 1.0 RECOGNITION

Marlyn steel deck panels recognized as evaluated and represented in IAPMO UES Evaluation Report ER-931 and with changes as noted in this supplement are satisfactory alternatives for use in buildings built under the following codes (and regulations):

- 2022 California Building Code (CBC)

#### 2.0 LIMITATIONS

Use of the Marlyn steel deck panels recognized in this report is subject to the following limitations:

**2.1** The design, installation, conditions of use, and identification of the Marlyn steel deck panels shall be in accordance with the 2021 International Building Code as noted in ER-931.

**2.2** Design, installation, and inspection shall be in accordance with Chapters 16 and 17 of the CBC, or Chapters 16A and 17A, as applicable, due to local amendments to these chapters.

**2.3** For structures regulated under CBC Chapter 16A, diaphragm span-depth ratios shall comply with Section 1604A.3.8.

**2.4** Special Inspections shall be in accordance with CBC Sections 1705.2 and 1705A.2, Steel Construction; Sections 1705.3 and 1705A.3, Concrete Construction; Sections 1705.12 and 1705.12a, Wind Resistance; and Sections 1705.13 and 1705.13a, Seismic Resistance, as applicable.

**2.5** Structural Observation shall be in accordance with CBC Sections 1704.6 and 1704A.6, as applicable.

**2.6** For structures regulated under CBC Chapter 22A, the minimum base steel thickness is 0.0359 inches (0.9 mm), except for single-story open structures, where the steel deck is not used as a diaphragm and there are no suspended hangers or bracing for nonstructural components attached to the deck.

**2.7** This supplement expires concurrently with ER-931.

For additional information about this evaluation report please visit [www.uniform-es.org](http://www.uniform-es.org) or email us at [info@uniform-es.org](mailto:info@uniform-es.org)