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ESR-3818

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Reissued 05/2017
This report is subject to renewal 05/2018.

DIVISION: 05 00 00—METALS
SECTION: 05 31 00—STEEL DECKING
SECTION: 05 31 13—STEEL FLOOR DECKING
SECTION: 05 31 23—STEEL ROOF DECKING
SECTION: 05 36 00—COMPOSITE METAL DECKING

REPORT HOLDER:

NEW MILLENNIUM BUILDING SYSTEMS, LLC

3565 HIGHWAY 32 NORTH
HOPE, ARKANSAS 71801

EVALUATION SUBJECT:

NEW MILLENNIUM STEEL DECKS:
ROOF DECK PANELS: RD, F, B, BI, AND N
FORM DECK PANELS: FD, FDR AND FDI
COMPOSITE DECK PANELS: CD AND CDI

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ICC-ES Evaluation Report

ESR-3818

Reissued May 2017

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DIVISION: 05 00 00—METALS
Section: 05 31 00—Steel Decking
Section: 05 31 13—Steel Floor Decking
Section: 05 31 23—Steel Roof Decking
Section: 05 36 00—Composite Metal Decking

REPORT HOLDER:

NEW MILLENNIUM BUILDING SYSTEMS, LLC
3565 HIGHWAY 32 NORTH
HOPE, ARKANSAS 71801
(870) 722-4100
www.newmill.com

EVALUATION SUBJECT:

NEW MILLENNIUM STEEL DECKS:

- **ROOF DECK PANELS; RD, F, B, BI, AND N**
- **FORM DECK PANELS; FD, FDR AND FDI**
- **COMPOSITE DECK PANELS; CD AND CDI**

1.0 EVALUATION SCOPE

Compliance with the following codes:

2015 and 2012 *International Building Code®* (IBC)

Property evaluated:

Structural

2.0 USES

New Millennium steel decks are used as floor and roof deck to support vertical loads, and as components of horizontal diaphragms and composite floor assemblies.

3.0 DESCRIPTION

3.1 Steel Decks:

The deck panels are factory formed at the locations noted in Table E from steel complying with ASTM A653 or ASTM A1008 and have either a galvanized, painted/painted, phosphatized/painted, or mill finish. The deck panels range from $^{9}/_{16}$ inch to 3 inches (14.3 mm to 76.2 mm) in depth and 24 inches to 36 inches (610 mm to 914 mm) in width. See Table A for deck panel profiles, Table C for specifications, and Table D for finishes.

3.2 Support Connections:

3.2.1 Puddle (Arc Spot) Welds: Puddle (arc spot) welds must have a minimum visible diameter of at least $^{5}/_{8}$ inch (15.87 mm) in diameter or $^{3}/_{8}$ inch wide by $1^{1}/_{4}$ inch long puddle weld (9.52mm by 31.75). Puddle (arc spot) welds must be made using E60 or E70 filler metal and must comply with AWS D1.3-2008. Weld washers (16 Gage washer with $^{3}/_{8}$ inch (9.5 mm) hole) must be used on all deck units that are less than 22 gage.

3.2.2 #12 Screws: Screws must be self-drilling or self-piercing tapping screws complying with ASTM C1513-13. The screws must be long enough to penetrate through the connected steel panels and the supporting steel member with a minimum of three threads protruding past the back side of the supporting steel member.

3.3 Seam (Sidelap) Connections:

3.3.1 Side Seam Puddle (Arc Spot) Welds and Fillet Welds: Side seam puddle (arc spot) welds must be at least $^{5}/_{8}$ inch (15.87 mm) in diameter or side seam fillet welds must have a minimum length of 1.5 inches (38 mm) and must be made using E60 or E70 filler metals and must comply with AWS D1.3-2008.

3.3.2 #10 Screws: Screws must be self-drilling or self-piercing tapping screws complying with ASTM C1513-13. The screws must be long enough to penetrate through the connected steel panels with a minimum of three threads protruding past the back side of the connected deck panels.

3.4 Concrete Fill: Concrete must be in accordance with the IBC and must have a minimum 28-day compressive strength of 3,000 psi (20.68 MPa). Lightweight concrete fill must be 110 pcf (1762 kg/m^3). Normal weight concrete must be 145 pcf (2323 kg/m^3).

4.0 TABULATED DESIGN VALUES AND INSTALLATION:

4.1 Vertical Loads (Tables 1-13):

4.1.1 General: For each deck profile, there are subset Tables A, B, and C that include, properties, section properties, and design strengths.

Table 25 also includes additional web crippling reactions at exterior and interior supports. Table B includes figures for web crippling reactions.

4.1.2 Roof Decks (Tables 1-4): The following values are provided in subset Tables D and E of Tables 1-4:

- Allowable uniform loads
- Maximum construction spans
- Maximum cantilever spans

Basis for these designs are included in the table notes.

4.1.3 Form Decks (Tables 5-10): The following values are provided in subset Tables D, E, F and G of Tables 5-10:

- Maximum construction clear spans
- Allowable superimposed uniform loads
- Allowable construction uniform loads
- Maximum cantilever spans

Basis for these designs are included in the table notes.

4.1.4 Composite Decks (Tables 11-13): The following values are provided in subset Tables D, E, F, G, and H of Tables 11-13:

- Minimum slab reinforcement
- Maximum construction clear spans
- Maximum cantilever spans
- Allowable superimposed uniform loads

Basis for these designs are included in the table notes.

4.2 Diaphragm (Tables 14-24):

The following values are provided in subset tables that vary with each profile. The subsets vary with respect to the following items**:**

- Support and side lap fasteners
- Type of concrete fill

Basis for these designs are included in the table notes.

4.3 Installation:

4.3.1 General: The deck panels must be installed in accordance with this report and also with New Millennium's published installation guidelines and instructions. If there is a conflict between New Millennium's published installation guidelines and instructions and this report, this report governs.

Deck panels must be installed at locations in accordance with the plans and specifications approved by the code official. Screws connecting the deck panel to structural steel supports must be centered not less than 1 inch (25 mm) from the ends of the sheets. Screws must be driven such that there is tight contact between the fastener head and the attached panels.

4.3.2 Concrete-filled Panel Requirements: Deck panels must be installed with the galvanized or bare steel deck panel face in contact with the concrete and the galvanized or prime painted deck panel surface on the underside. Deck panels must be clean and free of foreign materials prior to placement of concrete.

5.0 CONDITIONS OF USE

The New Millennium steel deck panels described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 The base metal thickness for deck panels delivered to the jobsite must be at least 95 percent of the design metal thickness.

5.2 The minimum loads of IBC Section 1607 must be considered by the design professional based on the specific occupancy or use, as applicable.

5.3 Special inspection shall comply with IBC Chapter 17.

5.4 Calculations and details demonstrating that the loads applied to the deck panels comply with this report must be submitted to the code official for approval. Calculations and drawings, must 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.

5.5 Diaphragm span/depth limitations based on diaphragm flexibility must comply with Table F. Diaphragm deflection must be calculated using the equation noted in Table F.

5.6 Concrete-filled sections must not be used to support loads that are predominantly vibratory, such as those for operation of heavy machinery, reciprocating motors or moving loads.

5.7 Vertical load design of deck panels, without concrete fill, must be based on section properties noted within this ICC-ES evaluation report.

5.8 When the steel deck panels are used as roof decks, the panels must be covered with an approved code-complying roof covering.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with the ICC-ES Acceptance Criteria for Steel Deck Roof and Floor Systems (AC43), dated October 2015.

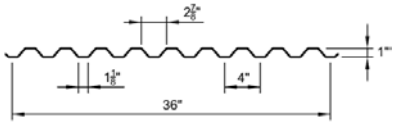
6.2 Data in accordance with the ICC-ES Acceptance Criteria for Steel Deck Roof and Floor Systems (AC43), dated November 2010 (Editorially revised September 2013).

7.0 IDENTIFICATION

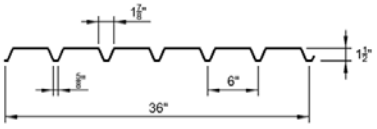
Each bundle of decking is marked with labels with New Millennium Building Systems, Inc., the deck type, the minimum base-metal thickness (uncoated), minimum specified yield strength and the ICC-ES Report number ESR-3818.

TABLE A—STEEL DECK PANEL PROFILES

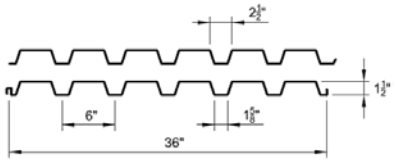
ROOF DECKS



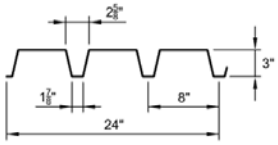
1.0RD



F

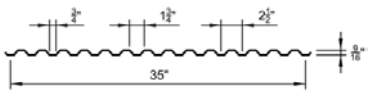


B and BI



N

FORM DECKS



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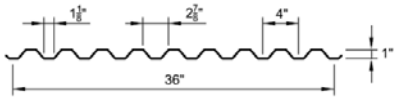

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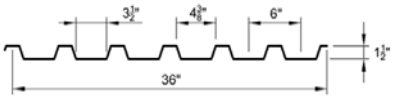

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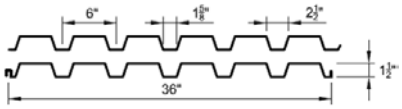
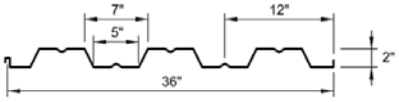


1.5FDR and 1.5FDI



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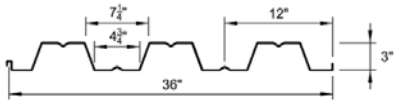

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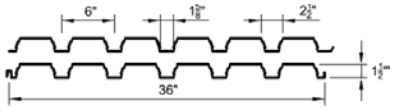
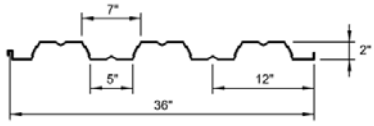
COMPOSITE DECKS



1.5CD and 1.5CDI



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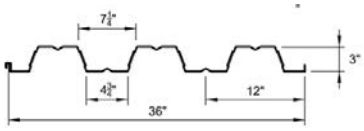
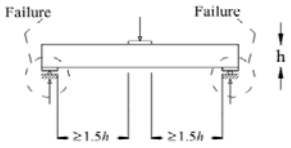
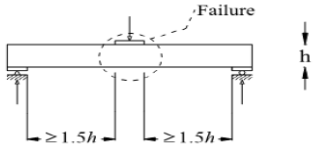
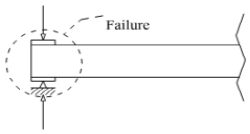
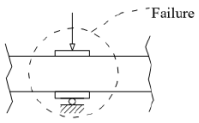


3.0CD

TABLE B—WEB CRIPPLING CONDITIONS (ONE FLANGE AND TWO FLANGE LOADING)

END ONE FLANGE LOADING (EOF)	INTERIOR ONE FLANGE LOADING (IOF)	END TWO FLANGE LOADING (ETF)	INTERIOR TWO FLANGE LOADING (ITF)
			

1. EOF - The distance from the edge of the bearing to the end of the member is ≤ 1.5h, and the clear distance between the bearing edges of adjacent opposite concentrated loads or reactions is ≥ 1.5h.
2. IOF - The distance from the edge of the bearing to the end of the member is > 1.5h, and the clear distance between the bearing edges of adjacent opposite concentrate loads or reactions is ≥ 1.5h.
3. ETF - The distance from the edge of the bearing to the end of the member is ≤ 1.5h, and the clear distance between the bearing edges of adjacent opposite concentrated loads or reactions is <1.5h.
4. ITF - The distance from the edge of the bearing to the end of the member is > 1.5h, and the clear distance between the bearing edges of adjacent opposite concentrated loads or reaction is < 1.5h.

TABLE C—STEEL DECK PANEL SPECIFICATIONS

	MINIMUM GRADE OF STEEL						
	ROOF DECKS			**FORM DECKS**			**COMPOSITE DECKS**
GAUGE (DESIGN METAL THICKNESS)[1]	**No. 26 to 16 gauge (0.0179 to 0.0598 inch)**			**No. 28 to 16 gauge (0.0149 to 0.0598 inch)**			**No. 22 to 16 gauge (0.0295 to 0.0598 inch)**
DECK TYPE	**RD**	**F**	**B, BI, N**	**0.6FD, 1.0FD**	**1.5FD, 1.5FDR, 1.5FDI**	**2.0FD, 3.0FD**	**1.5CD, 1.5CDI, 2.0CD, 3.0CD**
ASTM A653 SS[2]	60[3]	33[3,4], 40[3]	33[3]	60[3]	33[3]	40[3]	40[3]
ASTM A1008-15 SS	60[3]	33[3,4], 40[3]	33[3]	60[3]	33[3]	40[3]	40[3]
ASTM A653 HSLAS	60[3]	40[3]	40[5]	60[3]	40[5]	40[3]	40[3]
ASTM A1008-15 HSLAS Class 1 or 2	60[3]	45[5]	45[5]	60[3]	45[5]	40[3]	40[3]

[1]The base metal thickness delivered to the jobsite must be at least 95 percent of the design metal thickness.

[2]ASTM A653 SS Grade 50 Class 1, 3, or 4.

[3]Tabulated values in this report are based on this grade of steel which corresponds to the minimum yield strength (F_y).

[4]For F decks, when the table in this report does not indicate the F_y, the tabulated value is based on Grade 33 steel (F_y = 33 ksi).

[5]Increases in tabulated values due to the use of higher grades of steel is outside the scope of this report.

TABLE D—STEEL DECK PANEL FINISH

STEEL SPECIFICATION	**ROOF DECKS (RD, F, B, BI, AND N)**	**FORM DECKS (FD, FDR AND FDI)**	**COMPOSITE DECKS (CD AND CDI**
ASTM A653	Galvanized	Galvanized	Galvanized
ASTM A1008	Painted/Painted or Mill	Phosphatized/ Painted or Mill	Phosphatized/ Painted or Mill

The galvanized deck panels are formed from ASTM A653 steel, with a minimum G30 galvanized coating designation on both sides of the panel. Phosphatized/painted deck panels have a phosphatized (uncoated) top surface and primer painted bottom surface. Painted/painted deck panels have primer painted top and bottom surfaces. Mill finished deck panels have no coating on either top or bottom surfaces.

TABLE E—MANUFACTURING LOCATIONS

New Millennium Building Systems, LLC Butler, Indiana	New Millennium Building Systems, LLC Lake City, Florida
New Millennium Building Systems, LLC Hope, Arkansas	New Millennium Building Systems, LLC Salem, Virginia

For SI dimensions, the following conversions apply to all Tables:

1 inch = 25.4 mm; 1 lbf/ft = 14.6 N/m = 0.0146 N/mm; 1 in^2 = 645.16 mm^2; 1 in^3 = 16,387.06 mm^3, 1 in^4 =416,231.4 mm^4;
1 psi = 6.89 kPa; 1 ft = 304.8 mm; 1 pcf = 16.018 kg/m^3; 1 psf = 0.0479 Kn/m^2, 1 lbf = 4.45 N.

ROOF DECK—Table 1 - 4 Notes

SYMBOLS & DEFINITION

F_y (yield strength)
I_p (effective positive moment of inertia)
I_n (effective negative moment of inertia)
$M_{n,p}/\Omega$ (allowable positive moment)
$M_{n,n}/\Omega$ (allowable negative moment)
R_{be}/Ω (allowable web crippling reactions at exterior supports)
R_{bi}/Ω (allowable web crippling reactions at interior supports)
S_p (effective positive section modulus)
S_n (effective negative section modulus)
V_n/Ω (allowable shear)
Thickness = design base-metal thickness

DESIGN STRENGTHS – ALLOWABLE STRENGTH DESIGN (ASD):

R_{be}/Ω and R_{bi}/Ω values are based on one-flange loading where deck panels are fastened to supports.

ALLOWABLE UNIFORM LOADS - ASD

1. Allowable Uniform Loads are based on R_{be}/Ω and R_{bi}/Ω and the minimum bearing lengths noted under the design strengths tables.
2. Allowable Uniform Total Load that Produces Span/240 Deflection Values in **RED** are shown for use in determining deck capacities under deflection limits more stringent than Span/240, such as that required by IBC Table 1604.3. However, the Allowable Uniform Total Loads must not be exceeded.

MAXIMUM CONSTRUCTION SPANS - ASD

Maximum Construction Spans are based on:

- R_{be}/Ω and R_{bi}/Ω and the minimum bearing lengths noted under the design strengths tables.
- A 200 pound concentrated load supported by a 1 foot by 1 foot area of the deck panel. The 200 pound concentrated load exceeds the Chapter 16 requirements of the IBC for a 300 pound load distributed over a $2^1/_2$-foot-by-$2^1/_2$-foot area of the deck panel per Section 1607.4 and Table 1607.1.

MAXIMUM CANTILEVER CLEAR SPANS - ASD

Maximum cantilever clear spans are based on:

- An adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the Maximum Construction Span in the Allowable Uniform Loads and Maximum Construction Spans.
- A bearing width at perimeter support assumed to be 3 inches minimum.
- During construction, a uniform construction load of 10 psf in conjunction with a 200 pound concentrated load.
- During service, a uniform total load of 45 psf in conjunction with a 100 pound concentrated load while considering a deflection limit of Span/120.

ROOF DECK - TYPE 1.0RD

TABLE - 1A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
26	0.0179	36	0.94
24	0.0238		1.24
22	0.0295		1.54
20	0.0358		1.87

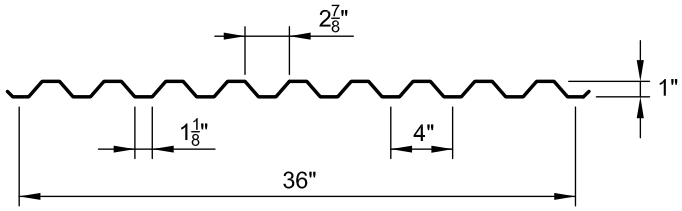


TABLE - 1B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
26	60	0.041	0.041	0.068	0.073
24		0.056	0.056	0.098	0.105
22		0.070	0.070	0.129	0.132
20		0.085	0.085	0.160	0.160

TABLE - 1C DESIGN STRENGTHS

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
26	60	2428	2633	2216	466	828
24		3518	3780	3652	789	1422
22		4631	4732	4516	1169	2126
20		5749	5738	5467	1665	3047

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches.

TABLE - 1D ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS - ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf) Center to Center Span (ft. - in.)										Max. Constr. Span (Ctr. to Ctr.)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	8 - 0	
Single	26	180 / 100	132 / 63	101 / 42	-	-	-	-	-	-	-	4 - 0
	24	261 / 137	191 / 86	147 / 58	116 / 41	94 / 30	78 / 22	65 / 17	-	-	-	5 - 10
	22	343 / 170	252 / 107	193 / 72	152 / 50	123 / 37	102 / 28	86 / 21	73 / 17	63 / 13	48 / 9	7 - 8
	20	426 / 206	313 / 130	240 / 87	189 / 61	153 / 45	127 / 33	106 / 26	91 / 20	78 / 16	60 / 11	9 - 6
Double	26	193 / 241	142 / 152	109 / 102	86 / 71	70 / 52	-	-	-	-	-	4 - 10
	24	277 / 329	204 / 207	157 / 139	124 / 98	100 / 71	83 / 53	70 / 41	60 / 32	51 / 26	-	7 - 0
	22	347 / 409	256 / 258	196 / 173	155 / 121	126 / 88	104 / 66	87 / 51	75 / 40	64 / 32	49 / 22	9 - 3
	20	421 / 497	310 / 313	238 / 210	188 / 147	153 / 107	126 / 81	106 / 62	90 / 49	78 / 39	60 / 26	11 - 6
Triple	26	239 / 189	177 / 119	136 / 80	107 / 56	87 / 41	-	-	-	-	-	4 - 11
	24	345 / 258	254 / 162	195 / 109	155 / 76	125 / 56	104 / 42	87 / 32	74 / 25	64 / 20	49 / 14	7 - 1
	22	432 / 320	318 / 202	244 / 135	193 / 95	157 / 69	130 / 52	109 / 40	93 / 31	80 / 25	61 / 17	9 - 5
	20	523 / 389	386 / 245	296 / 164	235 / 115	190 / 84	157 / 63	132 / 49	113 / 38	97 / 31	75 / 21	11 - 8

TABLE - 1E MAXIMUM CANTILEVER SPANS - ASD

Gage	F_y (ksi)	Back-Span Condition		
		Single	Double	Triple
26	60	0 - 9	0 - 9	0 - 9
24		0 - 11	0 - 11	0 - 11
22		1 - 0	1 - 0	1 - 0
20		1 - 2	1 - 2	1 - 2

See page 5 for table notes.

ROOF DECK - TYPE F

TABLE - 2A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.58
20	0.0358		1.92
18	0.0474		2.54
16	0.0598		3.21

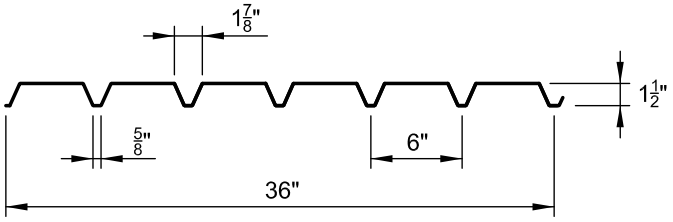


TABLE - 2B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	33	0.121	0.128	0.111	0.121	40	0.118	0.128	0.110	0.121
20		0.152	0.155	0.138	0.146		0.149	0.155	0.136	0.146
18		0.205	0.205	0.188	0.192		0.205	0.205	0.186	0.192
16		0.259	0.259	0.240	0.240		Not Available			

TABLE - 2C DESIGN STRENGTHS

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	40	2628	2890	2337	622	1144
20		3264	3494	2828	887	1641
18		4446	4595	3723	1483	2761
16	33	4737	4748	3851	1872	3498

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches.

TABLE - 2D ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS – ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf) Center to Center Span (ft. - in.)										Max. Constr. Span (Ctr. to Ctr.)
		4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	8 - 0	9 - 0	10 - 0	
Single	22	110 / 121	87 / 85	-	-	-	-	-	-	-	-	4 - 4
	20	136 / 153	107 / 107	87 / 78	72 / 59	-	-	-	-	-	-	5 - 5
	18	185 / 210	146 / 147	119 / 107	98 / 81	82 / 62	70 / 49	60 / 39	46 / 26	-	-	7 - 4
	16	197 / 265	156 / 186	126 / 136	104 / 102	88 / 78	75 / 62	64 / 49	49 / 33	-	-	7 - 10
Double	22	120 / 304	95 / 213	77 / 155	63 / 117	-	-	-	-	-	-	5 - 3
	20	145 / 376	114 / 264	93 / 193	77 / 145	65 / 111	55 / 88	-	-	-	-	6 - 6
	18	190 / 506	150 / 356	122 / 259	101 / 195	85 / 150	72 / 118	62 / 94	48 / 63	38 / 44	-	8 - 11
	16	196 / 639	155 / 449	126 / 327	104 / 246	88 / 189	75 / 149	64 / 119	49 / 80	39 / 56	32 / 41	9 - 6
Triple	22	149 / 238	118 / 167	96 / 122	79 / 91	-	-	-	-	-	-	5 - 4
	20	180 / 294	142 / 207	116 / 151	96 / 113	80 / 87	69 / 69	59 / 55	-	-	-	6 - 7
	18	237 / 396	187 / 278	152 / 203	126 / 152	106 / 117	90 / 92	78 / 74	60 / 50	47 / 35	-	9 - 0
	16	244 / 500	194 / 351	157 / 256	130 / 192	109 / 148	93 / 117	80 / 93	62 / 62	49 / 44	39 / 32	9 - 7

TABLE - 2E MAXIMUM CANTILEVER SPANS - ASD

Gage	F_y (ksi)	Back-Span Condition		
		Single	Double	Triple
22	40	1 - 1	1 - 1	1 - 1
20		1 - 4	1 - 4	1 - 4
18		1 - 9	1 - 9	1 - 9
16	33	1 - 10	1 - 10	1 - 10

See page 5 for table notes.

ROOF DECK - TYPES B, BI

TABLE - 3A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.63
20	0.0358		1.98
18	0.0474		2.62
16	0.0598		3.30

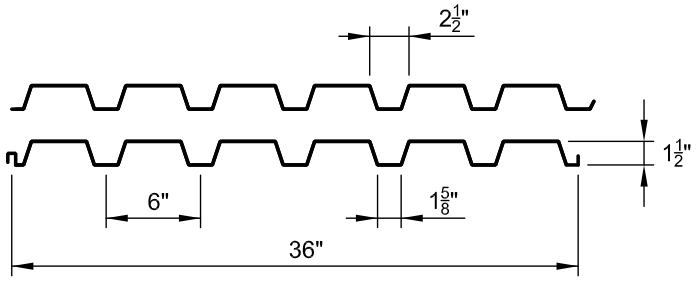


TABLE - 3B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	33	0.162	0.175	0.183	0.189
20		0.205	0.213	0.227	0.238
18		0.281	0.281	0.307	0.315
16		0.355	0.355	0.393	0.395

TABLE - 3C DESIGN STRENGTHS

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	33	3626	3734	1738	539	974
20		4484	4712	2100	769	1399
18		6073	6233	2761	1285	2358
16		7757	7800	3456	1964	3627

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches.

TABLE - 3D ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS – ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf) Center to Center Span (ft. - in.)										Max. Constr. Span (Ctr. to Ctr.)
		5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	
Single	22	97 / 85	80 / 64	67 / 49	-	-	-	-	-	-	-	6 - 0
	20	120 / 108	99 / 81	83 / 62	71 / 49	61 / 39	47 / 26	-	-	-	-	7 - 5
	18	162 / 147	134 / 111	112 / 85	96 / 67	83 / 54	63 / 36	50 / 25	40 / 18	33 / 14	-	10 - 1
	16	207 / 186	171 / 140	144 / 108	122 / 85	106 / 68	81 / 45	64 / 32	52 / 23	43 / 17	36 / 13	12 - 11
Double	22	98 / 213	81 / 160	68 / 123	58 / 97	50 / 78	39 / 52	-	-	-	-	7 - 3
	20	124 / 264	102 / 199	86 / 153	74 / 120	64 / 96	49 / 65	39 / 45	-	-	-	9 - 0
	18	163 / 356	136 / 267	114 / 206	97 / 162	84 / 130	65 / 87	51 / 61	41 / 44	34 / 33	29 / 26	12 - 2
	16	205 / 448	170 / 337	143 / 260	122 / 204	105 / 163	81 / 109	64 / 77	52 / 56	43 / 42	36 / 32	15 - 6
Triple	22	122 / 167	101 / 125	85 / 96	73 / 76	63 / 61	48 / 41	-	-	-	-	7 - 4
	20	153 / 207	127 / 155	107 / 120	92 / 94	79 / 75	61 / 50	48 / 35	39 / 26	-	-	9 - 1
	18	203 / 278	168 / 209	142 / 161	121 / 127	105 / 101	80 / 68	64 / 48	52 / 35	43 / 26	36 / 20	12 - 4
	16	254 / 351	210 / 264	177 / 203	152 / 160	131 / 128	101 / 86	80 / 60	65 / 44	53 / 33	45 / 25	15 - 9

TABLE - 3E MAXIMUM CANTILEVER SPANS - ASD

Gage	F_y (ksi)	Back-Span Condition		
		Single	Double	Triple
22	33	1 - 5	1 - 5	1 - 5
20		1 - 10	1 - 10	1 - 10
18		2 - 4	2 - 3	2 - 3
16		2 - 11	2 - 7	2 - 7

See page 5 for table notes.

ROOF DECK - TYPE N

TABLE - 4A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	24	2.05
20	0.0358		2.48
18	0.0474		3.29
16	0.0598		4.14

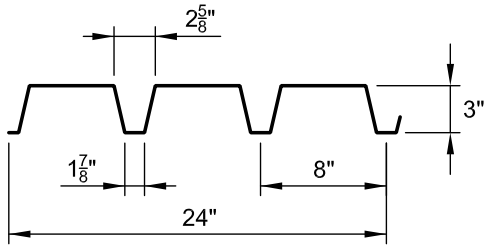


TABLE - 4B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	33	0.720	0.888	0.386	0.438
20		0.936	1.088	0.507	0.557
18		1.342	1.440	0.696	0.757
16		1.775	1.814	0.901	0.951

TABLE - 4C DESIGN STRENGTHS

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	33	7623	8646	2232	381	750
20		10011	11005	3287	549	1079
18		13751	14956	4707	930	1822
16		17797	18783	5914	1436	2805

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches.

TABLE - 4D ALLOWABLE UNIFORM LOADS AND MAXIMUM CONSTRUCTION SPANS – ASD

Span Condition	Gage	Allowable Uniform Total Load (psf) / Load that Produces Span/240 Deflection (psf)										Max. Constr. Span (Ctr. to Ctr.)
		Center to Center Span (ft. - in.)										
		10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	18 - 0	20 - 0	22 - 0	
Single	22	51 / 47	42 / 35	35 / 27	30 / 21	-	-	-	-	-	-	12 - 8
	20	67 / 61	55 / 46	46 / 36	39 / 28	34 / 22	30 / 18	26 / 15	21 / 11	-	-	16 - 8
	18	92 / 88	76 / 66	64 / 51	54 / 40	47 / 32	41 / 26	36 / 21	28 / 15	23 / 11	19 / 8	22 - 10
	16	119 / 116	98 / 87	82 / 67	70 / 53	61 / 42	53 / 34	46 / 28	37 / 20	30 / 15	25 / 11	29 - 7
Double	22	57 / 127	47 / 95	40 / 74	34 / 58	29 / 46	25 / 38	22 / 31	-	-	-	15 - 3
	20	73 / 160	60 / 120	51 / 93	43 / 73	37 / 58	32 / 47	29 / 39	23 / 27	18 / 20	15 / 15	20 - 1
	18	99 / 220	82 / 165	69 / 127	59 / 100	51 / 80	44 / 65	39 / 54	31 / 38	25 / 27	21 / 21	27 - 7
	16	124 / 284	103 / 213	87 / 164	74 / 129	64 / 103	55 / 84	49 / 69	39 / 49	31 / 35	26 / 27	30 - 0
Triple	22	68 / 99	59 / 75	49 / 58	42 / 45	36 / 36	32 / 29	28 / 24	-	-	-	15 - 6
	20	90 / 125	75 / 94	63 / 72	54 / 57	46 / 46	41 / 37	36 / 31	28 / 21	23 / 16	19 / 12	20 - 4
	18	123 / 172	102 / 129	86 / 100	73 / 78	63 / 63	55 / 51	48 / 42	38 / 30	31 / 22	26 / 16	27 - 11
	16	155 / 222	128 / 167	108 / 128	92 / 101	79 / 81	69 / 66	61 / 54	48 / 38	39 / 28	32 / 21	30 - 0

TABLE - 4E MAXIMUM CANTILEVER SPANS - ASD

Gage	F_y (ksi)	Back-Span Condition		
		Single	Double	Triple
22	33	3 - 3	3 - 3	3 - 3
20		3 - 10	4 - 0	4 - 0
18		4 - 2	4 - 11	5 - 0
16		4 - 6	5 - 3	5 - 4

See page 5 for table notes.

FORM DECK—Table 5 - 10 Notes

SYMBOLS

F_y (yield strength)
I_p (effective positive moment of inertia)
I_n (effective negative moment of inertia)
$M_{n,p}/\Omega$ (allowable positive moment)
$M_{n,n}/\Omega$ (allowable negative moment)
R_{be}/Ω (allowable web crippling reactions at exterior supports)
R_{bi}/Ω (allowable web crippling reactions at interior supports)
S_p (effective positive section modulus)
S_n (effective negative section modulus)
V_n/Ω (allowable shear)
Thickness = design base-metal thickness

DESIGN STRENTHS – ALLOWABLE STRENGTH DESIGN (ASD):

R_{be}/Ω and R_{bi}/Ω values are based on one-flange loading where deck panels are fastened to supports.

CONSTRUCTION CLEAR SPANS - ASD

1. Maximum Construction Spans are based on:
   - R_{be}/Ω and R_{bi}/Ω and the minimum bearing lengths noted under the design strengths tables.
   - A construction live load of 20 psf or a concentrated live load of 150 pounds, whichever produced the greatest effect.
   - A dead load deflection limit of Span/180 or $^3/_4$ inch, whichever is smaller.
   - For single span bending, the dead load ($W1_1$) was considered to be equivalent to the following:

     ($W1_1$ = 1.5 x slab weight + deck weight) ≤ ($W1_1$ =slab weight + 30 psf + deck weight)
2. Concrete weights do not include the weight of the steel deck panel.
3. The deck profile has been accounted for in determining concrete volumes.

SLAB DESIGN - ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Allowable Superimposed Uniform Loads in this table are for end spans and are defined as the maximum dead plus live loads and are based on:

- R_{be}/Ω and R_{bi}/Ω and the minimum bearing lengths noted under the design strengths tables.
- End spans of a triple span condition.
- Normal weight concrete (145 pcf).
- Minimum concrete compressive stress (f'_c) of 3,000 psi.
- Reinforcement yield stress (F_{ys}) of 60,000 psi.
- Reinforcement placed at middle of t_c for h ≤ 3 inches. For h > 3 inches mesh is draped over supports or bars are placed for positive and negative bending, where positive steel rests on deck and negative steel cover = $^3/_4$ inches. t_c is the thickness of concrete above the top flute of the deck panel.
- A deflection limit of Span/360 or 1 inch service level superimposed loading, whichever is smaller.

ALLOWABLE CONSTRUCTION UNIFORM LOADS - ASD

1. The allowable construction uniform loads can be used in cases where the desired slab depth exceeds those published in allowable superimposed uniform load tables. The W1 value is critical where the deck is being used as a conventional concrete form subjected to minimum construction loads and serviceability criteria.
2. Based on R_{be}/Ω and R_{bi}/Ω and the minimum bearing lengths noted under the design strengths tables.
3. Loading Condition Notes:
   a. Total Load = Maximum ASD allowable total combined uniform design load (psf).
   b. Deflection L/180 = Uniform load (psf) resulting in a deflection of Span/180.
   c. Deflection L/240 = Uniform load (psf) resulting in a deflection of Span/240.
   d. W1 = Maximum permissible weight of concrete and deck (psf) when combined with the construction loads based on the following:
      - A construction live load of 20 psf or a concentrated live load of 150 pound, whichever produces the greatest effect.
      - A deflection limit of Span/180 or $^3/_4$ inch, whichever is smaller.
   e. For single span strength calculations, the W1 value shown has been reduced as required to account for the lesser of a 50% increase in concrete weight or 30 psf increase.

MAXIMUM CANTILEVER CLEAR SPANS - ASD

Maximum cantilever clear spans are based on the following:

- An adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the Max. Constr. Span in the table above.
- A bearing width at perimeter support assumed to be at least equal to interior bearing width defined for web crippling strength.
- A construction live load of 20 psf or a concentrated live load of 150 pounds, whichever produces the greatest effect when combined with the weight of the concrete and deck.
- A deflection limit of span/90 or $^3/_4$ inches, whichever is smaller.

FORM DECK - TYPES 0.6FD

TABLE - 5A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
28	0.0149	35	0.75
26	0.0179		0.90
24	0.0238		1.19
22	0.0295		1.48

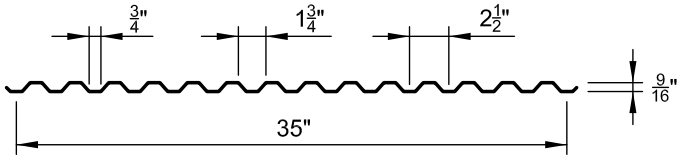


TABLE - 5B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
28	60	0.011	0.011	0.033	0.035
26		0.013	0.013	0.042	0.044
24		0.018	0.018	0.060	0.060
22		0.022	0.022	0.073	0.073

TABLE - 5C DESIGN STRENGTHS (no Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
28	60	1190	1256	2074	583	910
26		1517	1593	2486	811	1278
24		2144	2142	3292	1352	2160
22		2631	2631	4065	1984	3201

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 5D CONSTRUCTION CLEAR SPANS - ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
					Single	Double	Triple			Single	Double	Triple	
2 1/2	28	60	Normal Weight Concrete (145 pcf)	27	2 - 0	2 - 7	2 - 7	Light Weight Concrete (110 pcf)	20	2 - 1	2 - 8	2 - 8	0.185
	26				2 - 6	3 - 2	3 - 2			2 - 7	3 - 4	3 - 4	
	24				3 - 3	4 - 2	4 - 3			3 - 5	4 - 5	4 - 5	
	22				3 - 9	4 - 11	4 - 11			4 - 0	5 - 2	5 - 3	
3	28	60		33	1 - 11	2 - 6	2 - 6		25	2 - 1	2 - 7	2 - 8	0.227
	26				2 - 4	3 - 0	3 - 1			2 - 6	3 - 2	3 - 3	
	24				3 - 1	4 - 0	4 - 0			3 - 3	4 - 3	4 - 3	
	22				3 - 7	4 - 8	4 - 8			3 - 10	5 - 0	5 - 0	
3 1/2	28	60		39	1 - 11	2 - 5	2 - 5		30	2 - 0	2 - 6	2 - 7	0.269
	26				2 - 3	2 - 11	3 - 0			2 - 5	3 - 1	3 - 2	
	24				2 - 11	3 - 10	3 - 11			3 - 2	4 - 1	4 - 2	
	22				3 - 5	4 - 6	4 - 5			3 - 8	4 - 9	4 - 10	
4	28	60		45	1 - 10	2 - 4	2 - 4		34	1 - 11	2 - 6	2 - 6	0.310
	26				2 - 2	2 - 10	2 - 11			2 - 4	3 - 0	3 - 1	
	24				2 - 10	3 - 8	3 - 9			3 - 1	4 - 0	4 - 0	
	22				3 - 3	4 - 4	4 - 3			3 - 7	4 - 7	4 - 7	
4 1/2	28	60		51	1 - 9	2 - 3	2 - 4		39	1 - 11	2 - 5	2 - 5	0.352
	26				2 - 1	2 - 9	2 - 10			2 - 3	2 - 11	3 - 0	
	24				2 - 9	3 - 7	3 - 7			2 - 11	3 - 10	3 - 11	
	22				3 - 2	4 - 2	4 - 1			3 - 5	4 - 6	4 - 5	
5	28	60		57	1 - 9	2 - 3	2 - 3		43	1 - 10	2 - 4	2 - 5	0.394
	26				2 - 1	2 - 8	2 - 9			2 - 3	2 - 10	2 - 11	
	24				2 - 8	3 - 6	3 - 6			2 - 10	3 - 9	3 - 9	
	22				3 - 1	4 - 0	3 - 11			3 - 4	4 - 4	4 - 3	

TABLE - 5E SLAB DESIGN – ALLOWABLE SUPERIMPOSED UNIFORM LOADS – ASD

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A_s (in.^{2}/ft)	Allowable Superimposed Uniform Load (psf)											
			Clear Span (ft. - in.)											
			2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	5 - 0
2 1/2	6x6 - W2.9xW2.9	0.058	400	326	264	218	183	156	135	117	103	91	81	66
	4x4 - W2.0xW2.0	0.060	400	336	272	225	189	161	139	121	106	94	84	68
	6x6 - W4.0xW4.0	0.080	400	400	355	294	247	210	181	158	139	123	110	89
3	4x4 - W2.0xW2.0	0.060	400	400	346	286	241	205	177	154	135	120	107	87
	6x6 - W4.0xW4.0	0.080	400	400	400	375	315	269	232	202	177	157	140	114
	4x4 - W2.9xW2.9	0.087	400	400	400	400	341	290	250	218	192	170	152	123
3 1/2	6x6 - W4.0xW4.0	0.080	400	400	400	400	400	400	400	400	370	327	292	237
	4x4 - W2.9xW2.9	0.087	400	400	400	400	400	400	400	400	400	362	323	261
	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	400	400	400	400	342
4	4x4 - W2.9xW2.9	0.087	400	400	400	400	400	400	400	400	400	400	395	320
	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	400	400	400	400	400
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	400	400	400	400	400
4 1/2	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	400	400	400	400	400
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	400	400	400	400	400
	#4 @ 12" o.c.	0.196	400	400	400	400	400	400	400	400	400	400	400	400
5	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	400	400	400	400	400	400
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	400	400	400	400	400
	#4 @ 12" o.c.	0.196	400	400	400	400	400	400	400	400	400	400	400	400

See page 10 for table notes.

FORM DECK - TYPES 0.6FD

TABLE - 5F ALLOWABLE CONSTRUCTION UNIFORM LOADS – ASD

Gage	Span Condition	Loading Condition	Uniform Load (psf) Clear Span (ft. - in.)											
			2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	5 - 0
28 F_y= 60 (ksi)	Single	Total Load	198	157	-	-	-	-	-	-	-	-	-	-
		Deflection L/180	119	84	-	-	-	-	-	-	-	-	-	-
		Deflection L/240	89	63	-	-	-	-	-	-	-	-	-	-
		W1	32	16	-	-	-	-	-	-	-	-	-	-
	Double	Total Load	208	164	133	110	-	-	-	-	-	-	-	-
		Deflection L/180	287	201	147	110	-	-	-	-	-	-	-	-
		Deflection L/240	215	151	110	83	-	-	-	-	-	-	-	-
		W1	97	60	36	19	-	-	-	-	-	-	-	-
	Triple	Total Load	222	176	143	118	-	-	-	-	-	-	-	-
		Deflection L/180	224	158	115	86	-	-	-	-	-	-	-	-
		Deflection L/240	168	118	86	65	-	-	-	-	-	-	-	-
		W1	100	63	38	21	-	-	-	-	-	-	-	-
26 F_y= 60 (ksi)	Single	Total Load	253	200	162	134	-	-	-	-	-	-	-	-
		Deflection L/180	144	101	74	56	-	-	-	-	-	-	-	-
		Deflection L/240	108	76	55	42	-	-	-	-	-	-	-	-
		W1	73	45	28	17	-	-	-	-	-	-	-	-
	Double	Total Load	263	208	169	140	118	100	86	-	-	-	-	-
		Deflection L/180	347	244	178	133	103	81	65	-	-	-	-	-
		Deflection L/240	260	183	133	100	77	61	49	-	-	-	-	-
		W1	168	116	81	56	38	25	15	-	-	-	-	-
	Triple	Total Load	282	223	181	150	126	107	93	-	-	-	-	-
		Deflection L/180	272	191	139	104	80	63	51	-	-	-	-	-
		Deflection L/240	204	143	104	78	60	47	38	-	-	-	-	-
		W1	173	120	84	59	40	27	16	-	-	-	-	-
24 F_y= 60 (ksi)	Single	Total Load	357	282	229	189	159	135	117	-	-	-	-	-
		Deflection L/180	192	135	98	74	57	45	36	-	-	-	-	-
		Deflection L/240	144	101	74	55	43	34	27	-	-	-	-	-
		W1	177	119	79	54	40	29	21	-	-	-	-	-
	Double	Total Load	354	280	227	188	158	135	116	101	89	79	70	-
		Deflection L/180	462	324	236	178	137	108	86	70	58	48	41	-
		Deflection L/240	346	243	177	133	103	81	65	53	43	36	30	-
		W1	297	224	169	129	99	77	60	46	35	27	20	-
	Triple	Total Load	379	300	243	201	169	144	124	108	95	84	75	-
		Deflection L/180	361	254	185	139	107	84	67	55	45	38	32	-
		Deflection L/240	271	190	139	104	80	63	51	41	34	28	24	-
		W1	312	230	173	133	102	79	62	48	37	28	21	-
22 F_y= 60 (ksi)	Single	Total Load	438	346	281	232	195	166	143	125	110	-	-	-
		Deflection L/180	238	167	122	91	70	55	44	36	30	-	-	-
		Deflection L/240	178	125	91	69	53	42	33	27	22	-	-	-
		W1	238	167	122	91	65	50	39	30	24	-	-	-
	Double	Total Load	435	344	279	231	194	165	143	124	109	97	86	70
		Deflection L/180	572	402	293	220	170	133	107	87	72	60	50	37
		Deflection L/240	429	301	220	165	127	100	80	65	54	45	38	27
		W1	378	294	234	185	146	117	94	76	62	50	41	27
	Triple	Total Load	465	368	299	247	208	177	153	133	117	104	93	75
		Deflection L/180	448	314	229	172	133	104	84	68	56	47	39	29
		Deflection L/240	336	236	172	129	100	78	63	51	42	35	29	21
		W1	400	311	229	172	133	104	84	68	56	47	39	28

TABLE - 5G MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		28 Ga.	26 Ga.	24 Ga.	22 Ga.	28 Ga.	26 Ga.	24 Ga.	22 Ga.
2 1/2	60	0 - 7	0 - 9	1 - 0	1 - 3	0 - 7	0 - 10	1 - 1	1 - 3
3		0 - 7	0 - 9	1 - 0	1 - 3	0 - 7	0 - 9	1 - 1	1 - 3
3 1/2		0 - 7	0 - 9	1 - 0	1 - 2	0 - 7	0 - 9	1 - 0	1 - 3
4		0 - 7	0 - 9	1 - 0	1 - 2	0 - 7	0 - 9	1 - 0	1 - 3
4 1/2		0 - 7	0 - 9	1 - 0	1 - 2	0 - 7	0 - 9	1 - 0	1 - 3
5		0 - 7	0 - 9	0 - 11	1 - 2	0 - 7	0 - 9	1 - 0	1 - 2

See page 10 for table notes.

FORM DECK - TYPES 1.0FD

TABLE - 6A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
26	0.0179	36	0.94
24	0.0238		1.24
22	0.0295		1.54
20	0.0358		1.87

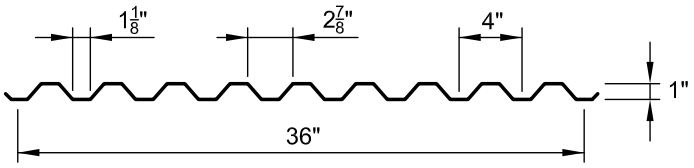


TABLE - 6B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
26	60	0.041	0.041	0.068	0.073
24		0.056	0.056	0.098	0.105
22		0.070	0.070	0.129	0.132
20		0.085	0.085	0.160	0.160

TABLE - 6C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
26	60	2428	2633	2216	466	828
24		3518	3780	3652	789	1422
22		4631	4732	4516	1169	2126
20		5749	5738	5467	1665	3047

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 6D CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.) Single	Double	Triple	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.) Single	Double	Triple	Concrete Volume (ft.^{3}/ft.^{2})
2 1/2	26	60	Normal Weight Concrete (145 pcf)	24	3 - 8	4 - 9	4 - 9	Light Weight Concrete (110 pcf)	18	3 - 11	5 - 0	5 - 0	0.167
	24				4 - 10	6 - 3	6 - 4			5 - 2	6 - 8	6 - 9	
	22				5 - 10	7 - 8	7 - 7			6 - 4	7 - 9	8 - 1	
	20				6 - 6	8 - 7	8 - 1			7 - 1	8 - 7	8 - 10	
3	26	60		30	3 - 6	4 - 6	4 - 6		23	3 - 8	4 - 9	4 - 10	0.209
	24				4 - 6	5 - 11	6 - 0			4 - 11	6 - 4	6 - 5	
	22				5 - 6	7 - 3	7 - 1			5 - 11	7 - 9	7 - 9	
	20				6 - 1	8 - 2	7 - 6			6 - 8	8 - 7	8 - 3	
3 1/2	26	60		36	3 - 4	4 - 4	4 - 4		28	3 - 7	4 - 7	4 - 8	0.250
	24				4 - 3	5 - 8	5 - 8			4 - 8	6 - 1	6 - 2	
	22				5 - 2	6 - 10	6 - 8			5 - 8	7 - 5	7 - 4	
	20				5 - 9	7 - 9	7 - 1			6 - 3	8 - 5	7 - 9	
4	26	60		42	3 - 2	4 - 2	4 - 2		32	3 - 5	4 - 5	4 - 6	0.292
	24				4 - 1	5 - 5	5 - 6			4 - 5	5 - 10	5 - 11	
	22				4 - 11	6 - 6	6 - 4			5 - 5	7 - 1	6 - 11	
	20				5 - 6	7 - 4	6 - 9			6 - 0	8 - 0	7 - 5	
4 1/2	26	60		48	3 - 0	4 - 0	4 - 0		37	3 - 3	4 - 3	4 - 4	0.334
	24				3 - 11	5 - 2	5 - 3			4 - 3	5 - 8	5 - 8	
	22				4 - 8	6 - 3	6 - 1			5 - 2	6 - 10	6 - 8	
	20				5 - 3	7 - 1	6 - 6			5 - 9	7 - 8	7 - 1	
5	26	60		54	2 - 11	3 - 10	3 - 11		41	3 - 2	4 - 2	4 - 3	0.375
	24				3 - 9	5 - 0	5 - 1			4 - 1	5 - 5	5 - 6	
	22				4 - 6	6 - 0	5 - 10			4 - 11	6 - 7	6 - 5	
	20				5 - 1	6 - 9	6 - 3			5 - 6	7 - 5	6 - 10	

TABLE - 6E SLAB DESIGN – ALLOWABLE SUPERIMPOSED UNIFORM LOADS – ASD

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A_s (in.^{2}/ft)	Allowable Superimposed Uniform Load (psf) Clear Span (ft. - in.) 3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6
2 1/2	6x6 - W2.9xW2.9	0.058	139	102	78	62	50	41	35	30	26	22	20	17
	4x4 - W2.0xW2.0	0.060	144	106	81	64	52	43	36	31	26	23	20	18
	6x6 - W4.0xW4.0	0.080	186	137	105	83	67	55	47	40	34	30	26	23
3	6x6 - W2.9xW2.9	0.058	189	139	106	84	68	56	47	40	35	30	27	24
	4x4 - W2.0xW2.0	0.060	195	144	110	87	70	58	49	42	36	31	27	24
	6x6 - W4.0xW4.0	0.080	255	187	143	113	92	76	64	54	47	41	36	32
3 1/2	6x6 - W4.0xW4.0	0.080	400	400	359	284	230	190	160	136	117	102	90	79
	4x4 - W2.9xW2.9	0.087	400	400	392	310	251	207	174	148	128	112	98	87
	4x4 - W4.0xW4.0	0.120	400	400	400	400	332	275	231	197	169	148	130	115
4	6x6 - W4.0xW4.0	0.080	400	400	400	345	279	231	194	165	142	124	109	97
	4x4 - W2.9xW2.9	0.087	400	400	400	376	305	252	212	180	155	135	119	105
	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	341	287	244	211	184	161	143
4 1/2	4x4 - W2.9xW2.9	0.087	400	400	400	400	359	296	249	212	183	159	140	124
	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	338	288	249	217	190	169
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	343	296	258	226	201
5	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	400	390	332	287	250	219	194
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	400	397	342	298	262	232
	#4 @ 12" o.c.	0.196	400	400	400	400	400	400	400	400	400	385	339	300

See page 10 for table notes.

FORM DECK - TYPES 1.0FD

TABLE - 6F ALLOWABLE CONSTRUCTION UNIFORM LOADS – ASD

Gage	Span Condition	Loading Condition	Uniform Load (psf) Clear Span (ft. - in.)											
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6
26 F_y= 60 (ksi)	Single	Total Load	180	132	101	-	-	-	-	-	-	-	-	-
		Deflection L/180	134	84	56	-	-	-	-	-	-	-	-	-
		Deflection L/240	100	63	42	-	-	-	-	-	-	-	-	-
		W1	53	31	18	-	-	-	-	-	-	-	-	-
	Double	Total Load	192	142	109	86	70	-	-	-	-	-	-	-
		Deflection L/180	322	203	136	95	69	-	-	-	-	-	-	-
		Deflection L/240	241	152	102	71	52	-	-	-	-	-	-	-
		W1	127	80	51	32	20	-	-	-	-	-	-	-
	Triple	Total Load	206	152	117	92	75	-	-	-	-	-	-	-
		Deflection L/180	252	158	106	75	54	-	-	-	-	-	-	-
		Deflection L/240	189	119	80	56	41	-	-	-	-	-	-	-
		W1	130	82	53	34	21	-	-	-	-	-	-	-
24 F_y= 60 (ksi)	Single	Total Load	261	191	147	116	94	78	-	-	-	-	-	-
		Deflection L/180	183	115	77	54	40	30	-	-	-	-	-	-
		Deflection L/240	137	86	58	41	30	22	-	-	-	-	-	-
		W1	131	76	48	33	23	16	-	-	-	-	-	-
	Double	Total Load	277	204	157	124	100	83	70	60	51	-	-	-
		Deflection L/180	439	276	185	130	95	71	55	43	35	-	-	-
		Deflection L/240	329	207	139	98	71	53	41	32	26	-	-	-
		W1	232	157	110	79	58	42	31	22	16	-	-	-
	Triple	Total Load	296	218	168	133	108	89	75	64	55	-	-	-
		Deflection L/180	344	216	145	102	74	56	43	34	27	-	-	-
		Deflection L/240	258	162	109	76	56	42	32	25	20	-	-	-
		W1	238	161	113	81	59	44	32	24	17	-	-	-
22 F_y= 60 (ksi)	Single	Total Load	343	252	193	152	123	102	86	73	-	-	-	-
		Deflection L/180	227	143	96	67	49	37	28	22	-	-	-	-
		Deflection L/240	170	107	72	50	37	28	21	17	-	-	-	-
		W1	213	136	88	58	43	32	24	18	-	-	-	-
	Double	Total Load	347	256	196	155	126	104	87	74	64	56	49	-
		Deflection L/180	545	343	230	162	118	89	68	54	43	35	29	-
		Deflection L/240	409	258	173	121	88	66	51	40	32	26	22	-
		W1	309	223	168	127	96	74	58	45	36	28	22	-
	Triple	Total Load	371	273	210	166	135	111	94	80	69	60	53	47
		Deflection L/180	427	269	180	126	92	69	53	42	34	27	23	19
		Deflection L/240	320	202	135	95	69	52	40	31	25	20	17	14
		W1	328	237	175	126	92	69	53	42	34	27	23	18
20 F_y= 60 (ksi)	Single	Total Load	426	313	240	189	153	127	106	91	78	68	-	-
		Deflection L/180	275	173	116	82	59	45	34	27	22	18	-	-
		Deflection L/240	207	130	87	61	45	34	26	20	16	13	-	-
		W1	275	173	116	82	59	45	34	27	22	18	-	-
	Double	Total Load	421	310	238	188	152	126	106	90	78	68	60	53
		Deflection L/180	663	417	280	196	143	108	83	65	52	42	35	29
		Deflection L/240	497	313	210	147	107	81	62	49	39	32	26	22
		W1	383	278	210	163	130	105	83	65	52	42	35	29
	Triple	Total Load	450	332	254	201	163	135	113	97	83	73	64	57
		Deflection L/180	519	327	219	154	112	84	65	51	41	33	27	23
		Deflection L/240	389	245	164	115	84	63	49	38	31	25	21	17
		W1	407	295	219	154	112	84	65	51	41	33	27	23

TABLE - 6G MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		26 Ga.	24 Ga.	22 Ga.	20 Ga.	26 Ga.	24 Ga.	22 Ga.	20 Ga.
2 1/2	60	1 - 3	1 - 9	2 - 2	2 - 7	1 - 4	1 - 10	2 - 3	2 - 8
3		1 - 3	1 - 9	2 - 1	2 - 6	1 - 3	1 - 9	2 - 2	2 - 7
3 1/2		1 - 3	1 - 8	2 - 0	2 - 5	1 - 3	1 - 9	2 - 2	2 - 6
4		1 - 2	1 - 8	2 - 0	2 - 4	1 - 3	1 - 9	2 - 1	2 - 5
4 1/2		1 - 2	1 - 7	1 - 11	2 - 3	1 - 3	1 - 8	2 - 0	2 - 5
5		1 - 2	1 - 7	1 - 11	2 - 2	1 - 2	1 - 8	2 - 0	2 - 4

See page 10 for table notes.

FORM DECK - TYPES 1.5FD

TABLE - 7A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.63
20	0.0358		1.98
18	0.0474		2.62
16	0.0598		3.30

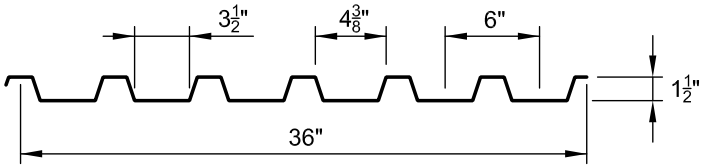


TABLE - 7B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	33	0.175	0.162	0.189	0.183
20		0.213	0.205	0.238	0.227
18		0.281	0.281	0.315	0.307
16		0 355	0 355	0.395	0.393

TABLE - 7C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	33	3734	3626	1738	539	974
20		4712	4484	2100	769	1399
18		6233	6073	2761	1285	2358
16		7800	7757	3456	1964	3627

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 7D CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
					Single	Double	Triple			Single	Double	Triple	
3 1/2	22	33	Normal Weight Concrete (145 pcf)	36	4 - 6	5 - 11	5 - 11	Light Weight Concrete (110 pcf)	27	4 - 10	6 - 4	6 - 5	0.250
	20				5 - 3	6 - 11	7 - 0			5 - 8	7 - 6	7 - 7	
	18				6 - 3	8 - 3	8 - 5			6 - 10	8 - 9	9 - 0	
	16				7 - 2	9 - 3	9 - 7			7 - 11	9 - 10	10 - 2	
4	22	33		42	4 - 3	5 - 8	5 - 8		32	4 - 8	6 - 1	6 - 2	0.291
	20				5 - 0	6 - 7	6 - 8			5 - 5	7 - 2	7 - 3	
	18				5 - 11	7 - 10	8 - 0			6 - 6	8 - 7	8 - 9	
	16				6 - 10	8 - 10	9 - 2			7 - 6	9 - 8	10 - 0	
4 1/2	22	33		48	4 - 1	5 - 5	5 - 6		37	4 - 5	5 - 10	5 - 11	0.333
	20				4 - 9	6 - 4	6 - 5			5 - 2	6 - 11	6 - 11	
	18				5 - 8	7 - 6	7 - 8			6 - 3	8 - 3	8 - 4	
	16				6 - 6	8 - 6	8 - 9			7 - 2	9 - 3	9 - 7	
5	22	33		54	3 - 11	5 - 3	5 - 3		41	4 - 3	5 - 8	5 - 9	0.375
	20				4 - 7	6 - 1	6 - 2			5 - 0	6 - 8	6 - 9	
	18				5 - 5	7 - 3	7 - 4			6 - 0	7 - 11	8 - 1	
	16				6 - 3	8 - 1	8 - 5			6 - 11	8 - 11	9 - 3	
5 1/2	22	33		60	3 - 9	5 - 0	5 - 1		46	4 - 2	5 - 6	5 - 7	0.416
	20				4 - 5	5 - 10	5 - 11			4 - 10	6 - 5	6 - 6	
	18				5 - 3	6 - 11	7 - 1			5 - 9	7 - 8	7 - 9	
	16				6 - 0	7 - 10	8 - 1			6 - 7	8 - 7	8 - 11	
6	22	33		66	3 - 8	4 - 11	4 - 11		50	4 - 0	5 - 4	5 - 5	0.458
	20				4 - 3	5 - 8	5 - 9			4 - 8	6 - 3	6 - 4	
	18				5 - 1	6 - 8	6 - 10			5 - 7	7 - 5	7 - 7	
	16				5 - 10	7 - 7	7 - 10			6 - 5	8 - 4	8 - 8	

TABLE - 7E SLAB DESIGN – ALLOWABLE SUPERIMPOSED UNIFORM LOADS – ASD

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A_s (in.^{2}/ft)	Allowable Superimposed Uniform Load (psf)											
			Clear Span (ft. - in.)											
			4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	10 - 0
3 1/2	6x6 - W4.0xW4.0	0.080	214	169	137	113	95	81	70	61	53	47	42	34
	4x4 - W2.9xW2.9	0.087	234	185	150	124	104	89	77	67	59	52	46	37
	4x4 - W4.0xW4.0	0.120	284	225	182	150	126	108	93	81	71	63	56	45
4	6x6 - W4.0xW4.0	0.080	305	241	195	161	136	116	100	87	76	68	60	49
	4x4 - W2.9xW2.9	0.087	325	257	208	172	145	123	106	93	81	72	64	52
	4x4 - W4.0xW4.0	0.120	376	297	240	199	167	142	123	107	94	83	74	60
4 1/2	4x4 - W2.9xW2.9	0.087	400	349	283	234	196	167	144	126	110	98	87	71
	4x4 - W4.0xW4.0	0.120	400	383	310	257	216	184	158	138	121	107	96	78
	#3 @ 9" o.c.	0.147	400	400	371	307	258	220	189	165	145	128	115	93
5	4x4 - W4.0xW4.0	0.120	400	400	400	336	282	241	208	181	159	141	126	102
	#3 @ 9" o.c.	0.147	400	400	400	392	330	281	242	211	186	164	147	119
	#4 @ 12" o.c.	0.196	400	400	400	400	376	320	276	241	212	187	167	135
5 1/2	4x4 - W4.0xW4.0	0.120	400	400	400	400	357	305	263	229	201	178	159	129
	#3 @ 9" o.c.	0.147	400	400	400	400	400	353	305	265	233	207	184	149
	#4 @ 12" o.c.	0.196	400	400	400	400	400	386	332	290	255	225	201	163
6	4x4 - W4.0xW4.0	0.120	400	400	400	400	400	375	324	282	248	220	196	159
	#4 @ 18" o.c.	0.131	400	400	400	400	400	400	345	301	264	234	209	169
	#3 @ 9" o.c.	0.147	400	400	400	400	400	400	373	325	286	253	226	183

See page 10 for table notes.

FORM DECK - TYPE 1.5FD

TABLE - 7F ALLOWABLE CONSTRUCTION UNIFORM LOADS – ASD

Gage	Span Condition	Loading Condition	Uniform Load (psf) Clear Span (ft. - in.)											
			4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	10 - 0
22 F_y= 33 (ksi)	Single	Total Load	156	123	100	-	-	-	-	-	-	-	-	-
		Deflection L/180	239	168	123	-	-	-	-	-	-	-	-	-
		Deflection L/240	180	126	92	-	-	-	-	-	-	-	-	-
		W1	54	38	27	-	-	-	-	-	-	-	-	-
	Double	Total Load	148	117	95	79	66	57	-	-	-	-	-	-
		Deflection L/180	554	389	284	213	164	129	-	-	-	-	-	-
		Deflection L/240	416	292	213	160	123	97	-	-	-	-	-	-
		W1	119	88	65	48	36	27	-	-	-	-	-	-
	Triple	Total Load	158	125	102	84	71	61	-	-	-	-	-	-
		Deflection L/180	434	305	222	167	129	101	-	-	-	-	-	-
		Deflection L/240	325	228	167	125	96	76	-	-	-	-	-	-
		W1	125	91	67	50	37	28	-	-	-	-	-	-
20 F_y= 33 (ksi)	Single	Total Load	196	155	126	104	87	-	-	-	-	-	-	-
		Deflection L/180	291	204	149	112	86	-	-	-	-	-	-	-
		Deflection L/240	218	153	112	84	65	-	-	-	-	-	-	-
		W1	91	60	44	33	25	-	-	-	-	-	-	-
	Double	Total Load	182	145	118	98	82	70	61	53	-	-	-	-
		Deflection L/180	688	483	352	265	204	160	128	104	-	-	-	-
		Deflection L/240	516	363	264	199	153	120	96	78	-	-	-	-
		W1	154	119	95	77	60	47	37	30	-	-	-	-
	Triple	Total Load	195	155	126	104	88	75	65	56	50	-	-	-
		Deflection L/180	539	378	276	207	160	126	100	82	67	-	-	-
		Deflection L/240	404	284	207	155	120	94	75	61	50	-	-	-
		W1	162	126	100	79	62	49	39	31	24	-	-	-
18 F_y= 33 (ksi)	Single	Total Load	260	205	166	137	115	98	85	-	-	-	-	-
		Deflection L/180	385	270	197	148	114	90	72	-	-	-	-	-
		Deflection L/240	289	203	148	111	86	67	54	-	-	-	-	-
		W1	155	108	76	56	44	36	29	-	-	-	-	-
	Double	Total Load	247	196	159	132	111	95	82	71	63	56	50	-
		Deflection L/180	926	650	474	356	274	216	173	141	116	97	81	-
		Deflection L/240	695	488	356	267	206	162	130	105	87	72	61	-
		W1	218	170	136	111	91	75	62	51	43	36	30	-
	Triple	Total Load	263	209	170	141	119	102	88	76	67	60	53	-
		Deflection L/180	725	509	371	279	215	169	135	110	91	76	64	-
		Deflection L/240	544	382	278	209	161	127	101	82	68	57	48	-
		W1	231	180	144	118	97	81	66	55	46	38	32	-
16 F_y= 33 (ksi)	Single	Total Load	325	257	208	172	144	123	106	92	81	-	-	-
		Deflection L/180	485	341	248	187	144	113	91	74	61	-	-	-
		Deflection L/240	364	256	186	140	108	85	68	55	45	-	-	-
		W1	220	160	118	87	64	52	43	36	30	-	-	-
	Double	Total Load	315	250	203	169	142	121	105	91	80	71	63	51
		Deflection L/180	1168	820	598	449	346	272	218	177	146	122	103	75
		Deflection L/240	876	615	448	337	260	204	163	133	109	91	77	56
		W1	286	225	181	148	122	101	85	71	60	51	43	31
	Triple	Total Load	336	267	217	180	152	130	112	98	86	76	68	55
		Deflection L/180	914	642	468	352	271	213	171	139	114	95	80	58
		Deflection L/240	685	481	351	264	203	160	128	104	86	71	60	44
		W1	303	238	191	157	130	110	92	78	66	56	48	35

TABLE - 7G MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
3 1/2	33	1 - 7	1 - 11	2 - 6	3 - 0	1 - 8	2 - 0	2 - 7	3 - 2
4		1 - 7	1 - 11	2 - 5	2 - 11	1 - 8	2 - 0	2 - 7	3 - 1
4 1/2		1 - 6	1 - 10	2 - 4	2 - 10	1 - 7	1 - 11	2 - 6	3 - 0
5		1 - 6	1 - 10	2 - 3	2 - 9	1 - 7	1 - 11	2 - 5	2 - 11
5 1/2		1 - 6	1 - 9	2 - 3	2 - 8	1 - 7	1 - 10	2 - 4	2 - 10
6		1 - 5	1 - 9	2 - 2	2 - 7	1 - 6	1 - 10	2 - 4	2 - 10

See page 10 for table notes.

FORM DECK - TYPES 1.5FDR, 1.5FDI

TABLE - 8A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.63
20	0.0358		1.98
18	0.0474		2.62
16	0.0598		3.30

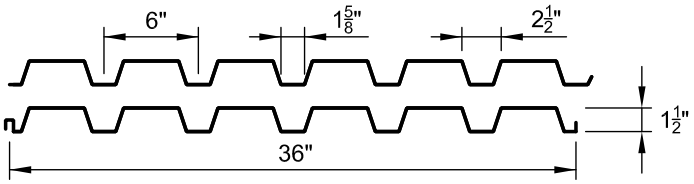


TABLE - 8B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	33	0.162	0.175	0.183	0.189
20		0.205	0.213	0.227	0.238
18		0.281	0.281	0.307	0.315
16		0.355	0.355	0.393	0.395

TABLE - 8C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	33	3626	3734	1738	539	974
20		4484	4712	2100	769	1399
18		6073	6233	2761	1285	2358
16		7757	7800	3456	1964	3627

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 8D CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Normal Weight Concrete (145 pcf) Concrete Weight (psf)	Maximum Construction Clear Span (ft. - in.)			Light Weight Concrete (110 pcf) Concrete Weight (psf)	Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
				Single	Double	Triple		Single	Double	Triple	
3 1/2	22	33	31	4 - 7	6 - 0	6 - 1	23	4 - 11	6 - 5	6 - 6	0.213
	20			5 - 4	7 - 0	7 - 1		5 - 9	7 - 6	7 - 7	
	18			6 - 6	8 - 7	8 - 8		7 - 1	8 - 10	9 - 2	
	16			7 - 7	9 - 9	10 - 1		8 - 3	9 - 10	10 - 2	
4	22	33	37	4 - 4	5 - 9	5 - 9	28	4 - 9	6 - 2	6 - 3	0.255
	20			5 - 0	6 - 8	6 - 8		5 - 6	7 - 2	7 - 3	
	18			6 - 1	8 - 1	8 - 2		6 - 8	8 - 10	8 - 11	
	16			7 - 2	9 - 3	9 - 7		7 - 10	9 - 10	10 - 2	
4 1/2	22	33	43	4 - 2	5 - 6	5 - 6	33	4 - 6	5 - 11	6 - 0	0.297
	20			4 - 9	6 - 4	6 - 5		5 - 3	6 - 10	6 - 11	
	18			5 - 10	7 - 9	7 - 10		6 - 4	8 - 5	8 - 6	
	16			6 - 9	8 - 10	9 - 1		7 - 5	9 - 7	9 - 11	
5	22	33	49	4 - 0	5 - 3	5 - 4	37	4 - 4	5 - 9	5 - 9	0.338
	20			4 - 7	6 - 1	6 - 2		5 - 0	6 - 7	6 - 8	
	18			5 - 6	7 - 5	7 - 6		6 - 1	8 - 1	8 - 2	
	16			6 - 5	8 - 5	8 - 9		7 - 1	9 - 3	9 - 7	
5 1/2	22	33	55	3 - 10	5 - 1	5 - 2	42	4 - 2	5 - 6	5 - 7	0.380
	20			4 - 5	5 - 10	5 - 11		4 - 10	6 - 5	6 - 6	
	18			5 - 4	7 - 1	7 - 2		5 - 10	7 - 10	7 - 11	
	16			6 - 2	8 - 1	8 - 4		6 - 10	8 - 11	9 - 2	
6	22	33	61	3 - 8	4 - 11	5 - 0	46	4 - 1	5 - 4	5 - 5	0.422
	20			4 - 3	5 - 8	5 - 9		4 - 8	6 - 2	6 - 3	
	18			5 - 1	6 - 10	6 - 11		5 - 8	7 - 7	7 - 8	
	16			5 - 11	7 - 10	8 - 1		6 - 7	8 - 7	8 - 11	

TABLE - 8E SLAB DESIGN – ALLOWABLE SUPERIMPOSED UNIFORM LOADS – ASD

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A_s (in.^{2}/ft)	Allowable Superimposed Uniform Load (psf) Clear Span (ft. - in.)											
			4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	10 - 0
3 1/2	6x6 - W2.9xW2.9	0.058	161	127	103	85	72	61	53	46	40	36	32	26
	4x4 - W2.0xW2.0	0.060	170	134	109	90	76	64	56	48	42	38	34	27
	6x6 - W4.0xW4.0	0.080	197	155	126	104	87	74	64	56	49	44	39	31
4	6x6 - W4.0xW4.0	0.080	257	203	165	136	114	97	84	73	64	57	51	41
	4x4 - W2.9xW2.9	0.087	281	222	180	149	125	106	92	80	70	62	56	45
	4x4 - W4.0xW4.0	0.120	333	273	221	183	154	131	113	98	86	77	68	55
4 1/2	6x6 - W4.0xW4.0	0.080	353	279	226	187	157	134	115	100	88	78	70	56
	4x4 - W2.9xW2.9	0.087	377	298	241	199	167	143	123	107	94	83	74	60
	4x4 - W4.0xW4.0	0.120	400	346	280	231	194	166	143	124	109	97	86	70
5	4x4 - W4.0xW4.0	0.120	400	400	353	291	245	209	180	157	138	122	109	88
	#3 @ 9" o.c.	0.147	400	400	400	346	290	247	213	186	163	145	129	105
	#4 @ 12" o.c.	0.196	400	400	400	377	346	299	258	224	197	175	156	126
5 1/2	4x4 - W4.0xW4.0	0.120	400	400	400	370	311	265	229	199	175	155	138	112
	#3 @ 9" o.c.	0.147	400	400	400	400	364	310	267	233	205	181	162	131
	#4 @ 12" o.c.	0.196	400	400	400	400	400	356	307	267	235	208	185	150
6	4x4 - W4.0xW4.0	0.120	400	400	400	400	385	328	283	246	216	192	171	138
	#4 @ 18" o.c.	0.131	400	400	400	400	400	353	304	265	233	206	184	149
	#3 @ 9" o.c.	0.147	400	400	400	400	400	381	329	286	252	223	199	161

See page 10 for table notes.

FORM DECK - TYPES 1.5FDR, 1.5FDI

TABLE - 8F ALLOWABLE CONSTRUCTION UNIFORM LOADS – ASD

Gage	Span Condition	Loading Condition	Uniform Load (psf)											
			Clear Span (ft. - in.)											
			4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	10 - 0
22 F_y= 33 (ksi)	Single	Total Load	151	119	97	-	-	-	-	-	-	-	-	-
		Deflection L/180	221	155	113	-	-	-	-	-	-	-	-	-
		Deflection L/240	166	116	85	-	-	-	-	-	-	-	-	-
		W1	51	36	25	-	-	-	-	-	-	-	-	-
	Double	Total Load	152	121	98	81	68	58	-	-	-	-	-	-
		Deflection L/180	554	389	284	213	164	129	-	-	-	-	-	-
		Deflection L/240	416	292	213	160	123	97	-	-	-	-	-	-
		W1	116	84	61	45	34	25	-	-	-	-	-	-
	Triple	Total Load	162	129	105	87	73	62	-	-	-	-	-	-
		Deflection L/180	434	305	222	167	129	101	-	-	-	-	-	-
		Deflection L/240	325	228	167	125	96	76	-	-	-	-	-	-
		W1	119	86	63	47	35	26	-	-	-	-	-	-
20 F_y= 33 (ksi)	Single	Total Load	187	148	120	99	83	-	-	-	-	-	-	-
		Deflection L/180	281	197	144	108	83	-	-	-	-	-	-	-
		Deflection L/240	211	148	108	81	62	-	-	-	-	-	-	-
		W1	82	55	40	30	23	-	-	-	-	-	-	-
	Double	Total Load	191	152	124	102	86	74	64	55	-	-	-	-
		Deflection L/180	688	483	352	265	204	160	128	104	-	-	-	-
		Deflection L/240	516	363	264	199	153	120	96	78	-	-	-	-
		W1	162	121	91	70	54	42	33	26	-	-	-	-
	Triple	Total Load	204	162	132	109	92	79	68	59	52	-	-	-
		Deflection L/180	539	378	276	207	160	126	100	82	67	-	-	-
		Deflection L/240	404	284	207	155	120	94	75	61	50	-	-	-
		W1	167	124	94	72	56	44	34	27	21	-	-	-
18 F_y= 33 (ksi)	Single	Total Load	253	200	162	134	112	96	83	72	-	-	-	-
		Deflection L/180	385	270	197	148	114	90	72	58	-	-	-	-
		Deflection L/240	288	203	148	111	85	67	54	44	-	-	-	-
		W1	148	103	72	54	42	34	27	22	-	-	-	-
	Double	Total Load	253	201	163	135	114	97	84	73	64	57	51	-
		Deflection L/180	926	650	474	356	274	216	173	141	116	97	81	-
		Deflection L/240	695	488	356	267	206	162	130	105	87	72	61	-
		W1	224	175	140	115	93	75	61	51	42	35	29	-
	Triple	Total Load	270	215	175	145	122	104	90	78	69	61	55	44
		Deflection L/180	725	509	371	279	215	169	135	110	91	76	64	46
		Deflection L/240	544	382	278	209	161	127	101	82	68	57	48	35
		W1	237	186	149	119	95	77	63	52	43	36	30	21
16 F_y= 33 (ksi)	Single	Total Load	323	255	207	171	144	122	106	92	81	72	-	-
		Deflection L/180	485	341	248	187	144	113	91	74	61	51	-	-
		Deflection L/240	364	256	186	140	108	85	68	55	45	38	-	-
		W1	218	159	117	86	64	52	43	36	30	25	-	-
	Double	Total Load	316	251	204	169	143	122	105	92	81	72	64	52
		Deflection L/180	1168	820	598	449	346	272	218	177	146	122	103	75
		Deflection L/240	876	615	448	337	260	204	163	133	109	91	77	56
		W1	288	226	182	149	123	102	85	72	61	52	44	32
	Triple	Total Load	338	269	219	181	153	130	113	98	86	77	68	55
		Deflection L/180	914	642	468	352	271	213	171	139	114	95	80	58
		Deflection L/240	685	481	351	264	203	160	128	104	86	71	60	44
		W1	305	240	193	158	131	110	93	78	66	57	48	35

TABLE - 8G MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
3 1/2	33	1 - 8	2 - 1	2 - 7	3 - 2	1 - 9	2 - 2	2 - 9	3 - 3
4		1 - 8	2 - 0	2 - 6	3 - 0	1 - 9	2 - 1	2 - 8	3 - 2
4 1/2		1 - 7	2 - 0	2 - 5	2 - 11	1 - 8	2 - 1	2 - 7	3 - 1
5		1 - 7	1 - 11	2 - 5	2 - 10	1 - 8	2 - 0	2 - 6	3 - 0
5 1/2		1 - 6	1 - 10	2 - 4	2 - 9	1 - 7	2 - 0	2 - 6	2 - 11
6		1 - 6	1 - 10	2 - 3	2 - 8	1 - 7	1 - 11	2 - 5	2 - 10

See page 10 for table notes.

FORM DECK - TYPE 2.0FD

TABLE - 9A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.57
20	0.0358		1.90
18	0.0474		2.51
16	0.0598		3.17

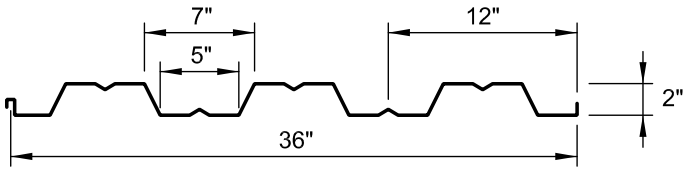


TABLE - 9B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	40	0.337	0.330	0.257	0.263
20		0.417	0.412	0.342	0.347
18		0.554	0.556	0.505	0.511
16		0.698	0.702	0.650	0.653

TABLE - 9C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	40	6152	6288	1638	321	617
20		8186	8310	2182	459	882
18		12105	12228	2879	769	1477
16		15567	15647	3619	1176	2260

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of 2 inches and a minimum interior support bearing length of 4 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 9D CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
					Single	Double	Triple			Single	Double	Triple	
4	22	40	Normal Weight Concrete (145 pcf)	36	6 - 3	8 - 4	8 - 5	Light Weight Concrete (110 pcf)	27	6 - 10	8 - 11	9 - 2	0.248
	20				7 - 6	9 - 9	10 - 1			8 - 3	10 - 3	10 - 8	
	18				9 - 7	11 - 9	12 - 2			10 - 7	12 - 5	12 - 10	
	16				11 - 1	13 - 3	13 - 6			12 - 3	14 - 0	14 - 4	
4 1/2	22	40		42	5 - 11	7 - 9	8 - 0		32	6 - 6	8 - 8	8 - 9	0.289
	20				7 - 1	9 - 3	9 - 7			7 - 10	10 - 1	10 - 5	
	18				9 - 0	11 - 2	11 - 7			10 - 0	12 - 2	12 - 7	
	16				10 - 5	12 - 7	13 - 0			11 - 7	13 - 9	13 - 10	
5	22	40		48	5 - 8	7 - 1	7 - 8		36	6 - 3	8 - 4	8 - 5	0.331
	20				6 - 9	8 - 10	9 - 2			7 - 6	9 - 8	10 - 0	
	18				8 - 7	10 - 8	11 - 1			9 - 6	11 - 8	12 - 1	
	16				9 - 11	12 - 1	12 - 6			11 - 0	13 - 2	13 - 5	
5 1/2	22	40		54	5 - 5	6 - 6	7 - 4		41	6 - 0	7 - 10	8 - 1	0.373
	20				6 - 6	8 - 6	8 - 9			7 - 2	9 - 4	9 - 8	
	18				8 - 2	10 - 3	10 - 7			9 - 1	11 - 3	11 - 8	
	16				9 - 5	11 - 7	12 - 0			10 - 6	12 - 9	13 - 1	
6	22	40		60	5 - 2	6 - 0	6 - 10		46	5 - 9	7 - 4	7 - 10	0.414
	20				6 - 2	8 - 2	8 - 5			6 - 11	9 - 0	9 - 4	
	18				7 - 10	9 - 10	10 - 2			8 - 9	10 - 11	11 - 3	
	16				9 - 0	11 - 2	11 - 6			10 - 1	12 - 3	12 - 8	
6 1/2	22	40		66	5 - 0	5 - 6	6 - 3		50	5 - 7	6 - 10	7 - 7	0.456
	20				6 - 1	7 - 10	8 - 1			6 - 8	8 - 8	9 - 0	
	18				7 - 7	9 - 6	9 - 10			8 - 5	10 - 6	10 - 11	
	16				8 - 9	10 - 9	11 - 1			9 - 8	11 - 10	12 - 3	

TABLE - 9E SLAB DESIGN – ALLOWABLE SUPERIMPOSED UNIFORM LOADS – ASD

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A_s (in.^{2}/ft)	Allowable Superimposed Uniform Load (psf)											
			Clear Span (ft. - in.)											
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	10 - 0	11 - 0	12 - 0
4	6x6 - W4.0xW4.0	0.080	173	143	120	102	88	77	68	60	53	43	36	30
	4x4 - W2.9xW2.9	0.087	189	156	131	112	97	84	74	66	58	47	39	33
	4x4 - W4.0xW4.0	0.120	250	207	174	148	128	111	98	87	77	63	43	36
4 1/2	6x6 - W4.0xW4.0	0.080	223	184	155	132	114	99	87	77	69	56	46	39
	4x4 - W2.9xW2.9	0.087	243	201	169	144	124	108	95	84	75	61	50	42
	4x4 - W4.0xW4.0	0.120	328	271	228	194	167	146	128	114	101	82	59	50
5	4x4 - W2.9xW2.9	0.087	297	245	206	176	152	132	116	103	92	74	61	52
	4x4 - W4.0xW4.0	0.120	400	333	279	238	205	179	157	139	124	101	77	65
	#3 @ 9" o.c.	0.147	400	393	330	281	242	211	186	164	147	119	88	74
5 1/2	4x4 - W4.0xW4.0	0.120	400	394	331	282	243	212	186	165	147	119	97	82
	#3 @ 9" o.c.	0.147	400	400	393	335	289	252	221	196	175	142	111	93
	#4 @ 12" o.c.	0.196	400	400	400	400	351	305	268	238	212	172	118	99
6	4x4 - W4.0xW4.0	0.120	400	400	383	326	281	245	215	191	170	138	114	96
	#4 @ 18" o.c.	0.131	400	400	400	341	294	256	225	200	178	144	119	100
	#3 @ 9" o.c.	0.147	400	400	400	389	335	292	257	228	203	164	136	114
6 1/2	4x4 - W4.0xW4.0	0.120	400	400	400	370	319	278	244	216	193	156	129	109
	#4 @ 18" o.c.	0.131	400	400	400	389	336	292	257	228	203	164	136	114
	#3 @ 9" o.c.	0.147	400	400	400	400	382	333	292	259	231	187	155	130

See page 10 for table notes.

FORM DECK - TYPE 2.0FD

TABLE - 9F ALLOWABLE CONSTRUCTION UNIFORM LOADS – ASD

Gage	Span Condition	Loading Condition	Uniform Load (psf) Clear Span (ft. - in.)											
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	10 - 0	11 - 0	12 - 0
22 F_y= 40 (ksi)	Single	Total Load	128	117	107	97	84	-	-	-	-	-	-	-
		Deflection L/180	236	177	137	107	86	-	-	-	-	-	-	-
		Deflection L/240	177	133	102	81	64	-	-	-	-	-	-	-
		W1	69	54	43	34	28	-	-	-	-	-	-	-
	Double	Total Load	99	90	82	76	70	66	62	57	51	-	-	-
		Deflection L/180	562	422	325	256	205	167	137	114	96	-	-	-
		Deflection L/240	422	317	244	192	154	125	103	86	72	-	-	-
		W1	75	68	62	56	50	46	42	36	30	-	-	-
	Triple	Total Load	112	102	93	86	80	75	69	61	54	44	-	-
		Deflection L/180	440	330	255	200	160	130	107	90	75	55	-	-
		Deflection L/240	330	248	191	150	120	98	81	67	57	41	-	-
		W1	85	77	71	65	60	53	44	37	31	22	-	-
20 F_y= 40 (ksi)	Single	Total Load	184	167	152	129	111	97	85	76	-	-	-	-
		Deflection L/180	292	220	169	133	107	87	71	60	-	-	-	-
		Deflection L/240	219	165	127	100	80	65	54	45	-	-	-	-
		W1	124	96	72	56	46	39	32	27	-	-	-	-
	Double	Total Load	141	128	118	109	101	94	85	75	67	55	45	-
		Deflection L/180	699	525	404	318	255	207	171	142	120	87	66	-
		Deflection L/240	524	394	303	239	191	155	128	107	90	66	49	-
		W1	117	106	98	89	81	74	65	55	47	35	25	-
	Triple	Total Load	160	146	134	123	115	103	91	81	72	59	48	-
		Deflection L/180	547	411	317	249	199	162	134	111	94	68	51	-
		Deflection L/240	410	308	237	187	150	122	100	84	70	51	39	-
		W1	133	121	111	102	95	83	71	61	52	39	28	-
18 F_y= 40 (ksi)	Single	Total Load	307	267	224	191	165	143	126	112	100	81	67	-
		Deflection L/180	388	291	224	176	141	115	95	79	66	48	36	-
		Deflection L/240	291	218	168	132	106	86	71	59	50	36	27	-
		W1	233	182	144	115	92	73	60	52	45	35	27	-
	Double	Total Load	236	215	197	182	161	141	124	110	99	80	67	56
		Deflection L/180	935	703	541	426	341	277	228	190	160	117	88	68
		Deflection L/240	702	527	406	319	256	208	171	143	120	88	66	51
		W1	212	193	177	162	141	121	104	90	79	60	47	36
	Triple	Total Load	269	244	224	199	172	151	133	118	106	86	71	60
		Deflection L/180	732	550	424	333	267	217	179	149	126	92	69	53
		Deflection L/240	549	413	318	250	200	163	134	112	94	69	52	40
		W1	241	219	201	178	152	131	113	98	86	66	51	40
16 F_y= 40 (ksi)	Single	Total Load	415	343	288	246	212	184	162	144	128	104	86	72
		Deflection L/180	489	367	283	223	178	145	119	100	84	61	46	35
		Deflection L/240	367	276	212	167	134	109	90	75	63	46	34	27
		W1	325	258	208	169	139	114	95	78	65	50	40	32
	Double	Total Load	362	328	278	238	206	180	159	141	126	103	85	72
		Deflection L/180	1181	887	683	538	430	350	288	240	202	148	111	85
		Deflection L/240	886	665	513	403	323	262	216	180	152	111	83	64
		W1	338	306	258	218	186	160	139	121	106	83	65	52
	Triple	Total Load	411	349	296	254	220	193	170	151	135	110	91	77
		Deflection L/180	924	694	535	421	337	274	226	188	158	116	87	67
		Deflection L/240	693	521	401	315	253	205	169	141	119	87	65	50
		W1	384	325	274	234	200	173	150	131	115	90	71	57

TABLE - 9G MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
4	40	2 - 7	3 - 3	4 - 0	4 - 6	2 - 8	3 - 5	4 - 3	4 - 9
4 1/2		2 - 6	3 - 1	3 - 10	4 - 4	2 - 7	3 - 4	4 - 2	4 - 7
5		2 - 5	3 - 0	3 - 8	4 - 2	2 - 7	3 - 2	4 - 0	4 - 5
5 1/2		2 - 4	2 - 11	3 - 6	4 - 0	2 - 6	3 - 1	3 - 10	4 - 4
6		2 - 3	2 - 9	3 - 4	3 - 10	2 - 5	3 - 0	3 - 9	4 - 2
6 1/2		2 - 1	2 - 8	3 - 3	3 - 8	2 - 5	3 - 0	3 - 7	4 - 1

See page 10 for table notes.

FORM DECK - TYPE 3.0FD

TABLE - 10A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.71
20	0.0358		2.07
18	0.0474		2.74
16	0.0598		3.45

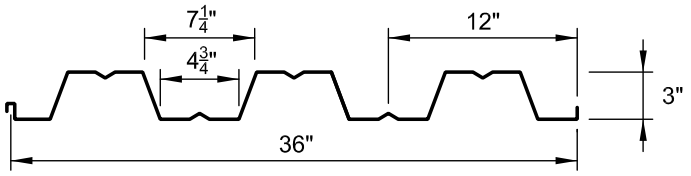


TABLE - 10B SECTION PROPERTIES

Gage	F_y (ksi)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	40	0.763	0.755	0.407	0.427
20		0.943	0.939	0.537	0.559
18		1.250	1.260	0.794	0.807
16		1.576	1.588	1.012	1.019

TABLE - 10C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	40	9746	10218	1534	336	677
20		12866	13393	2413	482	967
18		19010	19340	4220	811	1615
16		24237	24416	5309	1245	2466

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $2^1/_2$ inches and a minimum interior support bearing length of 5 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 10D CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Normal Weight Concrete (145 pcf) Concrete Weight (psf)	Normal Weight Concrete (145 pcf) Maximum Construction Clear Span (ft. - in.) Single	Double	Triple	Light Weight Concrete (110 pcf) Concrete Weight (psf)	Light Weight Concrete (110 pcf) Maximum Construction Clear Span (ft. - in.) Single	Double	Triple	Concrete Volume (ft.^{3}/ft.^{2})
5	22	40	42	7 - 11	8 - 5	9 - 7	32	8 - 9	10 - 0	11 - 5	0.292
	20			9 - 4	11 - 8	12 - 1		10 - 5	12 - 9	13 - 2	
	18			11 - 9	14 - 0	14 - 6		13 - 1	15 - 4	15 - 10	
	16			13 - 5	15 - 8	15 - 11		14 - 5	17 - 1	16 - 11	
5 1/2	22	40	48	7 - 5	7 - 8	8 - 9	37	8 - 4	9 - 3	10 - 6	0.333
	20			8 - 10	10 - 11	11 - 6		9 - 10	12 - 3	12 - 8	
	18			11 - 1	13 - 5	13 - 11		12 - 5	14 - 8	15 - 2	
	16			12 - 8	15 - 0	15 - 5		14 - 0	16 - 5	16 - 5	
6	22	40	54	6 - 7	7 - 1	8 - 1	41	8 - 0	8 - 7	9 - 9	0.375
	20			8 - 5	10 - 1	11 - 1		9 - 5	11 - 9	12 - 2	
	18			10 - 7	12 - 10	13 - 4		11 - 10	14 - 2	14 - 8	
	16			12 - 1	14 - 5	14 - 11		13 - 7	15 - 10	16 - 0	
6 1/2	22	40	60	5 - 11	6 - 7	7 - 5	46	7 - 8	8 - 0	9 - 1	0.417
	20			8 - 1	9 - 4	10 - 7		9 - 1	11 - 4	11 - 9	
	18			10 - 1	12 - 5	12 - 10		11 - 4	13 - 8	14 - 2	
	16			11 - 7	13 - 11	14 - 5		13 - 0	15 - 3	15 - 7	
7	22	40	66	5 - 5	6 - 1	6 - 9	50	7 - 1	7 - 6	8 - 6	0.458
	20			7 - 11	8 - 8	9 - 11		8 - 8	10 - 8	11 - 4	
	18			9 - 10	12 - 0	12 - 5		10 - 11	13 - 3	13 - 8	
	16			11 - 3	13 - 5	13 - 10		12 - 6	14 - 10	15 - 3	
7 1/2	22	40	72	5 - 0	5 - 8	6 - 3	55	6 - 6	7 - 0	8 - 0	0.500
	20			7 - 8	8 - 2	9 - 3		8 - 5	10 - 0	11 - 0	
	18			9 - 7	11 - 7	12 - 0		10 - 6	12 - 10	13 - 3	
	16			11 - 0	13 - 0	13 - 5		12 - 0	14 - 4	14 - 10	

TABLE - 10E SLAB DESIGN – ALLOWABLE SUPERIMPOSED UNIFORM LOADS – ASD

Total Slab Depth, h (in.)	Reinforcement (Mesh or Deformed Bars)	A_s (in.^{2}/ft)	Allowable Superimposed Uniform Load (psf) Clear Span (ft. - in.) 6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0
5	6x6 - W4.0xW4.0	0.080	124	106	91	80	70	55	45	37	31	26	23	20
	4x4 - W2.9xW2.9	0.087	136	116	100	87	76	60	49	40	34	29	25	22
	4x4 - W4.0xW4.0	0.120	182	155	134	117	103	81	66	54	46	39	34	29
5 1/2	4x4 - W2.9xW2.9	0.087	173	148	127	111	98	77	62	52	43	37	32	28
	4x4 - W4.0xW4.0	0.120	234	199	172	150	132	104	84	70	59	50	43	37
	#3 @ 9" o.c.	0.147	274	234	202	176	154	122	99	82	69	58	50	44
6	4x4 - W4.0xW4.0	0.120	286	243	210	183	161	127	103	85	71	61	52	46
	#4 @ 18" o.c.	0.131	295	251	217	189	166	131	106	88	74	63	54	47
	#3 @ 9" o.c.	0.147	338	288	248	216	190	150	122	100	84	72	62	54
6 1/2	4x4 - W4.0xW4.0	0.120	337	287	248	216	190	150	121	100	84	72	62	54
	#4 @ 18" o.c.	0.131	351	299	258	225	198	156	126	104	88	75	64	56
	#3 @ 9" o.c.	0.147	400	342	295	257	226	178	144	119	100	85	74	64
7	4x4 - W4.0xW4.0	0.120	389	331	286	249	219	173	140	116	97	83	71	62
	#4 @ 18" o.c.	0.131	400	347	299	261	229	181	147	121	102	87	75	65
	#3 @ 9" o.c.	0.147	400	396	341	297	261	206	167	138	116	99	85	74
7 1/2	#4 @ 18" o.c.	0.131	400	395	341	297	261	206	167	138	116	99	85	74
	#3 @ 9" o.c.	0.147	400	400	388	338	297	234	190	157	132	112	97	84
	#4 @ 12" o.c.	0.196	400	400	400	400	385	304	246	204	171	146	126	110

See page 10 for table notes.

FORM DECK - TYPE 3.0FD

TABLE - 10F ALLOWABLE CONSTRUCTION UNIFORM LOADS – ASD

Gage	Span Condition	Loading Condition	Uniform Load (psf) Clear Span (ft. - in.)											
			6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0
22 F_y= 40 (ksi)	Single	Total Load	112	103	96	90	84	75	-	-	-	-	-	-
		Deflection L/180	309	243	195	158	130	92	-	-	-	-	-	-
		Deflection L/240	232	182	146	119	98	69	-	-	-	-	-	-
		W1	63	58	54	50	43	32	-	-	-	-	-	-
	Double	Total Load	90	83	77	72	68	60	54	-	-	-	-	-
		Deflection L/180	740	582	466	379	312	219	160	-	-	-	-	-
		Deflection L/240	555	437	350	284	234	165	120	-	-	-	-	-
		W1	70	63	57	52	48	40	34	-	-	-	-	-
	Triple	Total Load	103	95	88	82	77	68	62	56	49	-	-	-
		Deflection L/180	579	456	365	297	244	172	125	94	72	-	-	-
		Deflection L/240	435	342	274	222	183	129	94	71	54	-	-	-
		W1	78	72	66	62	57	48	42	36	29	-	-	-
20 F_y= 40 (ksi)	Single	Total Load	161	148	138	129	121	106	86	71	-	-	-	-
		Deflection L/180	382	301	241	196	161	113	83	62	-	-	-	-
		Deflection L/240	287	226	181	147	121	85	62	47	-	-	-	-
		W1	112	103	96	82	66	49	38	30	-	-	-	-
	Double	Total Load	129	119	111	103	97	86	77	70	61	52	-	-
		Deflection L/180	919	722	578	470	388	272	198	149	115	90	-	-
		Deflection L/240	689	542	434	353	291	204	149	112	86	68	-	-
		W1	109	99	91	83	77	66	57	50	41	32	-	-
	Triple	Total Load	147	135	126	117	110	98	88	77	65	56	48	-
		Deflection L/180	719	565	453	368	303	213	155	117	90	71	57	-
		Deflection L/240	539	424	340	276	227	160	116	87	67	53	42	-
		W1	124	114	106	97	90	78	68	57	45	36	28	-
18 F_y= 40 (ksi)	Single	Total Load	270	250	232	216	198	156	127	105	88	75	65	-
		Deflection L/180	507	399	319	259	214	150	109	82	63	50	40	-
		Deflection L/240	380	299	239	195	160	113	82	62	48	37	30	-
		W1	221	204	186	155	130	93	67	53	43	36	30	-
	Double	Total Load	215	199	185	172	162	144	127	105	88	75	65	57
		Deflection L/180	1224	963	771	627	517	363	264	199	153	120	96	78
		Deflection L/240	918	722	578	470	387	272	198	149	115	90	72	59
		W1	195	179	165	152	142	124	107	85	68	55	45	37
	Triple	Total Load	245	226	210	196	184	163	135	112	95	81	70	61
		Deflection L/180	958	754	603	491	404	284	207	156	120	94	75	61
		Deflection L/240	719	565	453	368	303	213	155	117	90	71	57	46
		W1	222	205	190	176	164	143	115	92	75	61	50	41
16 F_y= 40 (ksi)	Single	Total Load	415	382	330	287	252	199	162	134	112	96	82	72
		Deflection L/180	639	503	402	327	270	189	138	104	80	63	50	41
		Deflection L/240	479	377	302	245	202	142	104	78	60	47	38	31
		W1	366	306	257	217	185	136	102	76	59	49	40	31
	Double	Total Load	329	303	282	263	247	197	160	133	112	95	82	72
		Deflection L/180	1544	1214	972	790	651	457	333	251	193	152	122	99
		Deflection L/240	1158	911	729	593	488	343	250	188	145	114	91	74
		W1	309	283	262	243	227	177	140	113	92	75	62	52
	Triple	Total Load	374	345	320	299	264	210	171	142	119	102	88	77
		Deflection L/180	1208	950	761	619	510	358	261	196	151	119	95	77
		Deflection L/240	906	713	571	464	382	268	196	147	113	89	71	58
		W1	351	324	300	279	244	190	151	122	99	82	68	57

TABLE - 10G MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
5	40	3 - 2	4 - 0	4 - 10	5 - 3	3 - 9	4 - 4	5 - 3	5 - 8
5 1/2		2 - 11	3 - 10	4 - 7	5 - 1	3 - 6	4 - 2	5 - 0	5 - 5
6		2 - 8	3 - 8	4 - 5	4 - 11	3 - 3	4 - 0	4 - 10	5 - 4
6 1/2		2 - 5	3 - 6	4 - 3	4 - 9	3 - 0	3 - 11	4 - 8	5 - 2
7		2 - 3	3 - 3	4 - 1	4 - 7	2 - 10	3 - 9	4 - 6	5 - 1
7 1/2		2 - 1	3 - 1	4 - 0	4 - 5	2 - 8	3 - 8	4 - 5	4 - 11

See page 10 for table notes.

COMPOSITE DECK—Table 11 - 13 Notes

SYMBOLS

F_y (yield strength)
I_p (effective positive moment of inertia)
I_n (effective negative moment of inertia)
$M_{n,p}/\Omega$ (allowable positive moment)
$M_{n,n}/\Omega$ (allowable negative moment)
R_{be}/Ω (allowable web crippling reactions at exterior supports)
R_{bi}/Ω (allowable web crippling reactions at interior supports)
S_p (effective positive section modulus)
S_n (effective negative section modulus)
V_n/Ω (allowable shear)
Thickness = design base-metal thickness

DESIGN STRENGTHS - ASD

R_{be}/Ω and R_{bi}/Ω values are based on one-flange loading where deck panels are fastened to supports. Minimum end support bearing lengths and minimum interior support bearing lengths as noted.

MINIMUM SLAB REINFORCEMENT

Reinforcement shown is the minimum required for temperature and shrinkage (0.00075 x concrete area above top of deck).

CONSTRUCTION CLEAR SPANS - ASD

1. Maximum Construction Spans are based on:
   - R_{be}/Ω and R_{bi}/Ω and the minimum bearing lengths noted under the design strengths tables.
   - A construction live load of 20 psf or a concentrated live load of 150 pounds, whichever produced the greatest effect.
   - A dead load deflection limit of Span/180 or $^3/_4$ inch, whichever is smaller.
2. Concrete weights do not include the weight of the steel deck panel.
3. The deck profile has been accounted for in determining concrete volumes.

MAXIMUM CANTILEVER SPANS

Maximum cantilever clear spans are based on the following:

- An adjacent span assumed to be at least 3 times longer than the cantilever and no greater than the Max. Constr. Span in the table above.
- A bearing width at perimeter support assumed to be at least equal to interior bearing width defined for web crippling strength.
- A construction live load of 20 psf or a concentrated live load of 150 pounds, whichever produces the greatest effect when combined with the weight of the concrete and deck.
- A deflection limit of span/90 or 3/4 inches, whichever is smaller.

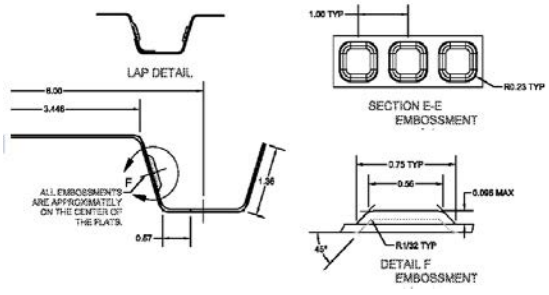
ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Allowable Superimposed Uniform Loads are defined as the maximum live loads and are based on the following:

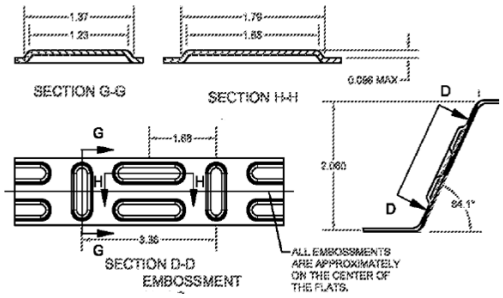
- Single span condition without negative bending reinforcing over supports.
- A dead plus live load deflection limit of Span/360 or 1 inch under service level superimposed loading.

EMBOSSMENT DETAILS (Note: Embossments are not optional for Composite Decks)

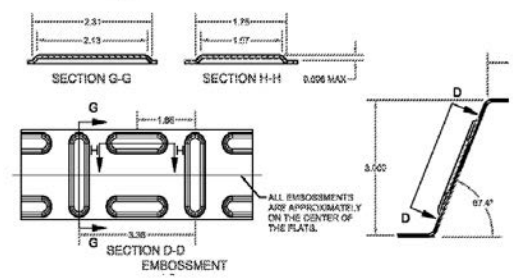
For 1 ½" Composite Deck:



For 2" Composite Deck:



For 3" Composite Deck:



COMPOSITE DECK - TYPES 1.5CD, 1.5CDI

TABLE - 11A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.63
20	0.0358		1.98
18	0.0474		2.62
16	0.0598		3.30

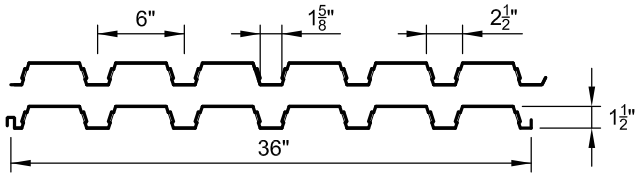


TABLE - 11B SECTION PROPERTIES

Gage	F_y (ksi)	A_s (in.^{2}/ft.)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	40	0.480	0.157	0.175	0.176	0.183
20		0.582	0.201	0.213	0.224	0.235
18		0.770	0.279	0.281	0.304	0.315
16		0.971	0.355	0.355	0.390	0.395

TABLE - 11C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	40	4212	4391	2106	654	1181
20		5373	5625	2546	932	1696
18		7290	7553	3347	1557	2858
16		9331	9454	4190	2381	4396

R_{be}/Ω and R_{bi}/Ω are based on a minimum end support bearing length of $1^1/_2$ inches and a minimum interior support bearing length of 3 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 11D MINIMUM SLAB REINFORCEMENT

Total Slab Depth (in.)	SDI Recommended Welded Wire Fabric	Wire Area (in.^{2}/ft.)
3 1/2	6x6 - W1.4xW1.4	0.028
4	6x6 - W1.4xW1.4	0.028
4 1/2	6x6 - W1.4xW1.4	0.028
5	6x6 - W2.0xW2.0	0.040
5 1/2	6x6 - W2.0xW2.0	0.040
6	4x4 - W1.4xW1.4	0.042

TABLE - 11E CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
					Single	Double	Triple			Single	Double	Triple	
3 1/2	22	40	Normal Weight Concrete (145 pcf)	31	5 - 9	6 - 8	6 - 9	Light Weight Concrete (110 pcf)	23	6 - 2	7 - 2	7 - 3	0.213
	20				6 - 9	7 - 11	8 - 0			7 - 4	8 - 5	8 - 8	
	18				8 - 4	9 - 8	9 - 10			9 - 0	9 - 9	10 - 1	
	16				9 - 8	10 - 9	11 - 1			10 - 6	10 - 10	11 - 3	
4	22	40		37	5 - 5	6 - 4	6 - 5		28	5 - 10	6 - 10	6 - 11	0.255
	20				6 - 5	7 - 6	7 - 7			7 - 0	8 - 2	8 - 3	
	18				7 - 11	9 - 2	9 - 3			8 - 7	9 - 9	10 - 1	
	16				9 - 1	10 - 2	10 - 6			9 - 11	10 - 10	11 - 3	
4 1/2	22	40		43	5 - 3	6 - 1	6 - 2		33	5 - 8	6 - 7	6 - 8	0.297
	20				6 - 2	7 - 2	7 - 3			6 - 8	7 - 10	7 - 11	
	18				7 - 6	8 - 9	8 - 10			8 - 2	9 - 6	9 - 8	
	16				8 - 8	9 - 8	10 - 1			9 - 6	10 - 7	10 - 11	
5	22	40		49	5 - 0	5 - 10	5 - 11		37	5 - 5	6 - 4	6 - 5	0.338
	20				5 - 11	6 - 10	6 - 11			6 - 5	7 - 6	7 - 7	
	18				7 - 2	8 - 4	8 - 5			7 - 10	9 - 2	9 - 3	
	16				8 - 4	9 - 3	9 - 7			9 - 1	10 - 2	10 - 6	
5 1/2	22	40		55	4 - 10	5 - 8	5 - 8		42	5 - 3	6 - 2	6 - 2	0.380
	20				5 - 8	6 - 7	6 - 8			6 - 2	7 - 3	7 - 4	
	18				6 - 11	8 - 0	8 - 1			7 - 7	8 - 10	8 - 11	
	16				8 - 0	8 - 11	9 - 3			8 - 9	9 - 10	10 - 2	
6	22	40		61	4 - 8	5 - 5	5 - 6		46	5 - 1	5 - 11	6 - 0	0.422
	20				5 - 6	6 - 4	6 - 5			6 - 0	7 - 0	7 - 1	
	18				6 - 8	7 - 8	7 - 9			7 - 4	8 - 6	8 - 7	
	16				7 - 9	8 - 7	8 - 11			8 - 6	9 - 6	9 - 10	

TABLE - 11F MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
3 1/2	40	1 - 11	2 - 5	3 - 1	3 - 8	2 - 0	2 - 6	3 - 3	3 - 9
4		1 - 11	2 - 4	2 - 11	3 - 6	2 - 0	2 - 5	3 - 1	3 - 9
4 1/2		1 - 10	2 - 3	2 - 10	3 - 4	1 - 11	2 - 5	3 - 0	3 - 7
5		1 - 10	2 - 2	2 - 9	3 - 2	1 - 11	2 - 4	2 - 11	3 - 6
5 1/2		1 - 9	2 - 2	2 - 8	3 - 1	1 - 10	2 - 3	2 - 11	3 - 4
6		1 - 9	2 - 1	2 - 7	2 - 11	1 - 10	2 - 3	2 - 10	3 - 3

See page 23 for table notes.

COMPOSITE DECK - TYPES 1.5CD, 1.5CDI

TABLE - 11G ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Normal Weight Concrete (γ_c = 145 pcf, f'_c = 3,000 psi, n = 9)	Total Slab Depth (in.)	Gage	Allowable Superimposed Uniform Load (psf)													
			Clear Span (ft. - in.)													
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	11 - 6
	3 1/2	22	400	376	310	260	219	187	160	138	120	104	91	79	69	61
		20	400	400	373	313	265	227	195	169	148	129	113	100	88	78
		18	400	400	400	400	346	297	257	224	191	162	139	120	105	91
		16	400	400	400	400	400	366	301	251	212	180	154	133	116	101
	4	22	400	400	391	327	277	236	203	175	152	133	116	102	89	78
		20	400	400	400	395	335	287	248	215	187	164	144	127	113	100
		18	400	400	400	400	400	377	326	284	249	220	195	173	154	136
		16	400	400	400	400	400	400	400	355	312	267	229	198	172	150
	4 1/2	22	400	400	400	398	337	288	248	214	186	163	142	125	110	97
		20	400	400	400	400	400	350	302	263	229	201	177	157	139	123
		18	400	400	400	400	400	400	399	348	306	270	239	213	190	170
		16	400	400	400	400	400	400	400	400	383	339	302	269	241	213
	5	22	400	400	400	400	399	341	294	254	221	194	170	149	131	116
		20	400	400	400	400	400	400	359	312	273	240	211	187	166	147
		18	400	400	400	400	400	400	400	400	364	322	285	254	227	203
		16	400	400	400	400	400	400	400	400	400	400	361	322	289	260
	5 1/2	22	400	400	400	400	400	396	341	295	257	225	198	174	154	136
		20	400	400	400	400	400	400	400	363	317	279	246	218	194	172
		18	400	400	400	400	400	400	400	400	400	375	333	296	265	237
		16	400	400	400	400	400	400	400	400	400	400	400	377	338	304
	6	22	400	400	400	400	400	400	389	337	294	257	226	199	176	156
		20	400	400	400	400	400	400	400	400	363	319	282	250	222	198
		18	400	400	400	400	400	400	400	400	400	400	381	340	304	272
		16	400	400	400	400	400	400	400	400	400	400	400	388	349	

TABLE - 11H ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Light Weight Concrete (γ_c = 110 pcf, f'_c = 3,000 psi, n = 14)	Total Slab Depth (in.)	Gage	Allowable Superimposed Uniform Load (psf)													
			Clear Span (ft. - in.)													
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	11 - 6
	3 1/2	22	400	361	300	252	213	183	158	137	119	104	90	77	67	59
		20	400	400	357	300	256	219	190	159	134	114	98	84	73	64
		18	400	400	400	386	323	262	216	180	152	129	111	96	83	73
		16	400	400	400	400	359	292	240	200	169	143	123	106	92	81
	4	22	400	400	379	318	270	232	200	174	152	133	117	104	92	81
		20	400	400	400	381	324	279	241	210	184	162	144	125	109	95
		18	400	400	400	400	400	361	313	267	225	191	164	142	123	108
		16	400	400	400	400	400	400	355	296	249	212	182	157	137	120
	4 1/2	22	400	400	400	389	330	283	245	213	186	164	144	128	113	101
		20	400	400	400	400	397	341	296	258	226	200	177	157	140	125
		18	400	400	400	400	400	400	385	337	297	263	232	200	174	152
		16	400	400	400	400	400	400	400	400	352	300	257	222	193	169
	5	22	400	400	400	400	392	337	291	254	222	195	172	153	136	121
		20	400	400	400	400	400	400	352	308	270	238	211	188	168	150
		18	400	400	400	400	400	400	400	400	355	314	280	250	224	202
		16	400	400	400	400	400	400	400	400	400	391	349	302	263	230
	5 1/2	22	400	400	400	400	400	392	339	295	259	228	201	178	159	142
		20	400	400	400	400	400	400	400	359	315	278	247	220	196	176
		18	400	400	400	400	400	400	400	400	400	368	328	293	263	237
		16	400	400	400	400	400	400	400	400	400	400	400	367	331	299
	6	22	400	400	400	400	400	400	387	338	296	261	231	205	182	163
		20	400	400	400	400	400	400	400	400	361	319	283	252	226	202
		18	400	400	400	400	400	400	400	400	400	400	376	337	302	272
		16	400	400	400	400	400	400	400	400	400	400	400	381	344	

See page 23 for table notes.

COMPOSITE DECK - TYPE 2.0CD

TABLE - 12A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.57
20	0.0358		1.90
18	0.0474		2.51
16	0.0598		3.17

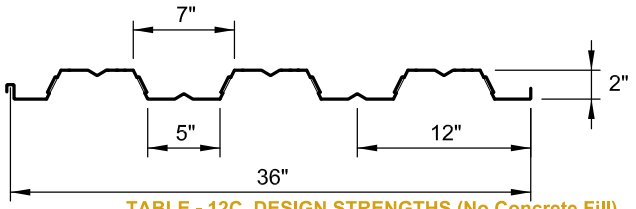


TABLE - 12B SECTION PROPERTIES

Gage	F_y (ksi)	A_s (in.^{2}/ft.)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	40	0.460	0.337	0.330	0.257	0.263
20		0.558	0.417	0.412	0.342	0.347
18		0.738	0.554	0.556	0.505	0.511
16		0.931	0.698	0.702	0.650	0.653

TABLE - 12C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	40	6152	6288	1638	321	617
20		8186	8310	2182	459	882
18		12105	12228	2879	769	1477
16		15567	15647	3619	1176	2260

R_{be}/Ω and R_{bi}/Ω are based a minimum end support bearing length of 2 inches and minimum interior support bearing length of 4 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 12D MINIMUM SLAB REINFORCEMENT

Total Slab Depth (in.)	SDI Recommended Welded Wire Fabric	Wire Area (in.^{2}/ft.)
4	6x6 - W1.4xW1.4	0.028
4 1/2	6x6 - W1.4xW1.4	0.028
5	6x6 - W1.4xW1.4	0.028
5 1/2	6x6 - W2.0xW2.0	0.040
6	6x6 - W2.0xW2.0	0.040
6 1/2	6x6 - W2.0xW2.0	0.040

TABLE - 12E CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
					Single	Double	Triple			Single	Double	Triple	
4	22	40	Normal Weight Concrete (145 pcf)	36	7 - 2	8 - 4	8 - 5	Light Weight Concrete (110 pcf)	27	7 - 9	8 - 11	9 - 2	0.248
	20				8 - 8	9 - 9	10 - 1			9 - 5	10 - 3	10 - 8	
	18				10 - 9	11 - 9	12 - 2			11 - 7	12 - 5	12 - 10	
	16				11 - 6	13 - 3	13 - 6			12 - 3	14 - 0	14 - 4	
4 1/2	22	40		42	6 - 10	7 - 9	8 - 0		32	7 - 5	8 - 8	8 - 9	0.289
	20				8 - 2	9 - 3	9 - 7			9 - 0	10 - 1	10 - 5	
	18				10 - 3	11 - 2	11 - 7			11 - 2	12 - 2	12 - 7	
	16				11 - 0	12 - 7	13 - 0			11 - 10	13 - 9	13 - 10	
5	22	40		48	6 - 6	7 - 1	7 - 8		36	7 - 1	8 - 4	8 - 5	0.331
	20				7 - 10	8 - 10	9 - 2			8 - 7	9 - 8	10 - 0	
	18				9 - 10	10 - 8	11 - 1			10 - 9	11 - 8	12 - 1	
	16				10 - 7	12 - 1	12 - 6			11 - 5	13 - 2	13 - 5	
5 1/2	22	40		54	6 - 1	6 - 6	7 - 4		41	6 - 10	7 - 10	8 - 1	0.373
	20				7 - 6	8 - 6	8 - 9			8 - 3	9 - 4	9 - 8	
	18				9 - 5	10 - 3	10 - 7			10 - 4	11 - 3	11 - 8	
	16				10 - 2	11 - 7	12 - 0			11 - 1	12 - 9	13 - 1	
6	22	40		60	5 - 6	6 - 0	6 - 10		46	6 - 8	7 - 4	7 - 10	0.414
	20				7 - 3	8 - 2	8 - 5			8 - 0	9 - 0	9 - 4	
	18				9 - 2	9 - 10	10 - 2			10 - 0	10 - 11	11 - 3	
	16				9 - 10	11 - 2	11 - 6			10 - 9	12 - 3	12 - 8	
6 1/2	22	40		66	5 - 0	5 - 6	6 - 3		50	6 - 5	6 - 10	7 - 7	0.456
	20				7 - 0	7 - 10	8 - 1			7 - 9	8 - 8	9 - 0	
	18				8 - 10	9 - 6	9 - 10			9 - 8	10 - 6	10 - 11	
	16				9 - 7	10 - 9	11 - 1			10 - 5	11 - 10	12 - 3	

TABLE - 12F MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
4	40	2 - 7	3 - 3	4 - 0	4 - 6	2 - 8	3 - 5	4 - 3	4 - 9
4 1/2		2 - 6	3 - 1	3 - 10	4 - 4	2 - 7	3 - 4	4 - 2	4 - 7
5		2 - 5	3 - 0	3 - 8	4 - 2	2 - 7	3 - 2	4 - 0	4 - 5
5 1/2		2 - 4	2 - 11	3 - 6	4 - 0	2 - 6	3 - 1	3 - 10	4 - 4
6		2 - 3	2 - 9	3 - 4	3 - 10	2 - 5	3 - 0	3 - 9	4 - 2
6 1/2		2 - 1	2 - 8	3 - 3	3 - 8	2 - 5	3 - 0	3 - 7	4 - 1

See page 23 for table notes.

COMPOSITE DECK - TYPE 2.0CD

TABLE - 12G ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Normal Weight Concrete (γ_c = 145 pcf, f'_c = 3,000 psi, n = 9)	Total Slab Depth (in.)	Gage	Allowable Superimposed Uniform Load (psf)													
			Clear Span (ft. - in.)													
			6 - 0	7 - 0	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	11 - 6	12 - 0	12 - 6	13 - 0	13 - 6
	4	22	359	254	186	160	139	121	105	92	81	71	62	54	47	41
		20	400	309	227	197	172	150	132	116	102	91	80	71	63	55
		18	400	400	301	263	230	203	179	159	141	126	113	101	90	81
		16	400	400	338	295	259	228	202	180	160	143	129	115	104	93
	4 1/2	22	400	307	225	194	169	147	128	112	99	86	76	67	58	51
		20	400	374	276	239	209	183	161	142	125	111	98	87	77	68
		18	400	400	366	319	280	246	218	194	172	154	138	124	111	100
		16	400	400	400	359	315	278	247	220	196	175	157	142	128	115
	5	22	400	363	267	230	200	175	153	134	118	103	91	80	70	61
		20	400	400	327	284	248	217	191	169	149	132	118	104	93	82
		18	400	400	400	378	332	293	259	231	206	184	165	148	133	119
		16	400	400	400	400	375	331	294	262	234	210	188	170	153	138
	5 1/2	22	400	400	310	268	233	203	178	156	138	121	107	94	83	73
		20	400	400	380	330	288	253	223	197	174	155	138	122	109	97
		18	400	400	400	400	386	341	302	269	240	215	193	173	156	140
		16	400	400	400	400	400	386	343	306	273	245	221	199	180	162
	6	22	400	400	354	306	266	233	204	179	158	139	123	108	96	84
		20	400	400	400	377	330	290	255	226	200	178	158	141	126	112
		18	400	400	400	400	400	391	347	309	276	247	222	199	180	162
		16	400	400	400	400	400	400	394	351	314	282	254	229	207	187
	6 1/2	22	400	400	399	345	301	263	231	203	179	158	140	123	109	96
		20	400	400	400	400	372	327	289	255	227	202	180	160	143	128
		18	400	400	400	400	400	400	392	349	312	280	251	226	204	184
		16	400	400	400	400	400	400	400	398	356	320	288	260	235	213

TABLE - 12H ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Light Weight Concrete (γ_c = 110 pcf, f'_c = 3,000 psi, n = 14)	Total Slab Depth (in.)	Gage	Allowable Superimposed Uniform Load (psf)													
			Clear Span (ft. - in.)													
			7 - 0	8 - 0	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	11 - 6	12 - 0	12 - 6	13 - 0	13 - 6	14 - 0	14 - 6
	4	22	250	184	140	122	108	95	84	74	66	59	52	46	41	36
		20	301	223	170	150	132	117	104	93	83	74	67	60	53	48
		18	390	292	224	196	168	145	126	111	97	86	77	68	61	55
		16	400	325	251	218	187	161	140	123	108	96	85	76	68	61
	4 1/2	22	303	224	170	149	131	116	103	91	81	72	64	57	51	45
		20	365	271	207	183	161	143	128	114	102	91	82	73	66	59
		18	400	355	273	242	215	192	171	154	135	120	106	95	85	77
		16	400	395	305	270	240	215	193	170	150	132	118	105	94	85
	5	22	358	266	202	177	156	138	123	109	97	86	77	69	61	54
		20	400	322	246	217	192	171	152	136	122	109	98	88	79	71
		18	400	400	325	288	256	228	205	184	166	150	135	123	111	101
		16	400	400	363	322	287	257	230	207	187	169	154	140	127	114
	5 1/2	22	400	309	235	207	182	161	143	128	114	101	91	81	72	64
		20	400	375	287	253	224	200	178	159	143	128	115	104	94	84
		18	400	400	379	336	299	267	239	215	194	176	159	144	131	119
		16	400	400	400	377	336	300	270	243	220	199	181	164	150	136
	6	22	400	353	269	237	209	185	165	147	131	117	105	94	84	75
		20	400	400	329	291	258	229	205	183	164	148	133	120	108	98
		18	400	400	400	386	343	307	275	248	224	202	184	167	152	138
		16	400	400	400	400	386	346	311	280	253	230	209	190	173	158
	6 1/2	22	400	399	304	268	237	210	187	166	149	133	119	107	95	85
		20	400	400	372	329	292	260	232	208	187	168	151	136	123	111
		18	400	400	400	400	389	348	312	281	254	230	209	190	173	157
		16	400	400	400	400	400	392	353	318	288	261	237	216	197	180

See page 23 for table notes.

COMPOSITE DECK - TYPE 3.0CD

TABLE - 13A PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)
22	0.0295	36	1.71
20	0.0358		2.07
18	0.0474		2.74
16	0.0598		3.45

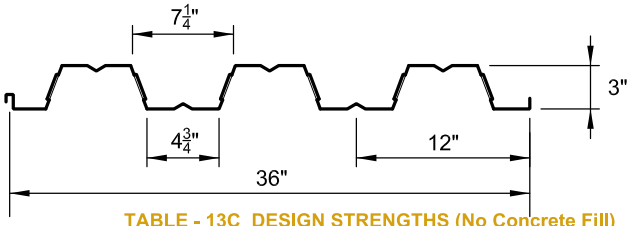


TABLE - 13B SECTION PROPERTIES

Gage	F_y (ksi)	A_s (in.^{2}/ft.)	I_p (in.^{4}/ft.)	I_n (in.^{4}/ft.)	S_p (in.^{3}/ft.)	S_n (in.^{3}/ft.)
22	40	0.502	0.763	0.755	0.407	0.427
20		0.608	0.943	0.939	0.537	0.559
18		0.804	1.250	1.260	0.794	0.807
16		1.014	1.576	1.588	1.012	1.019

TABLE - 13C DESIGN STRENGTHS (No Concrete Fill)

Gage	F_y (ksi)	$M_{n,p}/\Omega$ (in.-lb./ft.)	$M_{n,n}/\Omega$ (in.-lb./ft.)	V_n/Ω (lb./ft.)	R_{be}/Ω (lb./ft.)	R_{bi}/Ω (lb./ft.)
22	40	9746	10218	1534	336	677
20		12866	13393	2413	482	967
18		19010	19340	4220	811	1615
16		24237	24416	5309	1245	2466

R_{be}/Ω and R_{bi}/Ω are based a minimum end support bearing length of $2^1/_2$ inches and minimum interior support bearing length of 5 inches. See Table 25 for additional allowable web crippling reactions at exterior and interior supports for $1^1/_2$ to 6-inch bearing lengths.

TABLE - 13D MINIMUM SLAB REINFORCEMENT

Total Slab Depth (in.)	SDI Recommended Welded Wire Fabric	Wire Area (in.^{2}/ft.)
5	6x6 - W1.4xW1.4	0.028
5 1/2	6x6 - W1.4xW1.4	0.028
6	6x6 - W1.4xW1.4	0.028
6 1/2	6x6 - W2.0xW2.0	0.040
7	6x6 - W2.0xW2.0	0.040
7 1/2	4x4 - W1.4xW1.4	0.042

TABLE - 13E CONSTRUCTION CLEAR SPANS – ASD

Total Slab Depth (in.)	Gage	F_y (ksi)	Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Weight (psf)		Maximum Construction Clear Span (ft. - in.)			Concrete Volume (ft.^{3}/ft.^{2})
					Single	Double	Triple			Single	Double	Triple	
5	22	40	Normal Weight Concrete (145 pcf)	42	8 - 5	8 - 5	9 - 7	Light Weight Concrete (110 pcf)	32	10 - 1	10 - 0	11 - 5	0.292
	20				10 - 11	11 - 8	12 - 1			12 - 0	12 - 9	13 - 2	
	18				12 - 10	14 - 0	14 - 6			13 - 8	15 - 4	15 - 10	
	16				13 - 6	15 - 8	15 - 11			14 - 5	17 - 1	16 - 11	
5 1/2	22	40		48	7 - 5	7 - 8	8 - 9		37	9 - 8	9 - 3	10 - 6	0.333
	20				10 - 4	10 - 11	11 - 6			11 - 6	12 - 3	12 - 8	
	18				12 - 5	13 - 5	13 - 11			13 - 3	14 - 8	15 - 2	
	16				13 - 1	15 - 0	15 - 5			14 - 0	16 - 5	16 - 5	
6	22	40		54	6 - 7	7 - 1	8 - 1		41	8 - 7	8 - 7	9 - 9	0.375
	20				9 - 11	10 - 1	11 - 1			11 - 0	11 - 9	12 - 2	
	18				12 - 1	12 - 10	13 - 4			12 - 11	14 - 2	14 - 8	
	16				12 - 9	14 - 5	14 - 11			13 - 7	15 - 10	16 - 0	
6 1/2	22	40		60	5 - 11	6 - 7	7 - 5		46	7 - 9	8 - 0	9 - 1	0.417
	20				9 - 6	9 - 4	10 - 7			10 - 7	11 - 4	11 - 9	
	18				11 - 9	12 - 5	12 - 10			12 - 7	13 - 8	14 - 2	
	16				12 - 5	13 - 11	14 - 5			13 - 3	15 - 3	15 - 7	
7	22	40		66	5 - 5	6 - 1	6 - 9		50	7 - 1	7 - 6	8 - 6	0.458
	20				9 - 2	8 - 8	9 - 11			10 - 2	10 - 8	11 - 4	
	18				11 - 6	12 - 0	12 - 5			12 - 3	13 - 3	13 - 8	
	16				12 - 2	13 - 5	13 - 10			13 - 0	14 - 10	15 - 3	
7 1/2	22	40		72	5 - 0	5 - 8	6 - 3		55	6 - 6	7 - 0	8 - 0	0.500
	20				8 - 10	8 - 2	9 - 3			9 - 10	10 - 0	11 - 0	
	18				11 - 1	11 - 7	12 - 0			12 - 0	12 - 10	13 - 3	
	16				11 - 11	13 - 0	13 - 5			12 - 9	14 - 4	14 - 10	

TABLE - 13F MAXIMUM CANTILEVER CLEAR SPANS – ASD

Total Slab Depth (in.)	F_y (ksi)	Normal Weight Concrete (145 pcf)				Light Weight Concrete (110 pcf)			
		22 Ga.	20 Ga.	18 Ga.	16 Ga.	22 Ga.	20 Ga.	18 Ga.	16 Ga.
5	40	3 - 2	4 - 0	4 - 10	5 - 3	3 - 9	4 - 4	5 - 3	5 - 8
5 1/2		2 - 11	3 - 10	4 - 7	5 - 1	3 - 6	4 - 2	5 - 0	5 - 5
6		2 - 8	3 - 8	4 - 5	4 - 11	3 - 3	4 - 0	4 - 10	5 - 4
6 1/2		2 - 5	3 - 6	4 - 3	4 - 9	3 - 0	3 - 11	4 - 8	5 - 2
7		2 - 3	3 - 3	4 - 1	4 - 7	2 - 10	3 - 9	4 - 6	5 - 1
7 1/2		2 - 1	3 - 1	4 - 0	4 - 5	2 - 8	3 - 8	4 - 5	4 - 11

See page 23 for table notes.

COMPOSITE DECK - TYPE 3.0CD

TABLE - 13G ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Normal Weight Concrete (γ_c = 145 pcf, f'_c = 3,000 psi, n = 9)	Total Slab Depth (in.)	Gage	Allowable Superimposed Uniform Load (psf) Clear Span (ft. - in.)													
			7 - 0	8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	12 - 6	13 - 0	13 - 6	14 - 0	14 - 6	15 - 0	15 - 6	16 - 0
	5	22	329	242	182	139	107	83	73	64	56	49	43	37	32	27
		20	400	296	224	173	135	107	95	84	75	67	59	52	46	41
		18	400	391	300	234	186	149	134	120	108	97	88	79	71	64
		16	400	400	377	297	237	192	174	157	142	129	117	107	97	88
	5 1/2	22	384	282	213	163	126	98	86	76	67	58	51	45	39	33
		20	400	345	262	203	159	126	112	99	89	79	70	62	55	49
		18	400	400	351	274	218	175	157	141	127	115	104	94	84	76
		16	400	400	400	347	278	225	204	184	167	152	138	126	114	104
	6	22	400	325	245	188	146	113	100	88	78	68	60	52	46	39
		20	400	398	303	234	184	146	130	116	103	92	82	73	65	57
		18	400	400	400	317	252	203	182	164	148	134	121	109	99	89
		16	400	400	400	400	322	261	236	214	194	176	161	146	133	121
	6 1/2	22	400	370	280	215	167	130	115	102	90	79	70	61	53	46
		20	400	400	345	267	210	167	149	133	119	106	94	84	75	66
		18	400	400	400	361	288	232	209	188	170	153	139	126	114	103
		16	400	400	400	400	367	298	270	245	222	202	184	168	153	140
	7	22	400	400	315	242	188	147	130	115	102	90	79	70	61	53
		20	400	400	388	302	237	189	168	151	135	120	108	96	86	76
		18	400	400	400	400	325	262	236	213	192	174	158	143	129	117
		16	400	400	400	400	400	337	305	277	252	229	209	191	174	159
	7 1/2	22	400	400	351	270	210	165	146	130	115	102	90	79	69	60
		20	400	400	400	337	265	211	189	169	151	135	121	108	97	86
		18	400	400	400	400	363	293	264	239	216	195	177	161	146	132
		16	400	400	400	400	400	378	342	310	282	257	235	214	196	179

TABLE - 13H ALLOWABLE SUPERIMPOSED UNIFORM LOADS - ASD

Light Weight Concrete (γ_c = 110 pcf, f'_c = 3,000 psi, n = 14)	Total Slab Depth (in.)	Gage	Allowable Superimposed Uniform Load (psf) Clear Span (ft. - in.)													
			8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	13 - 0	13 - 6	14 - 0	14 - 6	15 - 0	15 - 6	16 - 0	16 - 6	17 - 0
	5	22	240	183	141	111	88	70	62	56	50	44	39	35	31	27
		20	291	223	174	138	110	89	80	72	65	58	52	47	42	38
		18	380	293	231	185	150	122	111	101	92	83	76	69	63	57
		16	400	365	289	233	190	151	135	121	109	98	89	81	74	68
	5 1/2	22	281	214	166	130	103	82	74	66	59	52	47	41	37	32
		20	340	260	203	161	129	105	94	85	76	69	62	56	50	45
		18	400	343	270	216	176	144	130	119	108	98	89	82	74	68
		16	400	400	338	272	222	184	167	153	140	127	115	105	96	88
	6	22	324	247	192	151	120	96	86	77	69	61	55	49	43	38
		20	392	301	235	187	150	121	110	99	89	80	73	65	59	53
		18	400	396	312	250	203	167	151	138	125	114	104	95	87	79
		16	400	400	391	315	258	213	194	177	162	149	136	125	115	106
	6 1/2	22	369	281	219	173	137	110	99	88	79	71	63	56	50	45
		20	400	343	269	214	172	139	126	114	103	93	84	76	68	62
		18	400	400	357	286	233	191	174	158	144	131	120	110	100	92
		16	400	400	400	360	295	244	223	203	186	171	157	144	133	122
	7	22	400	317	247	195	156	125	112	100	90	81	72	65	58	51
		20	400	387	303	241	194	158	143	129	117	106	96	86	78	71
		18	400	400	400	324	263	217	197	179	164	149	137	125	114	105
		16	400	400	400	400	334	276	252	231	212	194	178	164	151	139
	7 1/2	22	400	354	276	218	174	140	126	113	101	91	82	73	65	58
		20	400	400	339	270	218	177	160	145	131	119	108	98	88	80
		18	400	400	400	362	295	243	221	201	184	168	154	141	129	118
		16	400	400	400	400	374	310	283	259	238	218	201	185	170	157

See page 23 for table notes.

DIAPHRAGM DECKS—Table 14 - 24 Notes

DIAPHRAGM SHEAR STRENGTH

ASD - To determine the allowable diaphragm shear strength divide the tabulated values by Ω.

LRFD - To determine the design diaphragm shear strength multiply the tabulated values by Φ.

BARE DECK DIAPHRAGMS

1. Diaphragm shear and stiffness values are based on 3 span condition. However, values may be conservatively be used for 1 and 2 spans conditions.
2. An asterisk (*) denotes condition may be limited by shear buckling. See the Nominal Shear due to Buckling Table below the Nominal Diaphragm Shear Strength Table.
3. Diaphragm shear values shown in **RED** indicate sidelap spacing greater than 3'-0" on center for spans greater than 5'-0" on center. Additional sidelap fasteners must be added such that the sidelap spacing is less than or equal to 3'-0" on center.
4. Support fastener spacing parallel to deck flutes must be equivalent to the number of sidelap connections noted per span, or as required to transfer the design shear to or from the support, whichever results in the greater number of fasteners.
5. Diaphragm span/depth limitations based on diaphragm flexibility must comply with Table F. Diaphragm deflection must be calculated using the equation noted in Table F.

CONCRETE FILLED DIAPHRAGMS

1. Diaphragm shear and stiffness values are based on a single span condition.
2. Since concrete fill typically adds strength to the diaphragm, it may be necessary to increase the number and/or strength of the perimeter fasteners in order to develop the required strength.
3. Diaphragm shear values shown in **RED** indicate sidelap spacing greater than 3'-0" on center for spans greater than 5'-0" on center. Additional sidelap fasteners must be added such that the sidelap spacing is less than or equal to 3'-0" on center.
4. Support fastener spacing parallel to deck flutes must be equivalent to the number of sidelap connections noted per span, or as required to transfer the design shear to or from the support, whichever results in the greater number of fasteners.
5. Diaphragm span/depth limitations based on diaphragm flexibility must comply with Table F. Diaphragm deflection must be calculated using the equation noted in Table F.

TABLE F—DIAPHRAGM FLEXIBILITY LIMITATIONS TABLE[1,2,3,4]

FLEXIBILITY FACTOR (F)	MAXIMUM DIAPHRAGM SPAN FOR MASONRY OR CONCRETE WALLS (feet)	DIAPHRAGM SPAN-DEPTH LIMITATION			
		Rotation Not Considered in Diaphragm		Rotation Considered in Diaphragm	
		Masonry or Concrete Walls	Flexible Walls	Masonry or Concrete Walls	Flexible Walls
More than 150	Not used	Not used	2:1	Not used	1 1/2:1
70-150	200	2:1 or as required for deflection	3:1	Not used	2:1
10-70	400	2 1/2:1 or as required for deflection	4:1	As required for deflection	2 1/2:1
1-10	No limitation	3:1 or as required for deflection	5:1	As required for deflection	3:1
Less than 1	No limitation	As required for deflection	No limitation	As required for deflection	3 1/2:1

For **SI:** 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 plf = 14.594 N/m, 1 psi = 6894 Pa.

[1]*Diaphragms are to be investigated regarding their flexibility and recommended span-depth limitations.*
[2]*Diaphragms supporting masonry or concrete walls are to have their deflections limited to the following amount:*

$$\Delta_{wall} = \frac{H^2 f_c}{0.01 Et}$$

where:
H = Unsupported height of wall in feet.
t = *Thickness of wall in inches.*
E = Modulus of elasticity of wall material for deflection determination in pounds per square inch.
f_c = Allowable compression strength of wall material in flexure in pounds per square inch.
For concrete, $f_c = 0.45\, f'_c$. For masonry, $f_c = F_b = 0.33\, f'_m$.

[3]The total deflection Δ of the diaphragm may be computed from the equation: $\Delta = \Delta_f + \Delta_w$

where:
Δ_f = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams
Δ_w = The web deflection may be determined by the equation:

$$\Delta_w = \frac{q_{ave} L F}{10^6}$$

where:
L = Distance in feet between vertical resisting element (such as shear wall) and the point to which the deflection is to be determined.
q_{ave} = Average shear in diaphragm in pounds per foot over length L.
F = Flexibility factor: The average micro inches a diaphragm web will deflect in a span of 1 foot under a shear of 1 pound per foot. F = 1000/G' where G' = shear stiffness (kips/inch)

[4]When applying these limitations to cantilevered diaphragms, the allowable span-depth ratio will be half that shown.

TABLE NO. 14A

1.0RD 26 & 24 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Support Fasteners: Puddle Welds Thru 16 Gage Washer w/3/8" Hole **Φ (Wind): 0.70** **Ω (Wind): 2.35**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.60** **Ω (Other): 2.65**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 11	
26 0.0179 Design Thickness K_2 = 528	No Fill (Bare Deck)	36/6 D_n = 232	0	1207	1098	1006	927	858	799	747	696	651	611	575	523	0.454
			1	1334	1220	1122	1037	963	898	841	791	745	701	660	602	0.337
			2	1448	1332	1230	1141	1063	994	932	877	828	784	744	680*	0.269
			3	1552	1435	1331	1239	1157	1084	1019	961	909	861	818*	755*	0.223
			4	1645	1529	1424	1330	1246	1170	1103	1041	986	936*	890*	823*	0.191
			5	1728	1614	1510	1415	1329	1252	1182	1118	1060*	1008*	960*	888*	0.167
			6	1803	1692	1589	1494	1408	1329	1257	1192*	1132*	1077*	1027*	952*	0.148
		36/4 D_n = 553	0	923	852	790	735	686	643	604	570	538	508	478	435	0.567
			1	1014	945	882	825	774	728	687	649	615	584	556	513	0.396
			2	1090	1023	962	905	853	806	762	723	687	654	624	578	0.305
			3	1153	1090	1031	975	923	876	832	791	754	719	687	639	0.247
			4	1205	1147	1090	1036	986	939	894	853	815	780	747	697*	0.208
			5	1249	1195	1141	1090	1041	995	951	910	872	836	802*	751*	0.180
			6	1286	1235	1186	1137	1090	1045	1003	962	924	888	854*	801*	0.158
				3 - 0	3 - 6	4 - 0	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 6	7 - 1	
24 0.0238 Design Thickness K_2 = 702	No Fill (Bare Deck)	36/6 D_n = 152	0	1303	1133	994	879	831	787	747	712	679	649	596*	543*	0.523
			1	1443	1260	1116	993	938	889	845	805	768*	734*	-	-	0.389
			2	1577	1381	1227	1102	1046	991*	942*	897*	857*	819*	753*	687*	0.310
			3	1704	1499	1335	1201	1143*	1091*	1039*	990*	945*	904*	832*	760*	0.257
			4	1826	1612	1439	1298*	1236*	1180*	1129*	1081*	1034*	989*	910*	832*	0.220
			5	1940	1720	1540*	1392*	1327*	1268*	1213*	1163*	1117*	1074*	989*	904*	0.192
			6	2049	1824	1638*	1483*	1416*	1353*	1296*	1243*	1194*	1149*	1067*	976*	0.170
		36/4 D_n = 361	0	1042	917	817	733	692	655	622	592	564	539	494	450	0.654
			1	1159	1027	920	831	792	757	719	685	653	624	-	-	0.457
			2	1266	1130	1016	922	880	842	807	774	742	709*	652*	595*	0.351
			3	1363	1224	1107	1008	964	923	886	851*	818*	788*	730*	667*	0.285
			4	1451	1312	1192	1089	1043	1001*	961*	925*	890*	858*	800*	739*	0.240
			5	1530	1392	1271	1166	1119*	1075*	1034*	995*	959*	926*	864*	802*	0.207
			6	1601	1465	1344	1238*	1190*	1145*	1102*	1063*	1025*	990*	926*	861*	0.182

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.) From Table Above												I ($in.^4$/ft.)
26	No Fill	All	3514	2776	2249	1859	1562	1331	1147	999	878	778	694	581	0.0425
24			2394	1759	1347	1064	955	862	782	712	652	598	510	429	0.0565

See page 30 for table notes.

TABLE NO. 14B
1.0RD 26 & 24 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Support Fasteners: Puddle Welds Thru 16 Gage Washer w/3/8" Hole **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.50** **Ω (Other): 3.25**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 11	
26 0.0179 Design Thickness K_2 = 528	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	6052	5925	5823	5739	5670	5611	5560	5517	5478	5445	5415	5371	0.567
			1	6245	6096	5977	5879	5798	5729	5670	5619	5574	5535	5500	5450	0.396
			2	6437	6266	6130	6019	5926	5847	5780	5722	5671	5625	5585	5528	0.305
			3	6629	6437	6284	6159	6054	5966	5890	5824	5767	5716	5671	5606	0.247
			4	6821	6608	6438	6298	6182	6084	6000	5927	5863	5806	5756	5684	0.208
			5	7013	6779	6591	6438	6310	6202	6109	6029	5959	5897	5842	5762	0.180
			6	7205	6950	6745	6578	6438	6320	6219	6132	6055	5987	5927	5840	0.158
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4389	4261	4159	4076	4006	3947	3897	3853	3815	3781	3751	3708	0.567
			1	4581	4432	4313	4215	4134	4065	4006	3955	3911	3871	3836	3786	0.396
			2	4773	4603	4466	4355	4262	4184	4116	4058	4007	3962	3922	3864	0.305
			3	4965	4774	4620	4495	4390	4302	4226	4160	4103	4052	4007	3942	0.247
			4	5157	4944	4774	4635	4518	4420	4336	4263	4199	4143	4092	4020	0.208
			5	5349	5115	4928	4774	4646	4538	4446	4365	4295	4233	4178	4098	0.180
			6	5542	5286	5081	4914	4775	4657	4555	4468	4391	4323	4263	4177	0.158
				3 - 0	3 - 6	4 - 0	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 6	7 - 1	
24 0.0238 Design Thickness K_2 = 702	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	6066	5900	5776	5679	5638	5601	5568	5538	5511	5485	5441	5396	0.654
			1	6237	6046	5903	5792	5746	5704	5666	5631	5599	5570	-	-	0.457
			2	6407	6192	6031	5906	5853	5806	5763	5724	5688	5656	5598	5541	0.351
			3	6577	6338	6159	6020	5961	5908	5860	5817	5777	5741	5676	5613	0.285
			4	6748	6484	6287	6133	6068	6010	5958	5910	5866	5826	5755	5685	0.240
			5	6918	6630	6414	6247	6176	6112	6055	6003	5955	5911	5834	5757	0.207
			6	7088	6776	6542	6360	6284	6215	6152	6096	6044	5996	5912	5829	0.182
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4402	4236	4112	4015	3974	3938	3904	3874	3847	3821	3777	3733	0.654
			1	4573	4382	4240	4129	4082	4040	4002	3967	3936	3907	-	-	0.457
			2	4743	4528	4367	4242	4189	4142	4099	4060	4024	3992	3934	3877	0.351
			3	4913	4674	4495	4356	4297	4244	4196	4153	4113	4077	4013	3949	0.285
			4	5084	4820	4623	4469	4405	4346	4294	4246	4202	4162	4091	4021	0.240
			5	5254	4966	4751	4583	4512	4449	4391	4339	4291	4247	4170	4093	0.207
			6	5424	5112	4878	4696	4620	4551	4488	4432	4380	4332	4248	4165	0.182

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 14C
1.0RD 26 & 24 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Support Fasteners: # 12 Screws **Φ (Wind): 0.70** **Ω (Wind): 2.35**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.65** **Ω (Other): 2.50**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 11	
26 0.0179 Design Thickness K_2 = 528	No Fill (Bare Deck)	36/6 D_n = 232	0	732	666	610	562	520	484	453	422	395	370	349	317	0.513
			1	855	785	724	670	624	583	546	514	485	459	434	396	0.369
			2	958	888	824	768	718	673	633	597	565	536	509	470	0.288
			3	1045	976	913	855	803	757	714	676	641	609	580	537	0.236
			4	1118	1052	990	933	880	832	788	748	711	677	646	600	0.200
			5	1178	1116	1056	1001	949	900	856	815	777	741	709	660	0.174
			6	1229	1170	1114	1060	1010	962	917	876	837	801	767	716*	0.154
		36/4 D_n = 553	0	559	517	479	446	416	390	366	345	326	308	290	264	0.641
			1	646	605	567	532	501	473	447	423	402	382	364	337	0.431
			2	709	672	636	603	572	543	516	491	468	447	428	398	0.325
			3	756	723	691	659	630	602	575	550	527	505	485	453	0.260
			4	791	762	733	705	677	651	625	601	578	556	535	503	0.217
			5	817	792	767	741	716	691	667	644	621	600	580	548	0.187
			6	838	816	793	770	747	725	702	680	659	638	619	587	0.163
				3 - 0	3 - 6	4 - 0	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 6	7 - 1	
24 0.0238 Design Thickness K_2 = 702	No Fill (Bare Deck)	36/6 D_n = 152	0	692	602	528	467	441	418	397	378	361	345	316	288	0.592
			1	829	726	645	579	549	520	494	471	449	430	-	-	0.426
			2	955	842	751	677	645	616	589	564	538	515	474	433	0.332
			3	1068	949	852	771	735	703	673	645	620	596	552	505*	0.273
			4	1170	1048	946	859	821	786	754	724	696	670	623*	576*	0.231
			5	1261	1138	1033	942	902	865	831	799	769*	741*	690*	639*	0.201
			6	1342	1220	1113	1020	979	940	904*	870*	838*	809*	755*	700*	0.177
		36/4 D_n = 361	0	553	487	434	389	367	348	330	314	300	286	263	239	0.740
			1	666	594	534	484	462	442	423	406	389	371	-	-	0.497
			2	760	686	623	569	544	522	501	482	464	447	417	383	0.374
			3	837	765	701	644	619	595	573	552	532	514	481	446	0.300
			4	900	831	768	712	686	661	638	616	596	576	540	503*	0.251
			5	952	887	826	771	745	720	697	674	653	633	596*	557*	0.215
			6	994	934	876	823	797	773	749	727	706	685*	647*	607*	0.188

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.) From Table Above												I ($in.^4/ft.$)
26	No Fill	All	3514	2776	2249	1859	1562	1331	1147	999	878	778	694	581	0.0425
24			2394	1759	1347	1064	955	862	782	712	652	598	510	429	0.0565

See page 30 for table notes.

TABLE NO. 14D

1.0RD 26 & 24 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.50 **Ω (EQ): 3.25**

Support Fasteners: # 12 Screws **Φ (Wind): 0.50** **Ω (Wind): 3.25**

Side Lap Fasteners: # 10 Screws **Φ (Other): 0.50** **Ω (Other): 3.25**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 11	
26 0.0179 Design Thickness K_2 = 528	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5600	5523	5461	5411	5368	5333	5302	5276	5252	5232	5214	5187	0.641
			1	5793	5694	5615	5550	5496	5451	5412	5378	5348	5322	5299	5266	0.431
			2	5985	5865	5769	5690	5625	5569	5522	5481	5445	5413	5385	5344	0.325
			3	6177	6036	5922	5830	5753	5687	5632	5583	5541	5503	5470	5422	0.260
			4	6369	6206	6076	5970	5881	5806	5741	5686	5637	5594	5555	5500	0.217
			5	6561	6377	6230	6109	6009	5924	5851	5788	5733	5684	5641	5578	0.187
			6	6753	6548	6384	6249	6137	6042	5961	5890	5829	5774	5726	5656	0.163
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	3937	3859	3797	3747	3705	3669	3638	3612	3589	3568	3550	3524	0.641
			1	4129	4030	3951	3887	3833	3787	3748	3714	3685	3659	3635	3602	0.431
			2	4321	4201	4105	4026	3961	3905	3858	3817	3781	3749	3721	3680	0.325
			3	4513	4372	4259	4166	4089	4024	3968	3919	3877	3839	3806	3758	0.260
			4	4705	4543	4412	4306	4217	4142	4078	4022	3973	3930	3892	3836	0.217
			5	4897	4713	4566	4446	4345	4260	4187	4124	4069	4020	3977	3915	0.187
			6	5090	4884	4720	4585	4473	4378	4297	4227	4165	4111	4062	3993	0.163
				3 - 0	3 - 6	4 - 0	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 6	7 - 1	
24 0.0238 Design Thickness K_2 = 702	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5521	5433	5367	5316	5294	5275	5257	5241	5226	5213	5189	5166	0.740
			1	5692	5579	5495	5429	5402	5377	5354	5334	5315	5298	-	-	0.497
			2	5862	5725	5623	5543	5509	5479	5452	5427	5404	5383	5346	5310	0.374
			3	6032	5871	5750	5656	5617	5581	5549	5520	5493	5468	5425	5382	0.300
			4	6203	6017	5878	5770	5724	5683	5646	5613	5582	5553	5504	5454	0.251
			5	6373	6163	6006	5883	5832	5786	5744	5705	5671	5639	5582	5526	0.215
			6	6543	6309	6134	5997	5939	5888	5841	5798	5759	5724	5661	5598	0.188
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	3858	3769	3703	3652	3630	3611	3593	3577	3562	3549	3525	3502	0.740
			1	4028	3915	3831	3765	3738	3713	3690	3670	3651	3634	-	-	0.497
			2	4198	4061	3959	3879	3845	3815	3788	3763	3740	3719	3683	3646	0.374
			3	4369	4207	4087	3993	3953	3917	3885	3856	3829	3805	3761	3718	0.300
			4	4539	4353	4214	4106	4061	4020	3982	3949	3918	3890	3840	3790	0.251
			5	4709	4499	4342	4220	4168	4122	4080	4042	4007	3975	3918	3863	0.215
			6	4880	4645	4470	4333	4276	4224	4177	4135	4096	4060	3997	3935	0.188

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)

K_4 = 3.180

L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 15A
1.0RD 22 & 20 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.70** **Ω (Wind): 2.35**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.60** **Ω (Other): 2.65**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 5	
22 0.0295 Design Thickness K_2 = 870	No Fill (Bare Deck)	36/6 D_n = 110	0	1148	1016	910	823	751	690	637	592	552*	517*	486*	463*	0.583
			1	1293	1156	1036	938	857	-	-	-	-	-	-	-	0.433
			2	1430	1285	1163	1053	962*	885*	818*	761*	711*	666*	627*	-	0.345
			3	1563	1407	1278	1169*	1068*	982*	909*	845*	790*	741*	697*	665*	0.286
			4	1691	1526	1389*	1273*	1173*	1080*	999*	930*	869*	815*	768*	732*	0.245
			5	1815	1642	1496*	1374*	1269*	1177*	1090*	1014*	948*	890*	838*	799*	0.214
			6	1934	1754*	1601*	1472*	1361*	1265*	1180*	1099*	1027*	964*	908*	866*	0.190
		36/4 D_n = 262	0	940	846	758	685	625	573	529	491	458	428	402	382	0.728
			1	1066	964	878	801	730	-	-	-	-	-	-	-	0.509
			2	1185	1076	983	904	836	768	710*	660*	616*	577*	543*	-	0.391
			3	1296	1181	1083	998	925	862*	801*	745*	695*	652*	613*	584*	0.318
			4	1400	1281	1178	1089	1011*	943*	883*	829*	774*	726*	684*	651*	0.267
			5	1495	1374	1268	1175*	1094*	1022*	958*	902*	851*	801*	754*	719*	0.231
			6	1583	1461	1352	1257*	1173*	1098*	1031*	972*	918*	870*	824*	786*	0.203
				4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	
20 0.0358 Design Thickness K_2 = 1056	No Fill (Bare Deck)	36/6 D_n = 82	0	1383	1097	993	906	833	770	716	668	589*	525*	473*	443*	0.642
			1	1554	1251	1133	1035	-	-	-	-	-	-	-	-	0.477
			2	1721	1402	1273	1163	1070	990*	921*	860*	759*	-	-	-	0.380
			3	1882	1539	1409	1291*	1188*	1100*	1023*	956*	845*	756*	683*	641*	0.315
			4	2037	1673	1534*	1415*	1306*	1209*	1126*	1052*	930*	832*	753*	707*	0.270
			5	2187	1804	1656*	1529*	1420*	1319*	1228*	1148*	1016*	909*	822*	773*	0.236
			6	2332	1931*	1775*	1641*	1525*	1424*	1331*	1245*	1101*	986*	892*	839*	0.209
		36/4 D_n = 196	0	1128	915	828	755	693	640	595	554	488	434	390*	365*	0.802
			1	1282	1056	968	883	-	-	-	-	-	-	-	-	0.561
			2	1426	1183	1088	1006	930	860	800	747*	658*	-	-	-	0.431
			3	1561	1304	1202	1114	1038	970*	902*	843*	744*	665*	600*	563*	0.350
			4	1686	1419	1312	1219	1137*	1064*	1000*	939*	829*	742*	670*	629*	0.294
			5	1801	1528	1416	1318*	1232*	1156*	1087*	1027*	915*	818*	740*	695*	0.254
			6	1907	1630	1516*	1414*	1324*	1244*	1172*	1107*	997*	895*	810*	761*	0.224

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.) From Table Above												I ($in.^4$/ft.)
22	No Fill	All	1858	1468	1189	983	826	704	607	528	464	411	367	335	0.0700
20			2483	1589	1313	1104	940	811	706	621	490	397	328	292	0.0849

See page 30 for table notes.

TABLE NO. 15B
1.0RD 22 & 20 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.50** **Ω (Other): 3.25**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 5	
22 0.0295 Design Thickness K_2 = 870	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5906	5795	5706	5633	5572	5521	5477	5439	5405	5376	5350	5330	0.728
			1	6065	5936	5833	5748	5678	-	-	-	-	-	-	-	0.509
			2	6223	6076	5959	5863	5783	5716	5658	5608	5564	5525	5490	-	0.391
			3	6381	6217	6086	5979	5889	5813	5748	5692	5643	5599	5561	5532	0.318
			4	6540	6358	6213	6094	5995	5911	5839	5777	5722	5674	5631	5599	0.267
			5	6698	6499	6339	6209	6100	6008	5929	5861	5801	5748	5702	5666	0.231
			6	6856	6639	6466	6324	6206	6106	6020	5945	5880	5823	5772	5734	0.203
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4243	4131	4042	3969	3909	3857	3813	3775	3742	3712	3686	3666	0.728
			1	4401	4272	4169	4084	4014	-	-	-	-	-	-	-	0.509
			2	4559	4413	4295	4200	4120	4052	3994	3944	3900	3861	3827	-	0.391
			3	4718	4553	4422	4315	4225	4149	4085	4028	3979	3936	3897	3868	0.318
			4	4876	4694	4549	4430	4331	4247	4175	4113	4058	4010	3967	3935	0.267
			5	5034	4835	4675	4545	4436	4344	4265	4197	4137	4085	4038	4002	0.231
			6	5193	4976	4802	4660	4542	4442	4356	4282	4217	4159	4108	4070	0.203
				4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	
20 0.0358 Design Thickness K_2 = 1056	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	6107	5867	5779	5706	5645	5592	5546	5506	5439	5386	5342	5317	0.802
			1	6300	6021	5919	5834	-	-	-	-	-	-	-	-	0.561
			2	6492	6174	6059	5963	5881	5811	5751	5698	5610	-	-	-	0.431
			3	6684	6328	6199	6091	5999	5921	5853	5794	5695	5616	5551	5514	0.350
			4	6876	6482	6338	6219	6118	6031	5956	5890	5781	5693	5621	5580	0.294
			5	7068	6635	6478	6347	6236	6141	6058	5986	5866	5770	5691	5646	0.254
			6	7260	6789	6618	6475	6354	6251	6161	6082	5951	5847	5761	5712	0.224
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4444	4203	4116	4043	3981	3928	3882	3842	3775	3722	3678	3653	0.802
			1	4636	4357	4255	4171	-	-	-	-	-	-	-	-	0.561
			2	4828	4510	4395	4299	4217	4148	4087	4034	3946	-	-	-	0.431
			3	5020	4664	4535	4427	4336	4257	4190	4130	4031	3952	3888	3851	0.350
			4	5212	4818	4675	4555	4454	4367	4292	4226	4117	4029	3958	3917	0.294
			5	5404	4972	4814	4683	4572	4477	4395	4322	4202	4106	4027	3982	0.254
			6	5597	5125	4954	4811	4690	4587	4497	4419	4288	4183	4097	4048	0.224

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 15C
1.0RD 22 & 20 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Support Fasteners: # 12 Screws **Φ (Wind): 0.70** **Ω (Wind): 2.35**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.65** **Ω (Other): 2.50**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 5	
22 0.0295 Design Thickness K_2 = 870	No Fill (Bare Deck)	36/6 D_n = 110	0	657	581	521	471	430	395	365	339	316	296	278	265	0.659
			1	799	718	647	586	535	-	-	-	-	-	-	-	0.474
			2	931	839	763	699	641	590	546	508	475	445	419	-	0.370
			3	1056	955	871	800	739	686	636	592	554*	520*	489*	467*	0.304
			4	1172	1065	974	897	830	772	722*	677*	633*	594*	560*	534*	0.257
			5	1280	1168	1072	990	918	856*	801*	752*	709*	669*	630*	601*	0.223
			6	1379	1265	1165	1078	1003*	936*	877*	825*	778*	736*	698*	669*	0.197
		36/4 D_n = 262	0	538	484	434	392	358	328	303	281	262	245	230	219	0.823
			1	662	600	548	503	463	-	-	-	-	-	-	-	0.554
			2	772	705	647	597	554	517	483	450	420	394	371	-	0.417
			3	868	799	738	684	637	596	559	526	497	469	441*	421*	0.334
			4	952	882	819	764	714	670	630	594	562*	533*	507*	487*	0.279
			5	1024	955	893	836	785	739	697*	659*	625*	593*	565*	543*	0.240
			6	1086	1020	958	901	849	802	759*	720*	684*	651*	620*	597*	0.210
				4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	
20 0.0358 Design Thickness K_2 = 1056	No Fill (Bare Deck)	36/6 D_n = 82	0	800	635	575	524	482	446	414	387	341	304	274	256	0.726
			1	970	789	714	653	-	-	-	-	-	-	-	-	0.522
			2	1130	926	848	781	719	665	619	579	511	-	-	-	0.408
			3	1281	1057	971	897	833	775	722	675	597*	534*	483*	454*	0.334
			4	1422	1183	1089	1008	937	876	822*	771*	682*	611*	553*	520*	0.283
			5	1553	1301	1201	1114	1038	972*	912*	860*	768*	688*	623*	586*	0.246
			6	1674	1414	1309	1217	1136*	1064*	1001*	944*	847*	765*	693*	652*	0.217
		36/4 D_n = 196	0	653	530	479	437	401	371	344	321	282	251	226	211	0.907
			1	803	665	611	565	-	-	-	-	-	-	-	-	0.610
			2	937	785	725	673	627	587	549	513	453	-	-	-	0.459
			3	1054	895	830	773	723	678	638	603	538	482*	435*	409*	0.368
			4	1155	994	927	867	813	765	721	682	615*	559*	505*	475*	0.307
			5	1243	1083	1014	952	896	846	800	758*	686*	625*	574*	541*	0.264
			6	1318	1162	1094	1031	973	921	873*	830*	753*	688*	633*	601*	0.231

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.) From Table Above												I ($in.^4/ft.$)
22	No Fill	All	1858	1468	1189	983	826	704	607	528	464	411	367	335	0.0700
20			2483	1589	1313	1104	940	811	706	621	490	397	328	292	0.0849

See page 30 for table notes.

TABLE NO. 15D

1.0RD 22 & 20 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Support Fasteners: # 12 Screws **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: # 10 Screws **Φ (Other): 0.50** **Ω (Other): 3.25**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)												K_1 ($ft.^{-1}$)
				4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 5	
22 0.0295 Design Thickness K_2 = 870	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5478	5414	5363	5321	5287	5257	5232	5210	5191	5174	5159	5148	0.823
			1	5636	5555	5490	5437	5392	-	-	-	-	-	-	-	0.554
			2	5795	5696	5617	5552	5498	5452	5413	5379	5349	5323	5300	-	0.417
			3	5953	5836	5743	5667	5603	5550	5504	5464	5429	5398	5370	5350	0.334
			4	6111	5977	5870	5782	5709	5647	5594	5548	5508	5472	5441	5417	0.279
			5	6270	6118	5997	5897	5815	5745	5685	5632	5587	5547	5511	5484	0.240
			6	6428	6259	6123	6012	5920	5842	5775	5717	5666	5621	5582	5552	0.210
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	3814	3750	3699	3658	3623	3594	3568	3546	3527	3510	3495	3484	0.823
			1	3972	3891	3826	3773	3728	-	-	-	-	-	-	-	0.554
			2	4131	4032	3953	3888	3834	3788	3749	3715	3686	3659	3636	-	0.417
			3	4289	4173	4079	4003	3940	3886	3840	3800	3765	3734	3707	3686	0.334
			4	4448	4313	4206	4118	4045	3983	3930	3884	3844	3809	3777	3753	0.279
			5	4606	4454	4333	4233	4151	4081	4021	3969	3923	3883	3847	3820	0.240
			6	4764	4595	4459	4349	4256	4178	4111	4053	4002	3958	3918	3888	0.210
				4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	
20 0.0358 Design Thickness K_2 = 1056	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5600	5461	5411	5368	5333	5302	5276	5252	5214	5183	5157	5143	0.907
			1	5793	5615	5550	5496	-	-	-	-	-	-	-	-	0.610
			2	5985	5769	5690	5625	5569	5522	5481	5445	5385	-	-	-	0.459
			3	6177	5922	5830	5753	5687	5632	5583	5541	5470	5413	5367	5341	0.368
			4	6369	6076	5970	5881	5806	5741	5686	5637	5555	5490	5437	5407	0.307
			5	6561	6230	6109	6009	5924	5851	5788	5733	5641	5567	5507	5472	0.264
			6	6753	6384	6249	6137	6042	5961	5890	5829	5726	5644	5577	5538	0.231
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	3937	3797	3747	3705	3669	3638	3612	3589	3550	3519	3494	3479	0.907
			1	4129	3951	3887	3833	-	-	-	-	-	-	-	-	0.610
			2	4321	4105	4026	3961	3905	3858	3817	3781	3721	-	-	-	0.459
			3	4513	4259	4166	4089	4024	3968	3919	3877	3806	3750	3703	3677	0.368
			4	4705	4412	4306	4217	4142	4078	4022	3973	3892	3826	3773	3743	0.307
			5	4897	4566	4446	4345	4260	4187	4124	4069	3977	3903	3843	3809	0.264
			6	5090	4720	4585	4473	4378	4297	4227	4165	4062	3980	3913	3874	0.231

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 15E
1.0RD 20 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds **Φ (Other): 0.50** **Ω (Other): 3.25**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.) 4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	K_1 ($ft.^{-1}$)
20 0.0358 Design Thickness K_2 = 1056	2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	6107	5867	5779	5706	5645	5592	5546	5506	5439	5386	5342	5317	0.802
			1	6716	6354	6222	6112	-	-	-	-	-	-	-	-	0.394
			2	7326	6841	6665	6518	6394	6288	6196	6115	5980	-	-	-	0.261
			3	7935	7329	7108	6925	6769	6636	6520	6419	6251	6116	6006	5943	0.195
			4	8544	7816	7551	7331	7144	6984	6845	6724	6522	6360	6228	6152	0.156
			5	9153	8303	7994	7737	7519	7332	7170	7029	6793	6604	6449	6361	0.130
			6	9762	8790	8437	8143	7894	7680	7495	7333	7063	6847	6671	6570	0.111
	2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4444	4203	4116	4043	3981	3928	3882	3842	3775	3722	3678	3653	0.802
			1	5053	4690	4558	4449	-	-	-	-	-	-	-	-	0.394
			2	5662	5178	5001	4855	4731	4624	4532	4451	4317	-	-	-	0.261
			3	6271	5665	5444	5261	5105	4972	4857	4756	4587	4453	4342	4279	0.195
			4	6880	6152	5887	5667	5480	5320	5182	5060	4858	4696	4564	4488	0.156
			5	7489	6639	6330	6073	5855	5668	5506	5365	5129	4940	4785	4697	0.130
			6	8098	7127	6773	6479	6230	6016	5831	5669	5399	5184	5007	4906	0.111

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 15F
1.0RD 20 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.70** **Ω (Wind): 2.35**
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds **Φ (Other): 0.60** **Ω (Other): 2.65**

Gage	Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.) 4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	K_1 ($ft.^{-1}$)
20 0.0358 Design Thickness K_2 = 1056	No Fill (Bare Deck)	36/6 D_n = 82	0	1383	1097	993	906	833	770	716	668	589*	525*	473*	443*	0.642
			1	1909	1562	1431	1313*	-	-	-	-	-	-	-	-	0.351
			2	2379	1973*	1815*	1679*	1561*	1458*	1365*	1277*	1130*	-	-	-	0.242
			3	2791	2348*	2170*	2016*	1880*	1760*	1654*	1560*	1399*	1256*	1137*	1070*	0.184
			4	3147*	2686*	2496*	2327*	2178*	2046*	1927*	1821*	1638*	1487*	1359*	1279*	0.149
			5	3450*	2987*	2790*	2613*	2455*	2313*	2184*	2068*	1867*	1700*	1559*	1476*	0.125
			6	3706*	3252*	3054*	2873*	2709*	2560*	2425*	2301*	2086*	1904*	1750*	1659*	0.108
		36/4 D_n = 196	0	1128	915	828	755	693	640	595	554	488	434	390*	365*	0.802
			1	1583	1324	1221	1132	-	-	-	-	-	-	-	-	0.394
			2	1941	1664	1548*	1446*	1354*	1273*	1200*	1134*	1022*	-	-	-	0.261
			3	2216	1943*	1824*	1716*	1617*	1528*	1447*	1373*	1244*	1136*	1044*	990*	0.195
			4	2423	2168*	2052*	1944*	1844*	1751*	1666*	1588*	1448*	1328*	1226*	1165*	0.156
			5	2581	2348*	2239*	2135*	2037*	1945*	1858*	1778*	1632*	1506*	1395*	1329*	0.130
			6	2700	2492*	2391*	2293*	2200*	2110*	2025*	1945*	1798*	1667*	1552*	1482*	0.111

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 3.180
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.) 4 - 0	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	9 - 0	10 - 0	11 - 0	11 - 8	I ($in.^4/ft.$)
20	No Fill	All	2483	1589	1313	1104	940	811	706	621	490	397	328	292	0.0849

See page 30 for table notes.

TABLE NO. 16A - F 22 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0295 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 4	
No Fill (Bare Deck)	36/9 D_n = 173	0	2659	2455	2274	2115	1973	1848	1736	1636	1546	1459	1373	1296	1227	1144	0.324
		1	2818	2614	2431	2268	2123	1992	1875	1770	1675	1589	1511	1429	1353	1263	0.272
		2	2961	2760	2577	2412	2263	2129	2008	1899	1800	1709	1627	1552	1480	1382	0.234
		3	3090	2893	2712	2546	2396	2259	2135	2022	1919	1825	1740	1661	1588	1500	0.206
		4	3206	3014	2836	2671	2520	2382	2256	2140	2034	1937	1848	1766	1691	1599	0.183
		5	3310	3125	2950	2787	2637	2498	2370	2253	2144	2045	1953	1868	1790	1694	0.165
		6	3404	3225	3055	2895	2746	2607	2479	2360	2250	2148	2054	1967	1886	1788	0.151
		7	3489	3317	3152	2995	2848	2710	2581	2462	2351	2247	2152	2063	1980	1878*	0.138
		8	3566	3401	3241	3088	2943	2806	2678	2558	2447	2343	2245	2155	2070	1966*	0.128
		9	3635	3477	3322	3173	3031	2897	2770	2650	2538	2433	2335	2243	2157*	2051*	0.119
		10	3697	3546	3397	3253	3114	2982	2856	2737	2626	2520	2422	2329*	2242*	2134*	0.111
	36/7 D_n = 173	0	1779	1618	1481	1364	1263	1175	1098	1024	957	898	845	799	756	706	0.486
		1	1990	1820	1673	1547	1436	1340	1254	1179	1111	1047	986	932	883	825	0.377
		2	2178	2004	1852	1718	1600	1496	1404	1322	1248	1182	1122	1065	1010	944	0.308
		3	2347	2172	2016	1878	1755	1645	1547	1459	1380	1308	1243	1184	1130	1063	0.261
		4	2497	2323	2167	2026	1899	1785	1683	1590	1506	1430	1361	1297	1239	1169	0.226
		5	2629	2460	2304	2162	2034	1917	1811	1715	1627	1547	1474	1407	1345	1271	0.199
		6	2747	2582	2429	2288	2159	2040	1932	1833	1742	1659	1583	1513	1448	1369	0.178
		7	2850	2692	2543	2404	2275	2156	2046	1945	1852	1767	1688	1615	1547	1465	0.161
		8	2942	2790	2646	2510	2382	2263	2153	2051	1957	1869	1788	1713	1643	1557	0.147
		9	3024	2879	2739	2607	2481	2363	2253	2151	2055	1967	1884	1807	1735	1647	0.135
		10	3096	2958	2824	2695	2573	2457	2347	2245	2149	2059	1975	1897	1824	1733	0.125
	36/5 D_n = 601	0	1509	1392	1289	1198	1118	1046	983	926	875	829	782	738	699	653	0.583
		1	1663	1548	1443	1349	1265	1189	1120	1059	1003	952	906	864	825	771	0.433
		2	1792	1681	1578	1483	1397	1319	1247	1182	1123	1068	1018	973	930	879	0.345
		3	1899	1794	1694	1601	1515	1436	1363	1296	1234	1177	1124	1075	1031	976	0.286
		4	1989	1890	1795	1705	1621	1542	1468	1400	1337	1278	1223	1173	1125	1067	0.245
		5	2063	1971	1882	1796	1714	1637	1564	1496	1432	1372	1316	1264	1215	1155	0.214
		6	2126	2041	1957	1875	1797	1722	1650	1583	1519	1459	1402	1349	1299	1237	0.190
		7	2178	2100	2022	1945	1870	1798	1728	1662	1599	1539	1482	1429	1378	1315	0.171
		8	2223	2151	2078	2006	1935	1865	1798	1734	1672	1613	1556	1503	1452	1388	0.155
		9	2261	2194	2127	2059	1992	1926	1861	1799	1738	1680	1625	1572	1521	1457	0.142
		10	2293	2232	2170	2106	2043	1980	1918	1858	1799	1743	1688	1636	1585	1522	0.131
	36/4 D_n = 816	0	1150	1063	985	916	856	802	753	710	671	628	591	558	527	492	0.728
		1	1296	1211	1133	1062	998	940	887	840	796	757	721	688	654	610	0.509
		2	1411	1331	1256	1186	1121	1062	1007	957	911	868	829	793	759	719	0.391
		3	1501	1427	1357	1290	1227	1168	1113	1061	1014	969	928	890	854	811	0.318
		4	1571	1505	1440	1377	1317	1259	1205	1154	1106	1061	1019	979	942	896	0.267
		5	1627	1567	1508	1450	1393	1338	1286	1236	1189	1144	1101	1061	1023	976	0.231
		6	1672	1618	1564	1511	1458	1406	1356	1308	1262	1217	1175	1135	1097	1049	0.203
		7	1708	1660	1611	1562	1513	1465	1417	1371	1326	1283	1242	1202	1165	1117	0.181
		8	1737	1694	1650	1605	1560	1515	1470	1426	1384	1342	1302	1263	1226	1178	0.164
		9	1761	1723	1683	1642	1600	1558	1516	1475	1434	1395	1356	1318	1282	1235	0.149
		10	1781	1747	1711	1673	1635	1596	1557	1518	1479	1441	1404	1368	1332	1287	0.137

Diaphragm Stiffness, G' (kip/in.)

K_2 = 870 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\ D_n}{L_v} + 3\ K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)															I ($in.^4/ft.$)
		2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 4		
No Fill	All	11480	9071	7347	6072	5102	4347	3749	3265	2870	2542	2268	2035	1837	1614	0.1280	

See page 30 for table notes.

TABLE NO. 16B - F 22 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0295 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 4	
No Fill (Bare Deck)	36/9 D_n = 173	0	1624	1499	1389	1291	1205	1128	1060	999	944	891	838	791	749	699	0.366
		1	1777	1654	1542	1442	1352	1270	1197	1131	1072	1018	968	923	876	817	0.301
		2	1907	1787	1677	1576	1484	1401	1324	1255	1192	1134	1081	1032	987	933	0.255
		3	2016	1902	1795	1696	1604	1519	1441	1370	1304	1243	1187	1136	1088	1030	0.222
		4	2108	2001	1899	1802	1711	1627	1548	1476	1408	1345	1287	1234	1184	1122	0.196
		5	2186	2086	1989	1896	1807	1724	1646	1573	1505	1441	1382	1326	1274	1210	0.176
		6	2251	2158	2067	1978	1893	1812	1735	1662	1594	1530	1470	1413	1360	1294	0.159
		7	2307	2221	2135	2051	1969	1891	1816	1744	1677	1612	1552	1495	1441	1374	0.145
		8	2355	2275	2195	2115	2037	1962	1889	1819	1752	1689	1628	1571	1517	1449	0.134
		9	2396	2322	2247	2172	2098	2026	1955	1887	1822	1759	1700	1643	1588	1520	0.124
		10	2431	2363	2293	2223	2152	2083	2016	1950	1886	1825	1766	1709	1655	1587	0.116
	36/7 D_n = 173	0	1086	988	904	833	771	717	670	625	584	548	516	488	462	431	0.549
		1	1290	1184	1092	1012	942	880	825	776	732	693	657	621	589	550	0.414
		2	1459	1353	1257	1172	1096	1029	968	913	864	820	779	742	709	668	0.333
		3	1599	1495	1400	1313	1235	1164	1099	1041	987	939	894	853	816	770	0.278
		4	1713	1615	1522	1437	1358	1285	1219	1158	1101	1050	1002	958	918	868	0.239
		5	1806	1715	1627	1544	1466	1394	1327	1264	1206	1153	1103	1057	1014	961	0.209
		6	1883	1798	1716	1637	1562	1490	1424	1361	1302	1248	1197	1149	1104	1049	0.186
		7	1946	1868	1792	1717	1645	1576	1511	1449	1390	1335	1283	1235	1189	1132	0.168
		8	1998	1927	1856	1786	1718	1652	1588	1527	1470	1415	1363	1314	1268	1210	0.152
		9	2042	1977	1911	1846	1781	1718	1657	1598	1542	1488	1437	1388	1341	1282	0.140
		10	2079	2019	1959	1898	1837	1777	1719	1662	1607	1555	1504	1455	1409	1350	0.129
	36/5 D_n = 601	0	921	850	787	732	683	639	600	566	534	506	477	451	427	399	0.659
		1	1067	998	935	877	825	777	734	695	660	627	597	570	545	515	0.474
		2	1176	1112	1052	996	944	895	851	809	771	736	704	673	646	611	0.370
		3	1256	1200	1145	1092	1042	995	950	908	869	833	799	767	737	701	0.304
		4	1316	1267	1218	1169	1123	1078	1035	994	955	918	884	851	820	782	0.257
		5	1362	1319	1275	1231	1188	1146	1106	1066	1029	993	959	926	895	856	0.223
		6	1397	1359	1321	1281	1242	1204	1166	1128	1093	1058	1024	992	961	922	0.197
		7	1424	1391	1357	1322	1287	1251	1216	1181	1147	1114	1082	1051	1021	982	0.177
		8	1446	1417	1387	1355	1323	1291	1259	1226	1194	1163	1132	1102	1073	1036	0.160
		9	1463	1438	1411	1383	1354	1324	1295	1265	1235	1206	1176	1148	1120	1084	0.146
		10	1478	1455	1431	1406	1379	1353	1325	1298	1270	1242	1215	1188	1161	1127	0.134
	36/4 D_n = 816	0	702	649	602	560	522	489	460	434	409	384	361	340	322	300	0.823
		1	838	788	741	698	659	623	589	559	532	506	483	461	442	418	0.554
		2	929	886	843	803	765	729	696	664	635	608	583	559	537	510	0.417
		3	991	954	918	882	847	813	781	751	722	694	668	644	621	592	0.334
		4	1033	1003	972	940	909	879	849	821	793	766	741	716	693	664	0.279
		5	1064	1038	1012	985	958	930	903	877	851	826	802	778	755	726	0.240
		6	1086	1064	1042	1019	995	971	947	923	899	875	853	830	808	780	0.210
		7	1102	1084	1065	1045	1024	1003	981	960	938	916	895	874	854	827	0.187
		8	1115	1100	1083	1065	1047	1028	1009	990	970	950	931	911	892	867	0.168
		9	1125	1112	1097	1082	1066	1049	1032	1014	997	979	961	943	925	901	0.153
		10	1133	1121	1108	1095	1081	1066	1051	1035	1019	1003	986	970	953	931	0.140

Diaphragm Stiffness, G' (kip/in.)

K_2 = 870 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		2 - 0	2 - 3	2 - 6	2 - 9	3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 4	
No Fill	All	11480	9071	7347	6072	5102	4347	3749	3265	2870	2542	2268	2035	1837	1614	0.1280

See page 30 for table notes.

TABLE NO. 17A - F 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 7	
No Fill (Bare Deck)	36/9 D_n = 130	0	2370	2219	2085	1965	1857	1759	1658	1566	1483	1407	1339	1276	1219	1102	0.357
		1	2551	2394	2254	2127	2013	1910	1816	1728	1636	1554	1479	1410	1347	-	0.299
		2	2721	2560	2415	2283	2164	2056	1957	1866	1783	1700	1618	1544	1475	1336	0.258
		3	2882	2718	2568	2433	2309	2196	2093	1998	1911	1831	1756	1677	1603	1453	0.226
		4	3032	2866	2714	2576	2448	2332	2225	2126	2035	1951	1873	1801	1732	1569	0.202
		5	3173	3007	2853	2712	2582	2462	2352	2250	2156	2068	1987	1912	1841	1686*	0.182
		6	3305	3138	2984	2841	2709	2587	2474	2370	2272	2182	2098	2020	1947	1794*	0.166
		7	3428	3263	3108	2965	2831	2707	2592	2485	2385	2293	2206	2125*	2050*	1891*	0.152
		8	3543	3379	3225	3082	2947	2822	2705	2596	2495	2400	2311	2228*	2150*	1986*	0.141
		9	3650	3488	3336	3193	3058	2932	2814	2704	2600	2504	2413*	2328*	2248*	2079*	0.131
		10	3749	3591	3440	3298	3163	3037	2918	2807	2702	2604*	2512*	2425*	2343*	2170*	0.122
	36/7 D_n = 130	0	1516	1411	1318	1234	1154	1083	1020	964	913	867	826	788	753	682	0.535
		1	1727	1611	1508	1417	1336	1264	1191	1126	1067	1014	965	921	881	-	0.415
		2	1926	1801	1690	1591	1502	1422	1350	1285	1221	1160	1105	1055	1009	915	0.340
		3	2113	1981	1863	1757	1662	1575	1497	1426	1361	1301	1245	1189	1137	1032	0.287
		4	2287	2150	2027	1916	1815	1723	1640	1563	1493	1429	1370	1315	1265	1149	0.249
		5	2450	2310	2182	2067	1961	1865	1777	1696	1622	1554	1490	1432	1378	1265	0.219
		6	2601	2459	2329	2210	2101	2001	1909	1824	1746	1674	1607	1545	1488	1368	0.196
		7	2741	2598	2467	2345	2234	2131	2036	1948	1866	1791	1721	1656	1595	1469	0.178
		8	2871	2728	2596	2473	2360	2254	2157	2066	1982	1904	1831	1763	1700	1567	0.162
		9	2990	2849	2717	2594	2479	2372	2273	2180	2094	2013	1938	1868	1802	1663*	0.149
		10	3100	2961	2830	2707	2592	2484	2383	2289	2201	2118	2041	1968	1900	1757*	0.138
	36/5 D_n = 450	0	1342	1256	1180	1112	1051	996	944	892	844	802	763	728	696	630	0.642
		1	1520	1429	1347	1273	1206	1145	1089	1039	992	948	903	862	824	-	0.477
		2	1681	1586	1501	1422	1351	1285	1225	1170	1120	1073	1030	990	952	863	0.380
		3	1824	1729	1641	1560	1486	1417	1354	1295	1241	1191	1144	1101	1061	976	0.315
		4	1951	1857	1768	1686	1610	1540	1474	1413	1356	1303	1254	1208	1165	1074	0.270
		5	2064	1971	1884	1802	1725	1653	1586	1523	1464	1409	1358	1310	1264	1169	0.236
		6	2164	2074	1988	1907	1830	1758	1690	1626	1566	1510	1457	1407	1359	1260	0.209
		7	2252	2165	2082	2002	1927	1855	1787	1722	1662	1604	1550	1499	1450	1347	0.188
		8	2329	2246	2166	2089	2015	1944	1876	1812	1751	1693	1638	1586	1536	1430	0.171
		9	2398	2319	2242	2167	2095	2025	1959	1895	1834	1776	1721	1668	1618	1510	0.156
		10	2459	2384	2310	2238	2168	2100	2035	1972	1911	1854	1798	1745	1695	1585	0.144
	36/4 D_n = 610	0	1027	962	904	853	806	760	715	674	638	605	576	549	524	473	0.802
		1	1200	1130	1067	1010	958	910	867	827	791	752	715	682	652	-	0.561
		2	1349	1278	1212	1152	1096	1045	998	955	914	877	843	811	780	706	0.431
		3	1477	1406	1340	1278	1221	1168	1118	1072	1029	990	952	917	885	817	0.350
		4	1585	1516	1452	1390	1333	1279	1228	1180	1136	1094	1055	1018	983	910	0.294
		5	1677	1612	1549	1489	1432	1378	1327	1279	1233	1190	1150	1111	1075	998	0.254
		6	1755	1693	1633	1576	1520	1467	1417	1368	1323	1279	1238	1199	1161	1082	0.224
		7	1821	1763	1707	1652	1598	1547	1497	1450	1404	1361	1319	1279	1242	1160	0.200
		8	1878	1824	1770	1718	1667	1617	1569	1523	1478	1435	1394	1354	1316	1233	0.180
		9	1926	1876	1826	1776	1728	1680	1634	1589	1545	1503	1462	1423	1385	1302	0.164
		10	1967	1921	1874	1828	1782	1736	1692	1648	1606	1565	1525	1486	1448	1366	0.151

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 7	
No Fill	All	6818	5809	5009	4363	3835	3397	3030	2720	2454	2226	2028	1856	1704	1416	0.1552

See page 30 for table notes.

TABLE NO. 17B - F 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners: 1 1/2" Long Fillet Welds

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 7	
No Fill (Bare Deck)	36/9 D_n = 130	0	2370	2219	2085	1965	1857	1759	1658	1566	1483	1407	1339	1276	1219	1102	0.357
		1	2765	2603	2456	2323	2203	2093	1993	1901	1817	1739	1655	1579	1509	-	0.244
		2	3108	2941	2789	2648	2520	2401	2292	2192	2099	2013	1934	1860	1791	1631*	0.186
		3	3403	3237	3083	2940	2806	2683	2568	2461	2362	2270	2184	2104	2028*	1871*	0.150
		4	3655	3494	3342	3199	3064	2938	2820	2710	2606	2509	2418*	2333*	2253*	2084*	0.126
		5	3871	3716	3568	3428	3295	3168	3049	2937	2831*	2731*	2637*	2548*	2464*	2287*	0.108
		6	4054	3907	3766	3630	3500	3375	3257	3144*	3038*	2936*	2840*	2749*	2663*	2478*	0.095
		7	4210	4073	3938	3808	3682	3561	3444	3333*	3226*	3125*	3028*	2935*	2847*	2658*	0.085
		8	4343	4215	4088	3964	3843	3726	3613*	3503*	3398*	3297*	3201*	3108*	3020*	2827*	0.076
		9	4458	4338	4219	4102	3987	3874	3764*	3658*	3555*	3456*	3360*	3268*	3179*	2986*	0.069
		10	4556	4445	4334	4223	4114	4006*	3900*	3798*	3697*	3600*	3506*	3415*	3327*	3134*	0.064
	36/7 D_n = 130	0	1516	1411	1318	1234	1154	1083	1020	964	913	867	826	788	753	682	0.535
		1	1976	1849	1736	1635	1545	1463	1389	1322	1261	1199	1142	1090	1043	-	0.317
		2	2375	2236	2110	1996	1893	1799	1713	1634	1562	1495	1434	1377	1325	1210	0.225
		3	2713	2570	2439	2318	2207	2104	2010	1922	1842	1767	1698	1633	1573	1448	0.174
		4	2997	2856	2724	2600	2486	2379	2279	2186	2100	2019	1944	1873	1807	1669*	0.142
		5	3232	3097	2968	2846	2731	2623	2521	2425	2335	2251	2171	2097	2026*	1877*	0.120
		6	3428	3300	3177	3059	2946	2839	2737	2641	2549	2463	2381*	2303*	2230*	2073*	0.104
		7	3590	3471	3355	3242	3134	3029	2929	2833	2742	2655*	2572*	2493*	2418*	2256*	0.092
		8	3725	3615	3506	3400	3296	3196	3099	3005	2915*	2829*	2746*	2667*	2591*	2426*	0.082
		9	3837	3736	3636	3536	3438	3342	3249	3158*	3070*	2986*	2904*	2825*	2749*	2583*	0.074
		10	3932	3839	3746	3653	3561	3470	3381	3294*	3209*	3127*	3047*	2969*	2894*	2729*	0.068
	36/5 D_n = 450	0	1342	1256	1180	1112	1051	996	944	892	844	802	763	728	696	630	0.642
		1	1720	1625	1539	1460	1387	1321	1260	1204	1152	1105	1060	1019	981	-	0.351
		2	2012	1919	1831	1749	1672	1601	1534	1472	1414	1360	1309	1262	1218	1125	0.242
		3	2234	2147	2063	1983	1907	1835	1767	1703	1642	1585	1531	1480	1432	1329	0.184
		4	2402	2323	2246	2171	2099	2030	1963	1899	1838	1780	1725	1672	1622	1514	0.149
		5	2529	2459	2390	2321	2255	2189	2126	2065	2006	1948	1894	1841	1790	1680*	0.125
		6	2626	2565	2503	2442	2381	2320	2261	2203	2147	2092	2039	1987	1937	1827*	0.108
		7	2702	2648	2594	2538	2483	2428	2373	2320	2267	2215	2164	2114	2066*	1958*	0.094
		8	2762	2714	2666	2617	2567	2517	2467	2417	2368	2319	2271	2224*	2177*	2073*	0.084
		9	2809	2768	2725	2680	2636	2590	2544	2499	2453	2408	2363*	2318*	2274*	2175*	0.076
		10	2848	2811	2773	2733	2693	2651	2610	2568	2526	2484	2442*	2400*	2359*	2264*	0.069
	36/4 D_n = 610	0	1027	962	904	853	806	760	715	674	638	605	576	549	524	473	0.802
		1	1385	1313	1247	1187	1130	1079	1031	987	946	908	872	839	809	-	0.394
		2	1636	1569	1505	1444	1387	1333	1282	1234	1188	1146	1106	1068	1033	957	0.261
		3	1808	1750	1692	1637	1583	1531	1481	1433	1388	1344	1303	1263	1225	1144	0.195
		4	1928	1878	1829	1779	1731	1684	1637	1592	1549	1506	1466	1426	1388	1306	0.156
		5	2013	1971	1928	1886	1843	1801	1759	1718	1677	1638	1599	1561	1525	1444	0.130
		6	2074	2039	2003	1966	1929	1891	1854	1817	1780	1744	1708	1673	1638	1560	0.111
		7	2119	2089	2059	2027	1995	1962	1929	1896	1863	1830	1797	1764	1732	1659*	0.097
		8	2154	2128	2102	2074	2046	2017	1988	1959	1929	1899	1869	1840	1810	1742*	0.086
		9	2180	2158	2135	2111	2087	2062	2036	2010	1983	1956	1929	1902	1875	1812*	0.078
		10	2201	2182	2162	2141	2120	2097	2074	2051	2027	2003	1979	1954	1929	1871*	0.071

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 7	
No Fill	All	6818	5809	5009	4363	3835	3397	3030	2720	2454	2226	2028	1856	1704	1416	0.1552

See page 30 for table notes.

TABLE NO. 17C - F 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 7	
No Fill (Bare Deck)	36/9 D_n = 130	0	1462	1369	1287	1212	1146	1086	1024	966	915	869	826	788	752	680	0.403
		1	1640	1542	1453	1373	1301	1235	1175	1120	1069	1015	966	921	881	-	0.331
		2	1801	1700	1607	1523	1446	1376	1311	1252	1198	1148	1101	1055	1009	914	0.281
		3	1947	1844	1749	1662	1582	1509	1441	1378	1320	1267	1217	1170	1127	1031	0.244
		4	2077	1974	1879	1791	1709	1633	1562	1497	1436	1380	1327	1278	1232	1136	0.216
		5	2193	2092	1998	1909	1826	1749	1677	1609	1546	1488	1433	1381	1333	1232	0.193
		6	2297	2199	2106	2018	1935	1857	1784	1715	1650	1590	1533	1480	1430	1324	0.175
		7	2390	2295	2204	2117	2035	1957	1883	1814	1749	1687	1629	1574	1522	1412	0.160
		8	2473	2381	2292	2208	2127	2049	1976	1907	1841	1778	1719	1663	1610	1498	0.147
		9	2546	2458	2373	2290	2211	2135	2063	1993	1927	1865	1805	1748	1695	1579	0.137
		10	2612	2528	2446	2366	2289	2214	2143	2074	2008	1946	1886	1829	1775	1657*	0.127
	36/7 D_n = 130	0	936	871	814	762	712	668	630	595	564	535	510	486	465	421	0.605
		1	1143	1067	1001	942	889	841	798	757	717	682	649	620	593	-	0.456
		2	1330	1248	1175	1108	1049	995	945	901	860	822	788	753	721	654	0.366
		3	1499	1412	1334	1263	1198	1139	1085	1036	990	948	910	874	841	771	0.306
		4	1648	1560	1479	1405	1337	1274	1216	1163	1114	1068	1026	987	950	874	0.263
		5	1780	1692	1610	1534	1464	1399	1339	1283	1230	1182	1137	1095	1056	973	0.230
		6	1895	1809	1728	1652	1581	1514	1452	1394	1340	1290	1242	1198	1156	1069	0.205
		7	1996	1913	1833	1758	1687	1620	1557	1498	1443	1391	1341	1295	1252	1160	0.185
		8	2085	2004	1927	1854	1784	1717	1654	1595	1538	1485	1435	1387	1343	1247	0.168
		9	2162	2085	2011	1940	1871	1806	1743	1684	1627	1574	1523	1474	1428	1330	0.154
		10	2230	2157	2086	2017	1951	1887	1825	1766	1710	1656	1605	1556	1509	1409	0.142
	36/5 D_n = 450	0	828	775	728	686	648	614	582	550	521	495	471	449	429	389	0.726
		1	1001	943	891	844	800	761	725	692	662	634	608	583	557	-	0.522
		2	1145	1087	1032	982	936	893	854	817	783	752	723	696	670	617	0.408
		3	1265	1207	1153	1102	1055	1011	969	931	895	861	829	800	772	713	0.334
		4	1362	1308	1255	1206	1159	1114	1072	1033	995	960	927	896	866	804	0.283
		5	1442	1391	1342	1294	1249	1205	1163	1124	1086	1050	1016	984	953	888	0.246
		6	1508	1461	1414	1369	1326	1284	1243	1204	1167	1131	1097	1064	1033	966	0.217
		7	1561	1518	1476	1434	1392	1352	1313	1275	1239	1203	1170	1137	1106	1038	0.195
		8	1606	1567	1527	1488	1449	1411	1374	1338	1303	1268	1235	1203	1172	1104	0.176
		9	1643	1607	1571	1535	1499	1463	1428	1393	1359	1326	1294	1262	1232	1165	0.161
		10	1674	1641	1608	1575	1541	1508	1475	1442	1409	1378	1346	1316	1286	1220	0.148
	36/4 D_n = 610	0	634	594	558	526	497	469	441	416	394	374	355	339	323	292	0.907
		1	799	755	715	679	645	614	586	560	536	514	493	472	451	-	0.610
		2	928	885	844	806	771	738	707	678	652	627	603	581	561	518	0.459
		3	1028	987	948	911	876	842	811	781	753	727	702	678	656	609	0.368
		4	1104	1067	1031	996	962	930	899	869	841	814	789	764	741	691	0.307
		5	1162	1129	1096	1064	1033	1002	973	944	917	890	865	840	817	766	0.264
		6	1207	1178	1149	1120	1091	1062	1035	1007	981	955	931	907	883	832	0.231
		7	1243	1217	1191	1164	1138	1112	1086	1061	1036	1011	988	964	942	892	0.206
		8	1271	1248	1225	1201	1177	1153	1130	1106	1083	1060	1037	1015	993	944	0.185
		9	1293	1273	1252	1231	1210	1188	1166	1144	1123	1101	1080	1059	1038	991	0.168
		10	1312	1294	1275	1256	1237	1217	1197	1177	1157	1137	1117	1097	1077	1032	0.154

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)															I ($in.^4/ft.$)
		3 - 0	3 - 3	3 - 6	3 - 9	4 - 0	4 - 3	4 - 6	4 - 9	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 7		
No Fill	All	6818	5809	5009	4363	3835	3397	3030	2720	2454	2226	2028	1856	1704	1416	0.1552	

See page 30 for table notes.

TABLE NO. 18A - F 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 3	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	
No Fill (Bare Deck)	36/9 D_n = 85	0	3076	2706	2410	2169	1941	1755	1599	1531	1468	1355	1257	1172	1096	1029	0.410
		1	3315	2929	2617	2361	2145	1940	1769	-	-	-	-	-	-	-	0.344
		2	3541	3143	2817	2547	2321	2125	1938	1856	1781	1646	1528	1426	1336	1255	0.297
		3	3752	3345	3008	2727	2490	2289	2108	2019	1937	1791	1664	1553	1455	1368*	0.261
		4	3951	3538	3192	2901	2654	2443	2262	2180	2094	1936	1800	1680*	1575*	1481*	0.232
		5	4136	3721	3368	3069	2813	2594	2404	2319	2239	2082	1936*	1808*	1695*	1594*	0.210
		6	4310	3893	3536	3230	2967	2740	2543	2454	2371	2219*	2071*	1935*	1815*	1708*	0.191
		7	4471	4056	3696	3386	3116	2883	2679	2586	2500	2342*	2201*	2062*	1934*	1821*	0.175
		8	4621	4210	3849	3535	3260	3021	2811	2716	2626*	2462*	2317*	2186*	2054*	1934*	0.162
		9	4761	4355	3995	3678	3399	3155	2940	2842*	2750*	2581*	2430*	2295*	2173*	2047*	0.151
		10	4891	4491	4133	3815	3533	3285	3065*	2965*	2870*	2696*	2541*	2401*	2275*	2160*	0.141
	36/7 D_n = 85	0	1968	1711	1506	1333	1194	1080	985	944	905	837	777	725	679	638	0.615
		1	2247	1962	1739	1559	1397	1265	1155	-	-	-	-	-	-	-	0.478
		2	2510	2202	1958	1760	1597	1450	1325	1270	1219	1128	1049	980	919	865	0.391
		3	2756	2431	2169	1955	1777	1628	1494	1432	1375	1273	1184	1107	1038	978	0.330
		4	2987	2648	2371	2143	1952	1791	1653	1592	1532	1418	1320	1234	1158	1091	0.286
		5	3201	2852	2564	2324	2122	1950	1803	1737	1675	1564	1456	1361	1278	1204	0.253
		6	3399	3045	2748	2498	2286	2104	1948	1878	1812	1693	1589	1489	1398	1317	0.226
		7	3583	3226	2923	2665	2444	2254	2090	2016	1947	1821	1709	1610	1517*	1430*	0.204
		8	3752	3395	3088	2824	2596	2399	2228	2150	2078	1945	1828	1723*	1630*	1543*	0.187
		9	3908	3554	3245	2976	2743	2540	2362	2281	2205	2067	1944*	1834*	1736*	1647*	0.172
		10	4051	3702	3393	3121	2884	2675	2492	2409	2330	2186*	2058*	1943*	1840*	1746*	0.159
	36/5 D_n = 295	0	1742	1532	1364	1227	1104	999	911	872	837	773	718	669	627	589	0.739
		1	1978	1753	1569	1418	1291	1184	1081	-	-	-	-	-	-	-	0.549
		2	2189	1955	1761	1598	1460	1343	1242	1197	1150	1064	989	924	866	815	0.437
		3	2378	2140	1938	1767	1620	1494	1385	1336	1290	1206	1125	1051	986	928	0.363
		4	2545	2308	2102	1925	1772	1639	1522	1470	1420	1330	1251	1178	1106	1041	0.310
		5	2693	2459	2253	2072	1914	1776	1654	1598	1546	1450	1365	1289	1220	1154	0.271
		6	2823	2596	2391	2209	2048	1906	1779	1721	1667	1566	1476	1396	1323	1256	0.241
		7	2937	2718	2517	2336	2173	2028	1898	1838	1782	1677	1584	1499	1422	1352*	0.216
		8	3038	2828	2632	2453	2290	2143	2011	1950	1892	1784	1687	1599	1518*	1445*	0.196
		9	3127	2927	2737	2561	2399	2252	2118	2056	1997	1887	1786	1695*	1612*	1536*	0.180
		10	3206	3015	2832	2660	2500	2354	2219	2156	2096	1984	1882	1788*	1702*	1624*	0.166
	36/4 D_n = 400	0	1333	1174	1046	936	837	756	688	658	631	582	539	502	469	440	0.923
		1	1562	1389	1247	1129	1030	941	858	-	-	-	-	-	-	-	0.645
		2	1758	1580	1430	1302	1193	1100	1019	983	944	873	811	757	709	666	0.496
		3	1926	1748	1594	1460	1345	1244	1156	1117	1079	1011	946	884	829	779	0.403
		4	2068	1895	1741	1605	1485	1379	1286	1243	1203	1130	1064	1005	948	892	0.339
		5	2188	2022	1871	1735	1613	1504	1407	1363	1320	1243	1173	1110	1053	1001	0.293
		6	2289	2132	1986	1852	1730	1620	1520	1474	1431	1350	1276	1210	1149	1094	0.257
		7	2375	2228	2088	1957	1836	1726	1626	1579	1534	1450	1374	1305	1242	1184	0.230
		8	2448	2310	2177	2051	1933	1824	1723	1676	1630	1545	1467	1396	1330	1270	0.207
		9	2510	2382	2256	2135	2020	1913	1813	1766	1720	1634	1555	1482	1415	1352*	0.189
		10	2563	2444	2325	2210	2099	1994	1896	1849	1804	1718	1638	1564	1495*	1431*	0.174

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 3	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	
No Fill	All	10377	7624	5837	4612	3736	3088	2594	2391	2211	1906	1660	1459	1293	1153	0.2053

See page 30 for table notes.

TABLE NO. 18B - F 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners: 1 1/2" Long Fillet Welds

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 3	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	
No Fill (Bare Deck)	36/9 D_n = 85	0	3076	2706	2410	2169	1941	1755	1599	1531	1468	1355	1257	1172	1096	1029	0.410
		1	3588	3188	2859	2587	2359	2165	1976	-	-	-	-	-	-	-	0.281
		2	4034	3619	3270	2975	2725	2510	2325	2241	2163	2000	1859	1736*	1628*	1531*	0.214
		3	4417	4002	3643	3333	3066	2835	2633	2542	2456	2300*	2161*	2019*	1893*	1782*	0.172
		4	4745	4338	3977	3660	3383	3139	2924	2827*	2735*	2566*	2416*	2281*	2159*	2033*	0.144
		5	5024	4632	4276	3958	3675	3423	3199*	3096*	2999*	2820*	2660*	2516*	2385*	2267*	0.124
		6	5262	4888	4542	4227	3943	3686*	3456*	3350*	3249*	3062*	2894*	2741*	2602*	2476*	0.109
		7	5464	5112	4779	4470	4188	3930*	3696*	3587*	3484*	3291*	3116*	2957*	2811*	2678*	0.097
		8	5638	5306	4988	4689	4411*	4154*	3919*	3809*	3704*	3507*	3327*	3163*	3012*	2873*	0.088
		9	5786	5476	5174	4886	4614*	4361*	4127*	4016*	3910*	3711*	3528*	3359*	3203*	3060*	0.080
		10	5914	5625	5339	5063	4799*	4551*	4319*	4209*	4103*	3903*	3717*	3545*	3386*	3239*	0.073
	36/7 D_n = 85	0	1968	1711	1506	1333	1194	1080	985	944	905	837	777	725	679	638	0.615
		1	2565	2254	2005	1803	1637	1491	1362	-	-	-	-	-	-	-	0.364
		2	3082	2739	2457	2223	2027	1861	1719	1656	1597	1482	1380	1290	1211	1140	0.259
		3	3522	3165	2864	2608	2391	2204	2042	1969	1901	1777	1668	1571	1476	1391*	0.200
		4	3889	3535	3226	2958	2725	2523	2346	2265	2190	2052	1930*	1821*	1723*	1634*	0.164
		5	4195	3852	3545	3272	3031	2818	2630	2544	2463	2313*	2180*	2060*	1952*	1854*	0.138
		6	4449	4123	3824	3553	3309	3090	2894	2804*	2718*	2560*	2418*	2289*	2172*	2066*	0.120
		7	4659	4354	4067	3802	3559	3338	3138*	3045*	2956*	2792*	2643*	2507*	2383*	2270*	0.106
		8	4834	4551	4279	4022	3784	3564*	3362*	3268*	3178*	3009*	2855*	2714*	2584*	2465*	0.094
		9	4981	4719	4462	4217	3985	3769*	3568*	3474*	3383*	3212*	3054*	2909*	2775*	2651*	0.085
		10	5104	4862	4622	4389	4165	3954*	3756*	3662*	3572*	3400*	3241*	3093*	2956*	2828*	0.078
	36/5 D_n = 295	0	1742	1532	1364	1227	1104	999	911	872	837	773	718	669	627	589	0.739
		1	2233	1997	1801	1636	1496	1376	1274	-	-	-	-	-	-	-	0.404
		2	2612	2376	2170	1991	1835	1700	1581	1527	1476	1384	1301	1228	1158	1091	0.278
		3	2900	2678	2476	2294	2132	1987	1858	1799	1743	1640	1547	1464	1388	1320*	0.212
		4	3117	2915	2724	2548	2386	2239	2105	2043	1984	1874	1774	1684*	1601*	1525*	0.171
		5	3282	3102	2926	2759	2603	2458	2324	2260	2200	2086	1982*	1886*	1798*	1717*	0.144
		6	3409	3249	3090	2935	2787	2646	2515	2452	2392	2277*	2171*	2072*	1981*	1896*	0.124
		7	3507	3366	3223	3081	2942	2808	2681	2620	2561*	2448*	2341*	2241*	2148*	2061*	0.109
		8	3585	3460	3331	3202	3073	2947	2826	2767*	2710*	2599*	2494*	2395*	2301*	2213*	0.097
		9	3647	3536	3421	3303	3184	3067	2952	2896*	2841*	2734*	2631*	2534*	2441*	2353*	0.087
		10	3696	3599	3495	3387	3278	3169	3061*	3008*	2956*	2853*	2754*	2659*	2568*	2480*	0.080
	36/4 D_n = 400	0	1333	1174	1046	936	837	756	688	658	631	582	539	502	469	440	0.923
		1	1797	1619	1467	1338	1227	1132	1050	-	-	-	-	-	-	-	0.454
		2	2123	1953	1800	1663	1542	1435	1340	1297	1256	1180	1113	1052	997	942	0.301
		3	2347	2197	2054	1922	1801	1691	1590	1544	1499	1417	1342	1273	1211	1153	0.225
		4	2503	2374	2247	2125	2010	1902	1802	1755	1709	1624	1545	1472	1405	1342*	0.180
		5	2613	2503	2392	2283	2177	2076	1979	1933	1888	1803	1723	1648	1579*	1513*	0.150
		6	2692	2599	2503	2407	2311	2217	2126	2082	2039	1956	1878	1803*	1733*	1667*	0.128
		7	2751	2672	2589	2504	2418	2332	2248	2207	2166	2087	2012*	1939*	1870*	1804*	0.112
		8	2795	2728	2656	2581	2504	2426	2349	2311	2273	2199*	2127*	2057*	1990*	1925*	0.099
		9	2830	2771	2709	2643	2574	2504	2434	2399	2364	2294*	2226*	2160*	2095*	2033*	0.090
		10	2856	2806	2751	2693	2631	2568	2504	2472	2440	2375*	2312*	2249*	2187*	2127*	0.081

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 3	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	
No Fill	All	10377	7624	5837	4612	3736	3088	2594	2391	2211	1906	1660	1459	1293	1153	0.2053

See page 30 for table notes.

TABLE NO. 18C - F 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 3	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	
No Fill (Bare Deck)	36/9 D_n = 85	0	1936	1704	1517	1366	1222	1105	1007	964	924	853	791	738	690	648	0.464
		1	2172	1924	1722	1556	1417	1290	1176	-	-	-	-	-	-	-	0.381
		2	2385	2128	1915	1736	1586	1458	1346	1289	1237	1144	1063	992	930	874	0.324
		3	2577	2316	2095	1908	1748	1611	1493	1439	1390	1289	1199	1119	1049	987	0.281
		4	2750	2488	2262	2069	1902	1757	1631	1575	1521	1424	1334	1246	1169	1100	0.248
		5	2904	2645	2418	2220	2048	1897	1765	1705	1649	1546	1454	1372	1289	1213	0.223
		6	3042	2788	2561	2361	2185	2030	1893	1830	1772	1663	1567	1480	1402	1326*	0.202
		7	3164	2918	2694	2494	2315	2157	2015	1951	1890	1777	1676	1585	1503*	1429*	0.184
		8	3274	3035	2816	2617	2437	2276	2132	2066	2003	1887	1782	1687*	1601*	1523*	0.170
		9	3371	3142	2928	2731	2552	2390	2244	2176	2112	1992	1884	1786*	1697*	1616*	0.157
		10	3458	3238	3030	2837	2659	2497	2350	2281	2216	2094	1983*	1882*	1790*	1706*	0.146
	36/7 D_n = 85	0	1239	1077	948	839	752	680	620	594	570	527	489	457	428	402	0.696
		1	1513	1325	1176	1056	955	865	790	-	-	-	-	-	-	-	0.525
		2	1762	1555	1388	1252	1139	1043	960	920	883	818	761	711	667	628	0.422
		3	1984	1766	1586	1437	1311	1204	1113	1072	1034	963	896	838	787	741	0.352
		4	2182	1958	1770	1610	1475	1359	1258	1213	1171	1095	1027	965	907	854	0.303
		5	2356	2132	1938	1772	1629	1505	1398	1349	1303	1220	1147	1081	1022	967	0.265
		6	2509	2288	2093	1923	1774	1645	1531	1479	1430	1341	1262	1191	1128	1070	0.236
		7	2643	2427	2234	2062	1910	1776	1657	1603	1552	1458	1374	1298	1230	1169	0.212
		8	2760	2552	2362	2190	2037	1900	1778	1721	1668	1570	1482	1402	1330	1265	0.193
		9	2862	2663	2478	2308	2155	2016	1891	1834	1779	1677	1586	1503	1427	1358*	0.177
		10	2952	2762	2583	2416	2264	2125	1998	1940	1884	1780	1685	1599	1521*	1449*	0.164
	36/5 D_n = 295	0	1097	964	859	773	695	629	574	549	527	487	452	421	395	371	0.835
		1	1325	1180	1060	960	876	805	743	-	-	-	-	-	-	-	0.601
		2	1517	1367	1239	1130	1037	957	887	856	827	773	723	676	634	597	0.469
		3	1674	1527	1397	1284	1185	1098	1022	988	955	896	843	796	753	710	0.385
		4	1804	1662	1534	1420	1318	1227	1147	1110	1075	1011	954	902	855	813	0.326
		5	1909	1777	1653	1540	1438	1345	1262	1224	1187	1119	1058	1003	952	907	0.283
		6	1996	1873	1755	1646	1545	1452	1368	1328	1291	1221	1157	1099	1045	996	0.250
		7	2067	1954	1843	1738	1640	1549	1464	1424	1386	1315	1249	1189	1133	1082	0.224
		8	2126	2022	1919	1819	1725	1635	1552	1512	1474	1402	1335	1273	1216	1163	0.203
		9	2175	2080	1984	1890	1800	1713	1631	1592	1554	1482	1415	1353	1295	1240	0.185
		10	2217	2129	2041	1952	1866	1783	1703	1665	1628	1557	1490	1427	1368	1313	0.170
	36/4 D_n = 400	0	840	739	659	589	527	476	433	414	397	366	340	316	295	277	1.044
		1	1058	947	854	776	710	653	603	-	-	-	-	-	-	-	0.702
		2	1229	1118	1021	936	863	799	743	717	694	650	611	571	535	503	0.528
		3	1361	1255	1160	1074	997	929	868	841	814	766	723	683	648	616	0.424
		4	1461	1365	1274	1190	1114	1044	981	952	924	873	826	783	744	709	0.354
		5	1538	1452	1368	1288	1214	1145	1081	1051	1023	970	921	876	834	796	0.304
		6	1598	1521	1444	1370	1299	1232	1170	1140	1111	1057	1007	961	918	878	0.266
		7	1645	1577	1507	1438	1372	1308	1247	1218	1190	1136	1086	1039	995	954	0.237
		8	1683	1621	1559	1496	1433	1373	1315	1287	1259	1207	1157	1110	1066	1024	0.213
		9	1712	1658	1602	1544	1486	1429	1374	1347	1321	1270	1221	1174	1130	1089	0.194
		10	1737	1688	1637	1585	1531	1478	1426	1401	1375	1326	1279	1233	1190	1148	0.178

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 3	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	
No Fill	All	10377	7624	5837	4612	3736	3088	2594	2391	2211	1906	1660	1459	1293	1153	0.2053

See page 30 for table notes.

TABLE NO. 19A - F 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 7	
No Fill (Bare Deck)	36/9 D_n = 60	0	3417	3006	2678	2410	2170	1963	1790	1644	1519	1410	1315	1231	1157	1080	0.461
		1	3718	3287	2938	2651	2413	2197	2004	-	-	-	-	-	-	-	0.387
		2	3999	3554	3188	2885	2631	2415	2218	2039	1886	1753	1636	1534	1442	-	0.333
		3	4261	3805	3426	3109	2841	2613	2417	2237	2069	1924	1797	1685	1585	1482	0.293
		4	4503	4042	3654	3325	3045	2806	2599	2419	2253	2095	1957	1836	1728	1616	0.261
		5	4728	4265	3870	3532	3242	2993	2776	2587	2420	2266	2118	1987	1870*	1750*	0.235
		6	4935	4474	4074	3730	3432	3174	2948	2751	2576	2422	2278	2138*	2013*	1884*	0.214
		7	5126	4669	4268	3919	3615	3349	3116	2911	2729	2567	2423*	2289*	2156*	2018*	0.197
		8	5303	4852	4451	4099	3790	3518	3278	3066	2878	2710*	2559*	2424*	2298*	2152*	0.182
		9	5465	5022	4624	4271	3958	3681	3436	3218	3024	2850*	2693*	2552*	2425*	2286*	0.169
		10	5615	5181	4787	4434	4119	3838	3588	3365	3166*	2986*	2825*	2679*	2546*	2406*	0.158
	36/7 D_n = 60	0	2186	1901	1679	1487	1333	1207	1102	1013	936	870	813	762	716	669	0.691
		1	2537	2217	1965	1763	1590	1440	1316	-	-	-	-	-	-	-	0.537
		2	2864	2517	2240	2015	1829	1674	1530	1408	1303	1213	1134	1064	1001	-	0.439
		3	3169	2800	2502	2258	2054	1883	1737	1605	1487	1384	1294	1215	1144	1071	0.371
		4	3449	3067	2752	2491	2272	2086	1927	1790	1670	1555	1455	1366	1287	1205	0.322
		5	3707	3316	2988	2714	2481	2283	2113	1965	1835	1721	1615	1517	1429	1339	0.284
		6	3944	3548	3212	2927	2683	2474	2293	2135	1997	1874	1766	1668	1572	1473	0.254
		7	4159	3763	3422	3129	2876	2658	2468	2301	2154	2024	1908	1804	1711	1607	0.229
		8	4356	3963	3619	3321	3061	2835	2637	2462	2308	2171	2048	1938	1839	1735*	0.209
		9	4534	4147	3804	3502	3237	3005	2800	2619	2458	2314	2185	2069	1965*	1854*	0.193
		10	4697	4318	3977	3674	3405	3168	2957	2770	2603	2454	2319	2198*	2088*	1972*	0.178
	36/5 D_n = 208	0	1935	1702	1515	1364	1234	1117	1019	936	866	804	751	703	661	617	0.830
		1	2231	1979	1773	1603	1460	1340	1233	-	-	-	-	-	-	-	0.617
		2	2492	2230	2011	1827	1671	1538	1424	1324	1232	1147	1072	1005	946	-	0.491
		3	2720	2456	2230	2036	1870	1726	1602	1493	1397	1312	1232	1156	1089	1019	0.408
		4	2919	2658	2429	2229	2056	1904	1771	1655	1551	1459	1377	1303	1232	1153	0.349
		5	3092	2837	2609	2407	2229	2072	1932	1809	1699	1601	1513	1433	1361	1285	0.304
		6	3241	2996	2772	2570	2390	2228	2085	1956	1841	1737	1644	1559	1483	1402	0.270
		7	3370	3136	2918	2719	2538	2375	2228	2096	1976	1868	1771	1682	1601	1515	0.243
		8	3483	3260	3050	2855	2675	2512	2363	2228	2105	1994	1892	1800	1715	1625	0.221
		9	3580	3370	3168	2978	2802	2639	2489	2353	2228	2114	2009	1913	1825	1731*	0.202
		10	3665	3467	3274	3091	2918	2757	2608	2470	2344	2228	2121	2022	1931*	1834*	0.186
	36/4 D_n = 283	0	1482	1304	1162	1046	936	846	771	708	653	606	565	528	496	462	1.037
		1	1767	1574	1414	1281	1170	1075	985	-	-	-	-	-	-	-	0.725
		2	2007	1809	1640	1496	1373	1266	1174	1094	1020	948	886	830	781	-	0.557
		3	2207	2011	1840	1690	1559	1445	1344	1256	1178	1108	1046	981	924	864	0.452
		4	2372	2184	2015	1863	1728	1609	1503	1408	1324	1249	1180	1119	1063	998	0.381
		5	2509	2332	2167	2017	1882	1759	1650	1551	1462	1382	1309	1243	1183	1119	0.329
		6	2622	2456	2299	2153	2019	1897	1785	1683	1591	1507	1431	1361	1297	1229	0.289
		7	2716	2562	2414	2274	2142	2021	1909	1806	1712	1625	1546	1473	1406	1334	0.258
		8	2794	2652	2513	2379	2252	2133	2022	1919	1824	1736	1655	1579	1510	1435	0.233
		9	2859	2729	2599	2472	2350	2235	2126	2023	1928	1839	1757	1680	1609	1532	0.212
		10	2914	2795	2674	2554	2438	2326	2220	2119	2024	1936	1853	1775	1702	1624	0.195

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 7	
No Fill	All	14692	10794	8264	6530	5289	4371	3673	3130	2698	2351	2066	1830	1632	1440	0.2586

See page 30 for table notes.

TABLE NO. 19B - F 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: 3/8" x 1 1/4" Puddle Welds
Side Lap Fasteners:1 1/2" Long Fillet Welds

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 7	
No Fill (Bare Deck)	36/9 D_n = 60	0	3417	3006	2678	2410	2170	1963	1790	1644	1519	1410	1315	1231	1157	1080	0.461
		1	3987	3542	3177	2874	2621	2406	2209	-	-	-	-	-	-	-	0.316
		2	4482	4021	3634	3306	3027	2789	2583	2404	2236	2079	1943	1822	1715	-	0.240
		3	4908	4446	4047	3703	3407	3149	2925	2729	2555	2402	2256	2117*	1993*	1865*	0.194
		4	5272	4819	4419	4067	3758	3488	3249	3038	2851	2684	2535*	2400*	2272*	2127*	0.162
		5	5582	5146	4751	4398	4083	3803	3554	3332	3134*	2956*	2795*	2650*	2519*	2380*	0.140
		6	5846	5431	5047	4697	4380	4096	3840	3609*	3402*	3215*	3045*	2891*	2751*	2603*	0.123
		7	6071	5679	5310	4967	4653	4366	4106	3871*	3656*	3462*	3285*	3123*	2976*	2819*	0.109
		8	6264	5896	5543	5210	4901	4616	4355*	4115*	3897*	3697*	3514*	3346*	3192*	3028*	0.098
		9	6429	6085	5749	5428	5127	4845	4585*	4345*	4123*	3919*	3732*	3559*	3400*	3229*	0.090
		10	6571	6250	5932	5625	5332	5056*	4798*	4559*	4336*	4130*	3939*	3762*	3599*	3423*	0.082
	36/7 D_n = 60	0	2186	1901	1679	1487	1333	1207	1102	1013	936	870	813	762	716	669	0.691
		1	2850	2504	2228	2004	1819	1663	1520	-	-	-	-	-	-	-	0.409
		2	3425	3043	2730	2470	2252	2068	1910	1774	1653	1540	1440	1352	1274	-	0.290
		3	3913	3517	3182	2898	2656	2448	2269	2112	1975	1854	1746	1647	1553	1455	0.225
		4	4321	3928	3584	3287	3028	2803	2606	2433	2280	2144	2023	1914	1816	1713*	0.184
		5	4661	4280	3939	3636	3368	3131	2922	2736	2570	2422	2289	2169*	2060*	1946*	0.155
		6	4943	4581	4249	3947	3676	3433	3215	3020	2844	2686	2543*	2414*	2296*	2171*	0.135
		7	5177	4838	4519	4224	3954	3709	3486	3285	3102*	2936*	2785*	2648*	2522*	2389*	0.119
		8	5371	5056	4754	4469	4204	3960	3736	3531	3343*	3172*	3015*	2871*	2739*	2598*	0.106
		9	5534	5243	4958	4685	4428	4188	3965	3758*	3568*	3393*	3232*	3083*	2946*	2799*	0.096
		10	5671	5402	5135	4876	4628	4394	4174	3968*	3778*	3601*	3436*	3284*	3143*	2991*	0.088
	36/5 D_n = 208	0	1935	1702	1515	1364	1234	1117	1019	936	866	804	751	703	661	617	0.830
		1	2481	2219	2001	1817	1662	1529	1415	-	-	-	-	-	-	-	0.454
		2	2902	2640	2411	2212	2039	1888	1756	1640	1537	1446	1364	1291	1219	-	0.312
		3	3222	2975	2750	2549	2368	2208	2065	1937	1822	1719	1626	1543	1466	1386	0.238
		4	3463	3239	3027	2831	2651	2488	2339	2205	2082	1971	1871	1778	1694	1605	0.192
		5	3647	3446	3251	3066	2892	2731	2582	2444	2318	2202	2096	1998	1908*	1811*	0.161
		6	3788	3610	3433	3261	3096	2940	2794	2657	2530	2412	2302	2201*	2106*	2004*	0.139
		7	3897	3740	3581	3423	3269	3120	2979	2845	2719	2601	2490*	2387*	2290*	2185*	0.122
		8	3983	3845	3701	3557	3414	3275	3140	3011	2888	2771*	2661*	2557*	2459*	2352*	0.109
		9	4052	3929	3801	3669	3538	3407	3280	3156	3038	2924*	2815*	2712*	2614*	2506*	0.098
		10	4107	3998	3883	3764	3642	3521	3402	3284	3170*	3060*	2954*	2853*	2756*	2648*	0.089
	36/4 D_n = 283	0	1482	1304	1162	1046	936	846	771	708	653	606	565	528	496	462	1.037
		1	1997	1799	1630	1487	1364	1258	1166	-	-	-	-	-	-	-	0.510
		2	2359	2170	2000	1848	1714	1595	1489	1395	1311	1236	1169	1108	1052	-	0.338
		3	2608	2441	2282	2136	2001	1879	1767	1666	1574	1490	1414	1345	1282	1214	0.253
		4	2781	2637	2496	2361	2233	2114	2002	1899	1804	1716	1635	1561	1491	1417	0.202
		5	2903	2781	2658	2537	2419	2306	2199	2098	2003	1914	1831	1754	1682	1603	0.168
		6	2991	2888	2781	2674	2567	2463	2362	2266	2174	2086	2004	1926	1852	1772*	0.144
		7	3056	2969	2877	2782	2686	2591	2498	2407	2319	2235	2154	2077	2004*	1923*	0.126
		8	3106	3031	2951	2867	2782	2696	2610	2526	2443	2363	2286	2211*	2139*	2059*	0.112
		9	3144	3079	3010	2936	2860	2782	2704	2626	2549	2473	2400*	2328*	2258*	2180*	0.101
		10	3174	3118	3057	2992	2924	2854	2782	2711	2639	2568	2499*	2430*	2364*	2288*	0.091

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 7	
No Fill	All	14692	10794	8264	6530	5289	4371	3673	3130	2698	2351	2066	1830	1632	1440	0.2586

See page 30 for table notes.

TABLE NO. 19C - F 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners:# 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 7	
No Fill (Bare Deck)	36/9 D_n = 60	0	2103	1851	1648	1483	1336	1208	1102	1012	935	868	810	758	712	665	0.521
		1	2398	2127	1905	1722	1569	1440	1316	-	-	-	-	-	-	-	0.428
		2	2661	2380	2145	1948	1781	1639	1516	1407	1302	1211	1131	1060	997	-	0.363
		3	2893	2609	2366	2158	1981	1828	1695	1579	1478	1382	1291	1211	1140	1067	0.316
		4	3098	2815	2568	2355	2169	2008	1867	1743	1633	1536	1449	1362	1283	1201	0.279
		5	3277	3000	2753	2536	2346	2178	2030	1899	1783	1679	1586	1502	1425	1335	0.250
		6	3434	3165	2922	2704	2511	2338	2185	2049	1927	1817	1719	1629	1549	1463	0.227
		7	3571	3313	3075	2859	2664	2489	2332	2192	2065	1950	1847	1753	1668	1578	0.207
		8	3691	3445	3214	3001	2807	2631	2471	2327	2197	2079	1971	1873	1784	1689*	0.191
		9	3796	3562	3339	3131	2939	2763	2602	2456	2323	2201	2091	1989	1896*	1797*	0.177
		10	3889	3667	3453	3250	3061	2887	2726	2578	2443	2319	2205	2101*	2005*	1903*	0.165
	36/7 D_n = 60	0	1346	1170	1034	916	821	743	678	623	576	536	500	469	441	412	0.782
		1	1689	1481	1316	1183	1073	976	892	-	-	-	-	-	-	-	0.590
		2	1995	1766	1579	1426	1298	1191	1099	1018	943	878	821	771	726	-	0.474
		3	2263	2022	1822	1653	1511	1390	1286	1196	1117	1048	982	922	869	814	0.396
		4	2495	2251	2042	1864	1711	1580	1465	1366	1278	1200	1131	1069	1011	948	0.340
		5	2695	2454	2242	2058	1898	1758	1635	1528	1432	1347	1271	1203	1141	1077	0.298
		6	2867	2632	2422	2235	2071	1925	1796	1682	1580	1489	1407	1333	1266	1196	0.265
		7	3014	2789	2583	2397	2230	2081	1947	1828	1721	1625	1538	1459	1387	1312	0.239
		8	3139	2925	2726	2543	2376	2225	2089	1966	1855	1754	1663	1580	1504	1424	0.217
		9	3247	3045	2854	2675	2510	2359	2221	2096	1982	1878	1783	1697	1617	1533	0.199
		10	3340	3150	2967	2794	2632	2483	2345	2218	2102	1996	1898	1809	1726	1638	0.184
	36/5 D_n = 208	0	1191	1048	933	839	760	687	627	576	533	495	462	433	407	380	0.938
		1	1476	1317	1184	1074	981	902	834	-	-	-	-	-	-	-	0.675
		2	1707	1544	1404	1284	1180	1090	1012	944	884	831	783	735	692	-	0.527
		3	1890	1733	1592	1468	1359	1262	1177	1102	1035	975	921	872	828	782	0.432
		4	2036	1888	1752	1629	1517	1418	1328	1248	1175	1110	1051	998	949	898	0.366
		5	2152	2016	1887	1767	1657	1556	1464	1381	1305	1237	1174	1116	1064	1008	0.318
		6	2244	2120	2000	1886	1779	1679	1587	1503	1425	1354	1288	1228	1173	1113	0.281
		7	2317	2206	2095	1987	1885	1788	1697	1613	1535	1462	1395	1333	1275	1213	0.251
		8	2377	2276	2174	2074	1977	1884	1796	1712	1635	1562	1494	1430	1371	1307	0.228
		9	2426	2335	2242	2149	2057	1968	1883	1802	1725	1653	1585	1521	1461	1395	0.208
		10	2466	2384	2299	2213	2127	2043	1961	1883	1808	1736	1669	1605	1544	1478	0.191
	36/4 D_n = 283	0	912	803	715	644	576	521	475	436	402	373	348	325	305	285	1.172
		1	1183	1062	959	873	799	736	682	-	-	-	-	-	-	-	0.788
		2	1386	1266	1161	1068	987	915	853	797	748	704	665	627	591	-	0.594
		3	1535	1425	1323	1230	1147	1072	1004	944	889	840	796	756	719	680	0.476
		4	1644	1546	1452	1364	1282	1206	1138	1075	1017	965	917	873	832	789	0.397
		5	1725	1639	1554	1472	1394	1321	1253	1190	1131	1077	1026	980	937	891	0.341
		6	1786	1711	1635	1560	1488	1418	1352	1290	1232	1177	1126	1078	1034	985	0.299
		7	1832	1767	1700	1632	1565	1500	1437	1377	1320	1266	1215	1167	1122	1073	0.266
		8	1869	1812	1752	1691	1630	1569	1510	1453	1398	1345	1295	1247	1202	1152	0.239
		9	1897	1847	1794	1739	1683	1628	1572	1518	1466	1415	1366	1320	1275	1225	0.218
		10	1920	1876	1829	1779	1728	1677	1626	1575	1525	1477	1430	1384	1341	1292	0.200

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = 3.411
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
		3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 7	
No Fill	All	14692	10794	8264	6530	5289	4371	3673	3130	2698	2351	2066	1830	1632	1440	0.2586

See page 30 for table notes.

TABLE NO. 20A - B 22 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0295 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 4	
No Fill (Bare Deck)	36/9 (B) D_n = 91	0	1776	1563	1392	1236	1104	1047	996	949	906	867	830	797	765	727	0.324
		1	1925	1701	1520	1372	1231	1168	1111	1059	1012	-	-	-	-	-	0.272
		2	2064	1833	1644	1487	1356	1289	1226	1170	1118	1070	1025	984	946	900	0.234
		3	2194	1958	1762	1599	1460	1399	1342	1280	1223	1171	1123	1078	1037	986	0.206
		4	2316	2077	1875	1706	1562	1498	1438	1383	1329	1272	1220	1172	1127	1072	0.183
		5	2428	2188	1983	1809	1660	1593	1531	1473	1420	1370	1318	1266	1218	1159	0.165
		6	2533	2293	2086	1908	1754	1685	1621	1561	1505	1453	1404	1358	1308	1245*	0.151
		7	2630	2391	2183	2002	1845	1775	1709	1647	1589	1534	1483	1436*	1390*	1331*	0.138
		8	2720	2484	2276	2093	1933	1861	1793	1730	1670	1614	1561*	1511*	1465*	1406*	0.128
		9	2803	2570	2363	2179	2018	1944	1875	1810	1749	1691*	1637*	1586*	1537*	1477*	0.119
		10	2880	2652	2446	2262	2099	2024	1954	1887	1825*	1766*	1710*	1658*	1608*	1546*	0.111
	36/7 (B) D_n = 91	0	1136	988	861	761	681	646	615	587	561	536	514	494	475	451	0.486
		1	1310	1144	1014	902	807	767	730	697	666	-	-	-	-	-	0.377
		2	1472	1293	1150	1034	934	888	846	807	772	739	709	681	656	624	0.308
		3	1624	1434	1280	1154	1050	1004	961	917	877	841	807	775	746	710	0.261
		4	1764	1566	1404	1270	1158	1109	1063	1021	982	942	904	869	837	797	0.226
		5	1894	1691	1523	1382	1262	1210	1161	1116	1074	1035	998	963	927	883	0.199
		6	2013	1808	1635	1488	1363	1307	1256	1208	1163	1122	1083	1047	1012	969	0.178
		7	2123	1917	1740	1589	1460	1402	1348	1297	1251	1207	1166	1127	1091	1046	0.161
		8	2223	2018	1840	1686	1552	1492	1436	1384	1335	1289	1246	1205	1167	1120	0.147
		9	2315	2113	1934	1778	1641	1580	1522	1468	1417	1369	1324	1282	1242	1192	0.135
		10	2399	2200	2022	1865	1726	1663	1604	1548	1496	1446	1400	1356	1315	1263*	0.125
	36/5 (B) D_n = 572	0	1006	885	788	704	629	597	568	542	518	495	475	456	438	416	0.583
		1	1152	1022	915	827	753	718	684	652	623	-	-	-	-	-	0.433
		2	1282	1146	1033	938	858	822	789	759	729	698	670	643	619	589	0.345
		3	1397	1259	1142	1042	956	918	883	850	819	790	763	737	709	675	0.286
		4	1497	1361	1242	1139	1049	1009	971	936	903	872	843	816	790	758	0.245
		5	1585	1452	1333	1228	1136	1094	1055	1018	984	951	920	891	864	830	0.214
		6	1662	1533	1416	1311	1217	1174	1134	1096	1060	1026	994	963	935	899	0.190
		7	1729	1605	1491	1386	1292	1249	1208	1169	1132	1097	1064	1032	1003	965	0.171
		8	1787	1669	1558	1456	1362	1319	1277	1238	1200	1165	1131	1098	1067	1029	0.155
		9	1838	1726	1619	1519	1427	1383	1342	1302	1264	1228	1194	1161	1129	1089	0.142
		10	1883	1777	1675	1577	1486	1443	1402	1363	1325	1288	1253	1220	1188	1147	0.131
	36/4 (B) D_n = 813	0	770	678	603	532	475	450	428	407	389	372	356	341	327	311	0.728
		1	911	811	729	660	601	571	543	518	494	-	-	-	-	-	0.509
		2	1031	928	841	767	703	675	648	624	600	574	551	529	508	483	0.391
		3	1132	1030	941	864	796	766	737	711	686	662	640	620	599	570	0.318
		4	1217	1118	1030	951	881	849	819	791	765	740	716	694	673	647	0.267
		5	1287	1194	1107	1029	958	926	895	866	839	812	788	764	742	714	0.231
		6	1346	1258	1175	1099	1028	996	965	935	907	880	854	830	807	778	0.203
		7	1395	1313	1234	1160	1092	1059	1028	998	970	943	917	892	868	838	0.181
		8	1436	1360	1286	1215	1148	1116	1086	1056	1028	1000	974	949	925	894	0.164
		9	1471	1401	1331	1264	1199	1168	1138	1109	1081	1054	1027	1002	978	947	0.149
		10	1501	1436	1371	1307	1245	1215	1185	1157	1129	1103	1077	1051	1027	996	0.137

Diaphragm Stiffness, G' (kip/in.)

K_2 = 870 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 4	
No Fill (Bare Deck)	All	B	6413	4712	3607	2850	2309	2094	1908	1746	1603	1478	1366	1267	1178	1073	0.1754

See page 30 for table notes.

TABLE NO. 20B - B 22 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0295 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 4	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5763	5640	5548	5477	5420	5395	5373	5352	5334	5317	5301	5286	5272	5256	0.728
		1	5974	5821	5707	5618	5546	5516	5488	5463	5439	-	-	-	-	-	0.509
		2	6185	6002	5865	5758	5673	5636	5603	5573	5545	5519	5496	5474	5453	5428	0.391
		3	6397	6183	6023	5899	5800	5757	5718	5683	5650	5621	5593	5568	5544	5515	0.318
		4	6608	6364	6182	6040	5926	5878	5833	5793	5756	5722	5690	5661	5634	5601	0.267
		5	6819	6545	6340	6181	6053	5998	5949	5903	5862	5823	5788	5755	5725	5688	0.231
		6	7030	6726	6499	6321	6180	6119	6064	6013	5967	5925	5885	5849	5815	5774	0.203
		7	7241	6907	6657	6462	6306	6240	6179	6123	6073	6026	5983	5943	5906	5860	0.181
		8	7452	7088	6815	6603	6433	6360	6294	6234	6178	6127	6080	6037	5996	5947	0.164
		9	7663	7269	6974	6744	6560	6481	6409	6344	6284	6229	6178	6131	6087	6033	0.149
		10	7874	7450	7132	6884	6686	6602	6524	6454	6389	6330	6275	6224	6177	6119	0.137
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4099	3977	3885	3813	3756	3731	3709	3689	3670	3653	3637	3622	3609	3592	0.728
		1	4310	4158	4043	3954	3883	3852	3824	3799	3776	-	-	-	-	-	0.509
		2	4522	4339	4201	4095	4009	3973	3939	3909	3881	3855	3832	3810	3790	3765	0.391
		3	4733	4520	4360	4235	4136	4093	4054	4019	3987	3957	3929	3904	3880	3851	0.318
		4	4944	4701	4518	4376	4263	4214	4170	4129	4092	4058	4027	3998	3971	3937	0.267
		5	5155	4882	4676	4517	4389	4335	4285	4239	4198	4159	4124	4091	4061	4024	0.231
		6	5366	5062	4835	4658	4516	4455	4400	4350	4303	4261	4222	4185	4151	4110	0.203
		7	5577	5243	4993	4798	4643	4576	4515	4460	4409	4362	4319	4279	4242	4196	0.181
		8	5788	5424	5151	4939	4769	4696	4630	4570	4514	4463	4416	4373	4332	4283	0.164
		9	6000	5605	5310	5080	4896	4817	4745	4680	4620	4565	4514	4467	4423	4369	0.149
		10	6211	5786	5468	5221	5023	4938	4861	4790	4726	4666	4611	4561	4513	4456	0.137

Diaphragm Stiffness, G' (kip/in.)

K_2 = 870 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 20C - B 22 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0295 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 4	
No Fill (Bare Deck)	36/9 (B) D_n = 91	0	1038	913	813	722	645	612	582	555	530	506	485	465	447	425	0.366
		1	1183	1049	940	850	772	733	697	665	635	-	-	-	-	-	0.301
		2	1313	1174	1058	961	878	842	808	775	741	709	680	653	628	597	0.255
		3	1427	1287	1167	1065	977	938	902	868	836	807	777	747	719	684	0.222
		4	1528	1389	1267	1162	1070	1029	990	955	921	889	860	832	806	770	0.196
		5	1616	1480	1358	1251	1157	1114	1074	1037	1001	968	937	907	879	845	0.176
		6	1694	1561	1441	1334	1239	1195	1154	1115	1078	1043	1011	980	950	914	0.159
		7	1762	1634	1517	1410	1314	1270	1228	1188	1151	1115	1081	1049	1019	980	0.145
		8	1821	1699	1585	1480	1385	1340	1298	1258	1219	1183	1148	1115	1084	1044	0.134
		9	1873	1757	1647	1545	1450	1406	1363	1323	1284	1247	1212	1178	1146	1105	0.124
		10	1919	1809	1703	1603	1510	1466	1424	1384	1345	1307	1272	1238	1205	1164	0.116
	36/7 (B) D_n = 91	0	664	577	503	445	398	378	359	343	327	313	300	288	277	264	0.549
		1	833	731	649	583	524	498	475	453	433	-	-	-	-	-	0.414
		2	984	871	779	703	640	613	587	563	539	516	495	476	458	436	0.333
		3	1116	998	899	816	746	715	686	659	635	611	590	570	549	523	0.278
		4	1231	1110	1008	920	844	811	779	750	723	697	674	651	630	604	0.239
		5	1330	1210	1106	1015	936	901	867	836	807	779	754	729	706	678	0.209
		6	1414	1298	1195	1103	1021	984	950	917	886	857	830	804	779	749	0.186
		7	1487	1376	1274	1182	1100	1062	1026	993	961	930	902	875	849	817	0.168
		8	1549	1443	1345	1254	1172	1134	1098	1063	1031	999	970	942	915	882	0.152
		9	1602	1502	1408	1320	1238	1200	1164	1129	1096	1064	1034	1005	978	943	0.140
		10	1647	1554	1464	1378	1299	1261	1225	1190	1157	1125	1094	1065	1037	1002	0.129
	36/5 (B) D_n = 572	0	588	517	460	411	368	349	332	317	302	289	277	266	256	243	0.659
		1	728	649	584	530	484	464	445	427	408	-	-	-	-	-	0.474
		2	842	762	693	633	582	559	538	518	499	482	466	450	436	416	0.370
		3	933	855	786	724	670	646	623	601	581	562	544	527	510	490	0.304
		4	1004	932	864	803	749	723	699	677	655	635	615	597	580	558	0.257
		5	1061	994	931	872	817	792	768	744	722	701	681	662	644	621	0.223
		6	1107	1046	987	930	877	852	828	805	783	762	741	722	703	679	0.197
		7	1143	1088	1033	980	930	905	882	859	837	816	796	776	757	733	0.177
		8	1173	1123	1073	1023	975	952	929	907	886	865	845	825	806	782	0.160
		9	1197	1152	1106	1060	1015	993	971	950	929	909	889	870	851	827	0.146
		10	1216	1176	1134	1091	1049	1028	1008	987	967	948	929	910	892	868	0.134
	36/4 (B) D_n = 813	0	450	396	353	311	277	263	250	238	227	217	208	199	191	182	0.823
		1	584	524	473	431	394	378	363	348	333	-	-	-	-	-	0.554
		2	684	625	573	527	487	469	452	436	421	406	393	381	369	354	0.417
		3	757	703	653	607	566	547	529	512	496	480	466	452	439	422	0.334
		4	811	763	716	673	632	613	595	578	561	545	530	516	502	484	0.279
		5	851	809	767	726	688	669	652	635	618	602	587	572	558	540	0.240
		6	881	844	807	770	734	717	700	683	667	651	636	622	608	589	0.210
		7	904	872	839	805	772	756	740	724	709	694	679	665	651	633	0.187
		8	922	894	864	834	804	789	774	759	745	731	717	703	690	672	0.168
		9	936	911	885	858	830	817	803	789	776	762	749	736	723	706	0.153
		10	947	925	902	878	853	840	827	815	802	790	777	765	753	736	0.140

Diaphragm Stiffness, G' (kip/in.)

K_2 = 870 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 4	
No Fill	All	B	6413	4712	3607	2850	2309	2094	1908	1746	1603	1478	1366	1267	1178	1073	0.1754

See page 30 for table notes.

TABLE NO. 20D - B 22 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0295 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			3 - 0	3 - 6	4 - 0	4 - 6	5 - 0	5 - 3	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 4	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	5406	5334	5281	5239	5205	5191	5178	5166	5155	5145	5136	5127	5119	5110	0.823
		1	5617	5515	5439	5380	5332	5312	5293	5276	5261	-	-	-	-	-	0.554
		2	5828	5696	5597	5520	5459	5432	5408	5386	5366	5348	5331	5315	5300	5282	0.417
		3	6039	5877	5756	5661	5585	5553	5523	5497	5472	5449	5428	5409	5391	5369	0.334
		4	6251	6058	5914	5802	5712	5674	5639	5607	5577	5551	5526	5503	5481	5455	0.279
		5	6462	6239	6072	5943	5839	5794	5754	5717	5683	5652	5623	5596	5572	5541	0.240
		6	6673	6420	6231	6083	5965	5915	5869	5827	5789	5753	5721	5690	5662	5628	0.210
		7	6884	6601	6389	6224	6092	6036	5984	5937	5894	5855	5818	5784	5753	5714	0.187
		8	7095	6782	6547	6365	6219	6156	6099	6047	6000	5956	5915	5878	5843	5801	0.168
		9	7306	6963	6706	6506	6345	6277	6214	6157	6105	6057	6013	5972	5934	5887	0.153
		10	7517	7144	6864	6646	6472	6397	6330	6268	6211	6159	6110	6066	6024	5973	0.140
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	3742	3671	3617	3575	3542	3527	3514	3502	3491	3481	3472	3464	3456	3446	0.823
		1	3953	3852	3775	3716	3668	3648	3629	3612	3597	-	-	-	-	-	0.554
		2	4165	4033	3934	3857	3795	3769	3745	3723	3703	3684	3667	3651	3637	3619	0.417
		3	4376	4214	4092	3997	3922	3889	3860	3833	3808	3785	3764	3745	3727	3705	0.334
		4	4587	4394	4250	4138	4048	4010	3975	3943	3914	3887	3862	3839	3817	3791	0.279
		5	4798	4575	4409	4279	4175	4130	4090	4053	4019	3988	3959	3933	3908	3878	0.240
		6	5009	4756	4567	4420	4302	4251	4205	4163	4125	4089	4057	4027	3998	3964	0.210
		7	5220	4937	4725	4560	4428	4372	4320	4273	4230	4191	4154	4120	4089	4050	0.187
		8	5431	5118	4884	4701	4555	4492	4435	4384	4336	4292	4252	4214	4179	4137	0.168
		9	5642	5299	5042	4842	4682	4613	4551	4494	4441	4393	4349	4308	4270	4223	0.153
		10	5854	5480	5200	4983	4808	4734	4666	4604	4547	4495	4447	4402	4360	4309	0.140

Diaphragm Stiffness, G' (kip/in.)

K_2 = 870 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 21A - B 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
No Fill (Bare Deck)	36/9 (B) D_n = 68	0	1671	1493	1334	1205	1149	1097	1050	1006	966	928	860	801	749	695	0.357
		1	1827	1649	1488	1345	1283	1225	-	-	-	-	-	-	-	-	0.299
		2	1977	1789	1631	1485	1416	1354	1296	1243	1193	1148	1065	993	929	-	0.258
		3	2121	1924	1757	1616	1550	1482	1419	1361	1307	1257	1168	1089	1020	949	0.226
		4	2258	2054	1880	1732	1665	1604	1542	1479	1421	1367	1270	1185	1110	1033	0.202
		5	2388	2178	1999	1844	1775	1710	1650	1593	1535	1477	1373	1281	1201	1118*	0.182
		6	2512	2298	2113	1953	1881	1814	1751	1692	1636	1584	1475	1377*	1291*	1202*	0.166
		7	2630	2413	2224	2059	1985	1915	1850	1788	1731	1676	1577*	1473*	1382*	1287*	0.152
		8	2741	2522	2330	2161	2085	2013	1946	1882	1822	1766	1662*	1569*	1472*	1372*	0.141
		9	2847	2627	2432	2260	2182	2109	2039	1974	1912*	1854*	1747*	1650*	1562*	1456*	0.131
		10	2947	2726	2530	2356	2276	2201	2130	2063*	2000*	1940*	1829*	1730*	1640*	1541*	0.122
	36/7 (B) D_n = 68	0	1038	918	822	743	709	678	649	622	597	574	533	497	465	433	0.535
		1	1219	1089	976	883	843	806	-	-	-	-	-	-	-	-	0.415
		2	1384	1245	1129	1023	976	934	895	859	825	794	738	689	646	-	0.340
		3	1542	1391	1265	1159	1110	1062	1018	977	939	904	841	785	737	686	0.287
		4	1693	1531	1396	1282	1231	1184	1140	1095	1053	1014	943	881	827	771	0.249
		5	1836	1666	1522	1400	1346	1295	1248	1204	1163	1123	1046	977	917	856	0.219
		6	1971	1795	1644	1515	1458	1404	1354	1307	1263	1222	1147	1074	1008	940	0.196
		7	2099	1917	1761	1626	1566	1509	1456	1407	1360	1317	1237	1166	1098	1025	0.178
		8	2219	2034	1873	1734	1671	1611	1556	1504	1455	1409	1325	1250	1183	1109*	0.162
		9	2333	2145	1981	1837	1772	1710	1653	1599	1548	1500	1412	1333	1262*	1187*	0.149
		10	2439	2250	2083	1936	1869	1806	1747	1691	1638	1588	1496	1414*	1339*	1261*	0.138
	36/5 (B) D_n = 428	0	946	849	760	687	655	626	599	574	552	530	492	458	429	398	0.642
		1	1100	994	906	827	789	754	-	-	-	-	-	-	-	-	0.477
		2	1243	1129	1033	950	913	879	845	811	779	750	697	651	610	-	0.380
		3	1375	1255	1152	1063	1023	986	951	919	888	860	799	747	700	652	0.315
		4	1496	1372	1264	1171	1128	1089	1051	1016	984	953	896	843	791	737	0.270
		5	1606	1480	1370	1272	1228	1186	1147	1110	1075	1042	981	927	878	822	0.236
		6	1706	1580	1467	1367	1322	1278	1237	1199	1162	1128	1064	1006	954	900	0.209
		7	1796	1671	1558	1457	1410	1366	1324	1284	1246	1210	1143	1083	1028	970	0.188
		8	1878	1755	1643	1540	1493	1448	1405	1364	1325	1288	1219	1157	1099	1039	0.171
		9	1951	1831	1720	1618	1571	1525	1482	1440	1401	1363	1292	1227	1168	1105*	0.156
		10	2017	1901	1792	1691	1644	1598	1554	1512	1472	1434	1362	1295	1235*	1170*	0.144
	36/4 (B) D_n = 608	0	725	643	574	518	494	471	451	432	414	398	368	342	320	296	0.802
		1	876	794	724	658	627	599	-	-	-	-	-	-	-	-	0.561
		2	1013	923	847	781	751	724	697	668	642	617	573	535	501	-	0.431
		3	1134	1040	959	888	856	826	798	772	747	724	676	631	591	550	0.350
		4	1240	1146	1062	988	954	922	892	864	837	812	765	723	681	635	0.294
		5	1334	1240	1156	1080	1045	1011	980	950	922	895	846	801	760	717	0.254
		6	1416	1324	1240	1163	1128	1094	1062	1031	1002	974	922	875	832	786	0.224
		7	1487	1398	1316	1240	1204	1170	1137	1106	1076	1047	994	945	900	852	0.200
		8	1549	1464	1384	1309	1274	1240	1207	1175	1145	1116	1061	1011	964	915	0.180
		9	1603	1523	1445	1372	1337	1304	1271	1240	1209	1180	1125	1073	1026	975	0.164
		10	1651	1574	1500	1429	1395	1362	1330	1299	1269	1239	1184	1132	1084	1032	0.151

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
No Fill	All	B	4821	3809	3085	2550	2333	2142	1974	1826	1693	1574	1371	1205	1068	935	0.2127

See page 30 for table notes.

TABLE NO. 21B - B 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	5678	5592	5523	5467	5442	5420	5399	5380	5363	5346	5317	5291	5268	5245	0.802
		1	5870	5763	5677	5607	5576	5548	-	-	-	-	-	-	-	-	0.561
		2	6062	5933	5831	5746	5710	5676	5645	5617	5590	5566	5522	5483	5449	-	0.431
		3	6254	6104	5984	5886	5843	5804	5768	5735	5704	5676	5624	5579	5540	5499	0.350
		4	6446	6275	6138	6026	5977	5932	5891	5853	5818	5785	5727	5675	5630	5583	0.294
		5	6639	6446	6292	6166	6111	6060	6014	5972	5932	5895	5829	5771	5720	5668	0.254
		6	6831	6617	6445	6305	6244	6189	6137	6090	6046	6005	5932	5868	5811	5753	0.224
		7	7023	6787	6599	6445	6378	6317	6260	6208	6160	6115	6034	5964	5901	5837	0.200
		8	7215	6958	6753	6585	6512	6445	6383	6326	6274	6225	6137	6060	5992	5922	0.180
		9	7407	7129	6907	6725	6645	6573	6506	6445	6387	6335	6239	6156	6082	6006	0.164
		10	7599	7300	7060	6864	6779	6701	6629	6563	6501	6444	6342	6252	6173	6091	0.151
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	4014	3928	3859	3803	3779	3756	3736	3716	3699	3682	3653	3627	3604	3581	0.802
		1	4206	4099	4013	3943	3912	3884	-	-	-	-	-	-	-	-	0.561
		2	4398	4270	4167	4083	4046	4012	3981	3953	3927	3902	3858	3819	3785	-	0.431
		3	4590	4440	4320	4222	4180	4140	4104	4071	4040	4012	3960	3915	3876	3835	0.350
		4	4783	4611	4474	4362	4313	4269	4227	4189	4154	4122	4063	4012	3966	3920	0.294
		5	4975	4782	4628	4502	4447	4397	4350	4308	4268	4232	4165	4108	4057	4004	0.254
		6	5167	4953	4782	4642	4581	4525	4473	4426	4382	4341	4268	4204	4147	4089	0.224
		7	5359	5124	4935	4781	4714	4653	4596	4544	4496	4451	4370	4300	4237	4173	0.200
		8	5551	5294	5089	4921	4848	4781	4719	4662	4610	4561	4473	4396	4328	4258	0.180
		9	5743	5465	5243	5061	4982	4909	4842	4781	4724	4671	4575	4492	4418	4343	0.164
		10	5936	5636	5397	5201	5115	5037	4965	4899	4838	4781	4678	4588	4509	4427	0.151

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 21C - B 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
No Fill (Bare Deck)	36/9 (B) D_n = 68	0	1671	1493	1334	1205	1149	1097	1050	1006	966	928	860	801	749	695	0.357
		1	1983	1794	1636	1490	1421	1358	-	-	-	-	-	-	-	-	0.244
		2	2268	2063	1889	1740	1674	1612	1551	1488	1430	1375	1278	1192	1117	-	0.186
		3	2526	2311	2126	1965	1893	1826	1762	1703	1647	1595	1487	1388*	1301*	1212*	0.150
		4	2758	2538	2346	2177	2100	2028	1960	1896	1836	1779*	1675*	1582*	1486*	1384*	0.126
		5	2965	2744	2548	2373	2293	2218	2147	2080*	2016*	1956*	1845*	1744*	1654*	1557*	0.108
		6	3150	2931	2734	2556	2474	2396	2323*	2253*	2186*	2123*	2006*	1901*	1805*	1703*	0.095
		7	3314	3100	2904	2725	2642*	2563*	2487*	2416*	2347*	2282*	2161*	2050*	1949*	1843*	0.085
		8	3459	3251	3059	2881*	2797*	2718*	2641*	2568*	2499*	2432*	2307*	2193*	2088*	1977*	0.076
		9	3588	3388	3200	3024*	2941*	2861*	2785*	2711*	2641*	2573*	2446*	2329*	2221*	2106*	0.069
		10	3702	3510	3328	3156*	3074*	2995*	2918*	2845*	2774*	2706*	2577*	2458*	2348*	2230*	0.064
	36/7 (B) D_n = 68	0	1038	918	822	743	709	678	649	622	597	574	533	497	465	433	0.535
		1	1390	1250	1135	1028	981	939	-	-	-	-	-	-	-	-	0.317
		2	1704	1541	1406	1291	1240	1192	1148	1104	1061	1022	951	889	834	-	0.225
		3	1986	1809	1658	1528	1470	1416	1365	1318	1274	1233	1157	1084	1018	950	0.174
		4	2237	2051	1890	1749	1686	1627	1571	1519	1469	1423	1338	1263	1195	1122*	0.142
		5	2458	2269	2102	1954	1887	1824	1764	1708	1654	1604	1512	1429*	1354*	1275*	0.120
		6	2652	2463	2294	2143	2073	2007	1944	1885	1829	1775*	1676*	1587*	1506*	1421*	0.104
		7	2820	2636	2468	2315	2244	2176	2111	2050	1992*	1936*	1832*	1738*	1653*	1562*	0.092
		8	2967	2789	2624	2471	2400	2331	2266*	2204*	2144*	2087*	1980*	1882*	1792*	1696*	0.082
		9	3094	2924	2763	2613	2542	2474*	2409*	2346*	2285*	2227*	2118*	2017*	1924*	1825*	0.074
		10	3205	3043	2888	2742	2672*	2605*	2540*	2477*	2416*	2358*	2247*	2145*	2049*	1947*	0.068
	36/5 (B) D_n = 428	0	946	849	760	687	655	626	599	574	552	530	492	458	429	398	0.642
		1	1249	1134	1037	954	918	883	-	-	-	-	-	-	-	-	0.351
		2	1505	1381	1273	1178	1136	1096	1059	1024	991	959	902	850	797	-	0.242
		3	1717	1591	1478	1378	1332	1288	1247	1209	1172	1137	1073	1015	963	908	0.184
		4	1889	1767	1655	1553	1505	1460	1417	1376	1337	1300	1230	1167	1110	1049	0.149
		5	2029	1913	1805	1704	1657	1611	1567	1525	1485	1447	1374	1308	1247*	1182*	0.125
		6	2143	2035	1932	1835	1789	1744	1700	1658	1618	1579	1505	1437*	1373*	1305*	0.108
		7	2235	2136	2040	1947	1903	1859	1817	1776	1736	1697	1623*	1554*	1489*	1419*	0.094
		8	2310	2220	2131	2044	2001	1960	1919	1879	1840	1802*	1729*	1661*	1596*	1525*	0.084
		9	2372	2290	2208	2126	2086	2047	2008	1970	1932*	1896*	1825*	1757*	1692*	1621*	0.076
		10	2423	2349	2273	2198	2160	2123	2086	2050	2014*	1979*	1910*	1844*	1780*	1710*	0.069
	36/4 (B) D_n = 608	0	725	643	574	518	494	471	451	432	414	398	368	342	320	296	0.802
		1	1017	928	851	785	756	728	-	-	-	-	-	-	-	-	0.394
		2	1248	1153	1070	995	961	929	899	871	844	818	771	729	688	-	0.261
		3	1424	1333	1249	1172	1137	1103	1070	1040	1010	982	930	883	839	794	0.195
		4	1558	1474	1394	1319	1284	1250	1217	1185	1155	1126	1071	1021	974	924	0.156
		5	1659	1583	1510	1439	1405	1372	1340	1309	1279	1250	1195	1143	1095	1042	0.130
		6	1736	1669	1602	1537	1505	1474	1444	1414	1385	1357	1302	1250	1202	1148*	0.111
		7	1795	1736	1676	1617	1588	1559	1530	1502	1475	1447	1395	1344	1296*	1243*	0.097
		8	1842	1789	1736	1683	1656	1629	1603	1576	1550	1525	1475	1426*	1380*	1328*	0.086
		9	1878	1832	1785	1736	1712	1688	1663	1639	1615	1591	1544	1498*	1453*	1402*	0.078
		10	1908	1867	1825	1781	1759	1736	1714	1692	1669	1647	1603*	1559*	1517*	1468*	0.071

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
No Fill	All	B	4821	3809	3085	2550	2333	2142	1974	1826	1693	1574	1371	1205	1068	935	0.2127

See page 30 for table notes.

TABLE NO. 21D - B 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in. **Φ (EQ): 0.50** **Ω (EQ): 3.25**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds **Φ (Other): 0.50** **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5678	5592	5523	5467	5442	5420	5399	5380	5363	5346	5317	5291	5268	5245	0.802
		1	6069	5940	5836	5752	5715	5681	-	-	-	-	-	-	-	-	0.394
		2	6461	6288	6150	6036	5987	5942	5900	5862	5827	5794	5734	5683	5637	-	0.261
		3	6852	6636	6463	6321	6259	6203	6151	6103	6059	6017	5943	5878	5821	5762	0.195
		4	7244	6984	6776	6606	6532	6464	6402	6344	6291	6241	6152	6074	6005	5935	0.156
		5	7635	7332	7089	6891	6804	6725	6652	6585	6523	6465	6361	6270	6190	6107	0.130
		6	8027	7680	7402	7175	7077	6986	6903	6826	6755	6689	6570	6466	6374	6279	0.111
		7	8419	8028	7716	7460	7349	7247	7153	7067	6987	6912	6779	6661	6558	6452	0.097
		8	8810	8376	8029	7745	7621	7508	7404	7308	7219	7136	6987	6857	6742	6624	0.086
		9	9202	8724	8342	8030	7894	7769	7655	7549	7451	7360	7196	7053	6927	6797	0.078
		10	9593	9072	8655	8314	8166	8030	7905	7790	7683	7584	7405	7249	7111	6969	0.071
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4014	3928	3859	3803	3779	3756	3736	3716	3699	3682	3653	3627	3604	3581	0.802
		1	4405	4276	4172	4088	4051	4017	-	-	-	-	-	-	-	-	0.394
		2	4797	4624	4486	4373	4323	4278	4237	4198	4163	4130	4071	4019	3973	-	0.261
		3	5189	4972	4799	4657	4596	4539	4487	4439	4395	4354	4279	4215	4157	4098	0.195
		4	5580	5320	5112	4942	4868	4800	4738	4680	4627	4577	4488	4410	4342	4271	0.156
		5	5972	5668	5425	5227	5140	5061	4988	4921	4859	4801	4697	4606	4526	4443	0.130
		6	6363	6016	5739	5512	5413	5322	5239	5162	5091	5025	4906	4802	4710	4616	0.111
		7	6755	6364	6052	5796	5685	5583	5490	5403	5323	5249	5115	4998	4894	4788	0.097
		8	7146	6712	6365	6081	5958	5844	5740	5644	5555	5472	5324	5193	5079	4961	0.086
		9	7538	7060	6678	6366	6230	6105	5991	5885	5787	5696	5532	5389	5263	5133	0.078
		10	7929	7408	6992	6651	6502	6366	6241	6126	6019	5920	5741	5585	5447	5305	0.071

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 21E - B 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
No Fill (Bare Deck)	36/9 (B) D_n = 68	0	987	881	788	712	678	648	620	594	570	548	508	473	442	410	0.403
		1	1141	1031	940	851	812	776	-	-	-	-	-	-	-	-	0.331
		2	1284	1166	1066	981	943	904	866	831	798	768	713	665	623	-	0.281
		3	1416	1292	1186	1094	1053	1015	979	946	912	877	815	761	713	664	0.244
		4	1538	1410	1299	1202	1158	1117	1079	1043	1009	978	918	857	804	749	0.216
		5	1648	1518	1404	1304	1258	1215	1175	1137	1101	1067	1005	949	894	833	0.193
		6	1749	1619	1503	1400	1353	1308	1266	1227	1189	1153	1088	1029	975	918	0.175
		7	1841	1712	1595	1490	1442	1396	1353	1312	1273	1236	1168	1106	1050	990	0.160
		8	1924	1797	1680	1575	1526	1480	1435	1393	1353	1315	1244	1180	1121	1059*	0.147
		9	1999	1875	1760	1654	1605	1558	1513	1470	1430	1391	1318	1252	1191	1126*	0.137
		10	2067	1946	1833	1728	1679	1632	1587	1543	1502	1463	1388	1320	1258*	1191*	0.127
	36/7 (B) D_n = 68	0	613	542	485	439	419	400	383	367	353	339	315	294	275	255	0.605
		1	788	708	639	579	552	528	-	-	-	-	-	-	-	-	0.456
		2	945	854	777	713	684	656	629	604	580	559	520	486	456	-	0.366
		3	1091	990	905	832	800	770	742	716	692	669	622	582	546	509	0.306
		4	1223	1116	1025	946	910	877	846	817	790	765	718	677	636	594	0.263
		5	1342	1232	1136	1052	1015	979	946	915	885	857	807	761	720	678	0.230
		6	1450	1338	1240	1152	1113	1075	1040	1007	976	946	891	842	798	752	0.205
		7	1546	1435	1335	1246	1205	1166	1129	1094	1061	1030	973	921	873	824	0.185
		8	1632	1522	1422	1332	1290	1251	1213	1177	1143	1111	1050	996	946	893	0.168
		9	1708	1601	1503	1412	1370	1330	1292	1255	1220	1187	1124	1068	1016	961	0.154
		10	1776	1673	1576	1486	1444	1404	1365	1328	1293	1259	1195	1136	1083	1026	0.142
	36/5 (B) D_n = 428	0	558	502	449	406	387	370	354	339	326	313	290	271	253	235	0.726
		1	709	643	587	540	519	498	-	-	-	-	-	-	-	-	0.522
		2	841	769	707	653	629	606	585	565	547	529	495	463	434	-	0.408
		3	953	879	814	756	730	705	682	660	639	619	583	551	522	489	0.334
		4	1049	975	908	849	821	795	770	747	725	704	665	629	597	564	0.283
		5	1130	1058	992	932	903	877	851	827	804	782	740	703	668	632	0.246
		6	1197	1129	1065	1005	977	950	924	900	876	853	810	771	735	697	0.217
		7	1254	1190	1128	1070	1043	1016	990	966	942	919	875	835	798	758	0.195
		8	1302	1242	1183	1128	1101	1075	1050	1025	1001	979	935	894	856	815	0.176
		9	1342	1286	1231	1178	1153	1127	1103	1079	1056	1033	989	949	910	869	0.161
		10	1376	1325	1273	1223	1198	1174	1150	1127	1104	1082	1039	999	961	919	0.148
	36/4 (B) D_n = 608	0	428	380	339	306	292	278	266	255	244	235	217	202	189	175	0.907
		1	574	522	478	441	424	406	-	-	-	-	-	-	-	-	0.610
		2	695	639	591	548	529	510	493	477	462	448	422	394	370	-	0.459
		3	792	737	687	642	621	601	583	565	548	533	503	476	452	427	0.368
		4	869	816	767	722	701	681	662	643	626	609	577	549	522	494	0.307
		5	930	881	835	791	770	750	731	712	694	677	645	614	587	557	0.264
		6	979	934	891	849	829	809	791	772	754	737	705	674	645	615	0.231
		7	1018	977	937	898	879	860	842	824	807	790	758	727	699	667	0.206
		8	1049	1012	976	939	922	904	887	870	853	837	805	775	747	715	0.185
		9	1074	1041	1008	974	958	941	925	909	893	878	847	818	790	759	0.168
		10	1095	1065	1035	1004	989	973	958	943	928	913	884	856	829	798	0.154

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
No Fill	All	B	4821	3809	3085	2550	2333	2142	1974	1826	1693	1574	1371	1205	1068	935	0.2127

See page 30 for table notes.

TABLE NO. 21F - B 20 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0358 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			4 - 0	4 - 6	5 - 0	5 - 6	5 - 9	6 - 0	6 - 3	6 - 6	6 - 9	7 - 0	7 - 6	8 - 0	8 - 6	9 - 1	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	5361	5310	5270	5236	5222	5209	5197	5185	5175	5165	5148	5133	5119	5105	0.907
		1	5553	5481	5423	5376	5356	5337	-	-	-	-	-	-	-	-	0.610
		2	5745	5652	5577	5516	5489	5465	5443	5422	5403	5385	5353	5325	5300	-	0.459
		3	5937	5823	5731	5656	5623	5593	5566	5540	5517	5495	5455	5421	5391	5359	0.368
		4	6130	5994	5885	5795	5757	5721	5689	5658	5630	5605	5558	5517	5481	5444	0.307
		5	6322	6164	6038	5935	5890	5849	5812	5777	5744	5714	5660	5613	5571	5529	0.264
		6	6514	6335	6192	6075	6024	5977	5934	5895	5858	5824	5763	5709	5662	5613	0.231
		7	6706	6506	6346	6215	6158	6106	6057	6013	5972	5934	5865	5805	5752	5698	0.206
		8	6898	6677	6500	6354	6291	6234	6180	6131	6086	6044	5968	5901	5843	5782	0.185
		9	7090	6848	6653	6494	6425	6362	6303	6250	6200	6154	6070	5997	5933	5867	0.168
		10	7283	7018	6807	6634	6559	6490	6426	6368	6314	6263	6173	6093	6024	5952	0.154
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	3697	3646	3606	3573	3558	3545	3533	3522	3511	3501	3484	3469	3455	3442	0.907
		1	3889	3817	3760	3712	3692	3673	-	-	-	-	-	-	-	-	0.610
		2	4082	3988	3913	3852	3826	3801	3779	3758	3739	3721	3689	3661	3636	-	0.459
		3	4274	4159	4067	3992	3959	3929	3902	3876	3853	3831	3792	3757	3727	3696	0.368
		4	4466	4330	4221	4132	4093	4057	4025	3995	3967	3941	3894	3853	3817	3780	0.307
		5	4658	4501	4375	4271	4227	4186	4148	4113	4081	4051	3997	3949	3908	3865	0.264
		6	4850	4671	4528	4411	4360	4314	4271	4231	4194	4160	4099	4045	3998	3949	0.231
		7	5042	4842	4682	4551	4494	4442	4394	4349	4308	4270	4201	4141	4088	4034	0.206
		8	5235	5013	4836	4691	4628	4570	4517	4468	4422	4380	4304	4238	4179	4119	0.185
		9	5427	5184	4989	4830	4761	4698	4640	4586	4536	4490	4406	4334	4269	4203	0.168
		10	5619	5355	5143	4970	4895	4826	4763	4704	4650	4600	4509	4430	4360	4288	0.154

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1056 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 22A - B 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
No Fill (Bare Deck)	36/9 (B) D_n = 45	0	1747	1579	1439	1321	1219	1131	1055	987	926	872	824	741	679	661	0.410
		2	2123	1949	1778	1634	1510	1403	1309	1226	1152	-	-	-	-	-	0.297
		3	2291	2107	1948	1791	1656	1539	1436	1346	1265	1194	1129	1019	934*	-	0.261
		4	2453	2260	2093	1947	1801	1674	1563	1466	1379	1301	1231	1111*	1019*	991*	0.232
		5	2610	2408	2234	2081	1946	1810	1691	1585	1492	1408	1332*	1204*	1103*	1074*	0.210
		6	2761	2552	2371	2211	2071	1946	1818	1705	1605	1515*	1434*	1296*	1188*	1156*	0.191
		7	2906	2692	2504	2338	2192	2062	1945	1825	1718*	1622*	1536*	1389*	1273*	1239*	0.175
		8	3046	2826	2633	2462	2311	2176	2054	1944*	1831*	1729*	1638*	1481*	1358*	1321*	0.162
		9	3180	2957	2759	2583	2427	2287	2161*	2048*	1944*	1836*	1740*	1574*	1443*	1404*	0.151
		10	3309	3082	2880	2701	2540	2395*	2266*	2148*	2041*	1943*	1841*	1666*	1527*	1486*	0.141
		11	3432	3203	2998	2815	2650	2502*	2368*	2247*	2137*	2036*	1943*	1759*	1612*	1569*	0.132
	36/7 (B) D_n = 45	0	1074	972	887	815	753	700	653	611	575	542	512	462	423	412	0.615
		2	1474	1342	1226	1128	1044	971	907	851	801	-	-	-	-	-	0.391
		3	1652	1514	1396	1285	1189	1107	1034	971	914	863	817	739	678	-	0.330
		4	1825	1676	1548	1438	1335	1242	1162	1090	1027	970	919	832	763	742	0.286
		5	1992	1833	1695	1577	1472	1378	1289	1210	1140	1077	1021	924	847	824	0.253
		6	2153	1984	1839	1712	1601	1502	1415	1330	1253	1185	1123	1017	932*	907*	0.226
		7	2307	2131	1978	1844	1726	1622	1529	1445	1366	1292	1225	1109*	1017*	989*	0.204
		8	2454	2272	2113	1972	1848	1738	1640	1551	1472	1399	1326*	1202*	1102*	1072*	0.187
		9	2595	2408	2243	2097	1968	1852	1749	1656	1572	1496*	1426*	1294*	1187*	1155*	0.172
		10	2730	2538	2368	2218	2084	1963	1856	1758	1670*	1590*	1517*	1387*	1271*	1237*	0.159
		11	2858	2663	2490	2335	2196	2072	1960	1858*	1766*	1683*	1606*	1471*	1356*	1320*	0.148
	36/5 (B) D_n = 281	0	994	899	820	753	696	646	603	564	530	500	472	425	390	379	0.739
		2	1347	1239	1147	1066	986	917	857	804	756	-	-	-	-	-	0.437
		3	1504	1389	1288	1201	1123	1053	984	923	869	821	777	703	644	-	0.363
		4	1653	1530	1423	1329	1246	1172	1106	1043	982	928	879	795	729	709	0.310
		5	1791	1664	1552	1452	1364	1285	1214	1150	1092	1035	981	888	814	792	0.271
		6	1919	1789	1673	1570	1477	1393	1318	1250	1188	1132	1081	980	899	874*	0.241
		7	2039	1907	1788	1681	1585	1498	1419	1348	1282	1223	1168	1072	983*	957*	0.216
		8	2149	2016	1896	1787	1688	1598	1516	1442	1373	1311	1253	1151*	1064*	1038*	0.196
		9	2250	2118	1997	1887	1786	1694	1609	1532	1461	1396	1336*	1229*	1137*	1110*	0.180
		10	2344	2213	2092	1981	1879	1785	1699	1619	1546	1479*	1417*	1305*	1209*	1180*	0.166
		11	2430	2301	2181	2070	1967	1872	1784	1703	1628	1559*	1495*	1379*	1279*	1249*	0.154
	36/4 (B) D_n = 399	0	753	680	619	568	524	485	452	422	396	373	352	316	289	282	0.923
		2	1105	1019	945	880	814	757	706	662	622	-	-	-	-	-	0.496
		3	1253	1161	1080	1009	946	890	834	782	735	694	657	593	544	-	0.403
		4	1389	1292	1207	1131	1063	1002	947	898	848	801	759	686	629	612	0.339
		5	1511	1413	1324	1244	1173	1108	1049	996	948	904	860	778	713	694	0.293
		6	1622	1523	1432	1350	1276	1208	1146	1090	1039	992	948	871	798	777	0.257
		7	1721	1622	1532	1449	1372	1303	1239	1180	1126	1076	1030	949	878	857	0.230
		8	1810	1713	1623	1539	1462	1391	1326	1265	1209	1157	1109	1023	949*	926*	0.207
		9	1889	1795	1706	1623	1546	1474	1407	1346	1288	1235	1185	1096*	1018*	994*	0.189
		10	1960	1869	1782	1700	1624	1552	1484	1422	1363	1308	1257	1165*	1084*	1059*	0.174
		11	2024	1936	1851	1771	1695	1624	1557	1493	1434	1379	1326*	1232*	1148*	1123*	0.161

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
No Fill	All	B	4696	3881	3261	2779	2396	2087	1835	1625	1450	1301	1174	970	815	772	0.2814

See page 30 for table notes.

TABLE NO. 22B - B 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	5707	5634	5574	5522	5478	5440	5406	5377	5350	5327	5306	5269	5239	5230	0.923
		2	6114	6004	5913	5835	5769	5711	5661	5616	5577	-	-	-	-	-	0.496
		3	6318	6190	6082	5992	5914	5847	5788	5736	5690	5648	5611	5547	5493	-	0.403
		4	6522	6375	6252	6148	6059	5982	5915	5856	5803	5755	5713	5639	5578	5560	0.339
		5	6725	6560	6422	6305	6205	6118	6042	5975	5916	5863	5815	5732	5663	5642	0.293
		6	6929	6745	6591	6461	6350	6254	6170	6095	6029	5970	5916	5824	5748	5725	0.257
		7	7132	6930	6761	6618	6496	6390	6297	6215	6142	6077	6018	5917	5833	5808	0.230
		8	7336	7115	6930	6775	6641	6525	6424	6335	6255	6184	6120	6010	5917	5890	0.207
		9	7539	7300	7100	6931	6786	6661	6551	6454	6368	6291	6222	6102	6002	5973	0.189
		10	7743	7485	7270	7088	6932	6797	6678	6574	6481	6398	6324	6195	6087	6055	0.174
		11	7946	7670	7439	7244	7077	6932	6806	6694	6594	6505	6425	6287	6172	6138	0.161
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	4044	3971	3910	3858	3814	3776	3742	3713	3687	3663	3642	3606	3575	3566	0.923
		2	4451	4341	4249	4171	4105	4047	3997	3952	3913	-	-	-	-	-	0.496
		3	4654	4526	4419	4328	4250	4183	4124	4072	4026	3985	3947	3883	3830	-	0.403
		4	4858	4711	4588	4485	4396	4319	4251	4192	4139	4092	4049	3976	3914	3896	0.339
		5	5061	4896	4758	4641	4541	4454	4379	4312	4252	4199	4151	4068	3999	3979	0.293
		6	5265	5081	4927	4798	4686	4590	4506	4431	4365	4306	4253	4161	4084	4061	0.257
		7	5468	5266	5097	4954	4832	4726	4633	4551	4478	4413	4354	4253	4169	4144	0.230
		8	5672	5451	5267	5111	4977	4861	4760	4671	4591	4520	4456	4346	4254	4226	0.207
		9	5875	5636	5436	5267	5123	4997	4887	4790	4704	4627	4558	4438	4338	4309	0.189
		10	6079	5821	5606	5424	5268	5133	5015	4910	4817	4734	4660	4531	4423	4391	0.174
		11	6283	6006	5776	5581	5413	5269	5142	5030	4931	4842	4762	4623	4508	4474	0.161

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 22C - B 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
No Fill (Bare Deck)	36/9 (B) D_n = 45	0	1747	1579	1439	1321	1219	1131	1055	987	926	872	824	741	679	661	0.410
		2	2452	2259	2092	1946	1800	1673	1563	1465	1378	-	-	-	-	-	0.214
		3	2759	2551	2370	2210	2070	1945	1817	1704	1604	1514*	1433*	1295*	1187*	-	0.172
		4	3044	2825	2632	2461	2310	2174	2053	1943*	1830*	1728*	1637*	1480*	1357*	1320*	0.144
		5	3307	3081	2879	2699	2538	2394*	2264*	2147*	2040*	1942*	1840*	1665*	1526*	1485*	0.124
		6	3548	3318	3110	2924	2756*	2604*	2467*	2342*	2229*	2125*	2030*	1850*	1696*	1650*	0.109
		7	3769	3537	3326	3135*	2962*	2804*	2661*	2530*	2410*	2301*	2200*	2021*	1865*	1815*	0.097
		8	3970	3739	3527	3334*	3156*	2995*	2846*	2710*	2586*	2471*	2365*	2176*	2014*	1965*	0.088
		9	4153	3925	3714*	3519*	3340*	3175*	3023*	2883*	2754*	2635*	2524*	2327*	2157*	2105*	0.080
		10	4319	4096	3887*	3693*	3512*	3345*	3191*	3048*	2915*	2792*	2678*	2474*	2296*	2241*	0.073
		11	4470	4252	4047*	3854*	3674*	3506*	3350*	3205*	3070*	2944*	2827*	2615*	2431*	2374*	0.068
	36/7 (B) D_n = 45	0	1074	972	887	815	753	700	653	611	575	542	512	462	423	412	0.615
		2	1824	1675	1547	1437	1334	1242	1161	1090	1026	-	-	-	-	-	0.259
		3	2152	1983	1838	1711	1600	1502	1414	1329	1252	1184	1122	1016	932	-	0.200
		4	2453	2271	2111	1971	1847	1737	1639	1550	1471	1398	1325*	1201*	1101*	1071*	0.164
		5	2728	2537	2367	2216	2082	1962	1854	1757	1669*	1589*	1516*	1386*	1270*	1236*	0.138
		6	2978	2781	2605	2446	2304	2176	2060	1955*	1860*	1773*	1693*	1552*	1432*	1396*	0.120
		7	3203	3004	2824	2661	2513	2378*	2256*	2145*	2043*	1950*	1864*	1712*	1582*	1543*	0.106
		8	3405	3208	3026	2860	2708*	2569*	2442*	2326*	2219*	2120*	2029*	1868*	1729*	1686*	0.094
		9	3587	3392	3211	3044	2890*	2749*	2618*	2497*	2386*	2283*	2188*	2018*	1871*	1826*	0.085
		10	3749	3559	3381	3215*	3060*	2917*	2783*	2660*	2546*	2439*	2341*	2163*	2009*	1961*	0.078
		11	3894	3710	3535	3371*	3217*	3073*	2939*	2814*	2697*	2588*	2487*	2303*	2142*	2093*	0.072
	36/5 (B) D_n = 281	0	994	899	820	753	696	646	603	564	530	500	472	425	390	379	0.739
		2	1652	1530	1423	1329	1245	1171	1105	1042	982	-	-	-	-	-	0.278
		3	1918	1788	1672	1569	1476	1393	1317	1249	1188	1132	1080	980	898	-	0.212
		4	2148	2015	1895	1786	1687	1597	1515	1441	1372	1310	1252	1151*	1063*	1037*	0.171
		5	2343	2212	2091	1980	1878	1784	1698	1618	1545	1478*	1416*	1304*	1208*	1179*	0.144
		6	2508	2382	2263	2152	2049	1954	1865	1782	1706*	1635*	1569*	1450*	1347*	1315*	0.124
		7	2648	2528	2413	2305	2203	2107	2017	1933*	1855*	1781*	1713*	1588*	1479*	1445*	0.109
		8	2766	2653	2544	2439	2339	2245	2155*	2071*	1992*	1917*	1847*	1718*	1604*	1569*	0.097
		9	2866	2760	2657	2557	2461	2368*	2280*	2197*	2117*	2042*	1971*	1840*	1723*	1686*	0.087
		10	2951	2852	2755	2660	2568	2479*	2393*	2311*	2232*	2157*	2086*	1954*	1834*	1797*	0.080
		11	3023	2932	2841	2751	2663	2578*	2495*	2414*	2337*	2263*	2193*	2060*	1939*	1902*	0.073
	36/4 (B) D_n = 399	0	753	680	619	568	524	485	452	422	396	373	352	316	289	282	0.923
		2	1388	1292	1206	1130	1062	1001	947	897	848	-	-	-	-	-	0.301
		3	1621	1522	1431	1349	1275	1207	1146	1090	1038	991	948	870	798	-	0.225
		4	1809	1712	1622	1539	1461	1390	1325	1264	1208	1156	1108	1023	948*	926*	0.180
		5	1959	1868	1781	1699	1623	1551	1483	1421	1362	1307	1256	1164*	1083*	1058*	0.150
		6	2080	1995	1914	1835	1761	1690	1623	1560	1500	1444	1391*	1295*	1209*	1183*	0.128
		7	2176	2099	2023	1950	1879	1810	1745	1683	1623	1567*	1514*	1415*	1326*	1299*	0.112
		8	2254	2184	2114	2046	1979	1914	1851	1791	1733*	1677*	1624*	1524*	1434*	1406*	0.099
		9	2317	2254	2190	2127	2065	2004	1944	1886*	1829*	1775*	1723*	1624*	1533*	1505*	0.090
		10	2368	2311	2254	2196	2138	2080	2024	1969*	1915*	1862*	1811*	1714*	1624*	1596*	0.081
		11	2411	2360	2307	2254	2200	2147	2094*	2041*	1990*	1940*	1890*	1796*	1707*	1679*	0.075

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
No Fill	All	B	4696	3881	3261	2779	2396	2087	1835	1625	1450	1301	1174	970	815	772	0.2814

See page 30 for table notes.

TABLE NO. 22D - B 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in. **Φ (EQ): 0.50** **Ω (EQ): 3.25**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds **Φ (Other): 0.50** **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5707	5634	5574	5522	5478	5440	5406	5377	5350	5327	5306	5269	5239	5230	0.923
		2	6521	6374	6251	6148	6059	5982	5914	5855	5802	-	-	-	-	-	0.301
		3	6927	6743	6590	6460	6349	6253	6169	6094	6028	5969	5916	5824	5747	-	0.225
		4	7334	7113	6929	6773	6640	6524	6423	6333	6254	6183	6119	6009	5917	5889	0.180
		5	7740	7482	7268	7086	6930	6795	6677	6573	6480	6397	6322	6193	6086	6054	0.150
		6	8147	7852	7606	7399	7220	7066	6931	6812	6706	6611	6526	6378	6255	6219	0.128
		7	8553	8222	7945	7711	7511	7337	7185	7051	6932	6825	6729	6563	6425	6384	0.112
		8	8960	8591	8284	8024	7801	7608	7439	7290	7157	7039	6932	6748	6594	6548	0.099
		9	9367	8961	8623	8337	8092	7879	7693	7529	7383	7253	7135	6933	6764	6713	0.090
		10	9773	9330	8962	8650	8382	8150	7947	7768	7609	7467	7339	7117	6933	6878	0.081
		11	10180	9700	9300	8962	8672	8421	8201	8007	7835	7681	7542	7302	7102	7043	0.075
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4044	3971	3910	3858	3814	3776	3742	3713	3687	3663	3642	3606	3575	3566	0.923
		2	4857	4710	4587	4484	4395	4318	4251	4191	4138	-	-	-	-	-	0.301
		3	5263	5079	4926	4797	4685	4589	4505	4430	4364	4305	4252	4160	4083	-	0.225
		4	5670	5449	5265	5109	4976	4860	4759	4670	4590	4519	4455	4345	4253	4225	0.180
		5	6076	5819	5604	5422	5266	5131	5013	4909	4816	4733	4658	4530	4422	4390	0.150
		6	6483	6188	5943	5735	5557	5402	5267	5148	5042	4947	4862	4714	4592	4555	0.128
		7	6890	6558	6281	6047	5847	5673	5521	5387	5268	5161	5065	4899	4761	4720	0.112
		8	7296	6927	6620	6360	6137	5944	5775	5626	5494	5375	5268	5084	4930	4885	0.099
		9	7703	7297	6959	6673	6428	6215	6029	5865	5720	5589	5472	5269	5100	5050	0.090
		10	8109	7667	7298	6986	6718	6486	6283	6105	5945	5803	5675	5454	5269	5214	0.081
		11	8516	8036	7637	7298	7009	6757	6538	6344	6171	6017	5878	5638	5439	5379	0.075

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO.22E - B 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
No Fill (Bare Deck)	36/9 (B) D_n = 45	0	1052	951	867	796	734	681	635	594	558	525	496	446	409	398	0.464
		2	1412	1299	1202	1109	1025	953	890	834	784	-	-	-	-	-	0.324
		3	1570	1449	1344	1252	1171	1089	1017	953	897	847	801	724	664	-	0.281
		4	1719	1591	1480	1381	1294	1217	1144	1073	1010	954	903	816	748	728	0.248
		5	1859	1726	1609	1505	1413	1331	1257	1190	1123	1061	1005	909	833	811	0.223
		6	1990	1854	1732	1624	1527	1440	1362	1292	1227	1168	1107	1001	918*	893*	0.202
		7	2112	1973	1849	1737	1637	1546	1464	1390	1322	1260	1204	1094*	1003*	976*	0.184
		8	2225	2085	1959	1845	1741	1648	1562	1485	1414	1349	1290	1184*	1088*	1058*	0.170
		9	2330	2190	2063	1947	1841	1745	1657	1577	1503	1435	1373*	1263*	1168*	1139*	0.157
		10	2427	2288	2161	2044	1936	1838	1748	1665	1589	1519*	1455*	1340*	1240*	1210*	0.146
		11	2516	2379	2252	2135	2027	1927	1836	1751	1673*	1601*	1534*	1415*	1311*	1280*	0.137
	36/7 (B) D_n = 45	0	647	586	534	491	454	421	393	368	346	326	308	278	255	248	0.696
		2	1029	944	871	804	744	693	648	608	572	-	-	-	-	-	0.422
		3	1198	1102	1020	948	885	828	775	727	685	648	614	556	509	-	0.352
		4	1357	1252	1162	1082	1013	951	896	847	798	755	716	648	594	578	0.303
		5	1504	1393	1296	1211	1135	1068	1008	954	905	861	817	741	679	661	0.265
		6	1641	1526	1424	1333	1252	1180	1115	1057	1004	955	912	833	764	743	0.236
		7	1767	1649	1544	1449	1364	1288	1219	1156	1100	1048	1000	917	846	825	0.212
		8	1883	1764	1656	1558	1470	1391	1318	1252	1192	1137	1087	998	922	899*	0.193
		9	1990	1870	1761	1662	1571	1489	1414	1345	1282	1224	1171	1077	996*	971*	0.177
		10	2087	1968	1859	1758	1666	1582	1505	1434	1368	1308	1253	1154*	1068*	1042*	0.164
		11	2175	2058	1949	1849	1756	1670	1591	1519	1451	1389	1331*	1228*	1139*	1112*	0.152
	36/5 (B) D_n = 281	0	599	542	494	454	419	389	363	340	319	301	284	256	235	228	0.835
		2	935	864	802	748	701	658	617	579	545	-	-	-	-	-	0.469
		3	1077	1001	933	873	820	773	730	691	657	622	590	534	489	-	0.385
		4	1203	1124	1053	989	932	880	833	791	752	717	685	626	574	559	0.326
		5	1313	1233	1161	1095	1035	980	930	885	843	805	770	708	654	638	0.283
		6	1410	1331	1258	1191	1130	1073	1021	973	929	889	851	784	727	709	0.250
		7	1494	1417	1345	1279	1216	1159	1106	1056	1011	968	929	858	796	778	0.224
		8	1567	1493	1423	1357	1296	1238	1184	1134	1087	1043	1002	928	863	844	0.203
		9	1630	1560	1493	1428	1368	1310	1256	1205	1158	1113	1071	995	928*	907*	0.185
		10	1686	1619	1554	1492	1433	1376	1323	1272	1224	1179	1136	1058	989*	968*	0.170
		11	1734	1671	1609	1549	1492	1436	1384	1333	1286	1240	1197	1118*	1047*	1026*	0.158
	36/4 (B) D_n = 399	0	454	410	373	342	315	292	272	254	239	224	212	190	174	170	1.044
		2	782	725	676	632	593	558	527	494	465	-	-	-	-	-	0.528
		3	909	850	796	748	705	666	631	599	570	543	517	468	429	-	0.424
		4	1016	956	902	852	806	765	726	692	660	630	603	555	513	500	0.354
		5	1105	1047	993	943	896	853	814	777	743	711	682	630	584	570	0.304
		6	1179	1124	1072	1022	976	933	892	855	819	786	756	700	651	637	0.266
		7	1241	1189	1139	1092	1046	1004	963	925	889	856	824	766	715	699	0.237
		8	1292	1244	1197	1152	1108	1066	1026	989	953	919	887	828	775	758	0.213
		9	1334	1290	1246	1204	1162	1122	1083	1046	1010	977	944	885	831	814	0.194
		10	1370	1329	1289	1249	1209	1171	1133	1097	1063	1029	997	937	883	866	0.178
		11	1400	1363	1325	1288	1250	1214	1178	1143	1110	1077	1046	986	932*	914*	0.164

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4/ft.$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
No Fill	All	B	4696	3881	3261	2779	2396	2087	1835	1625	1450	1301	1174	970	815	772	0.2814

See page 30 for table notes.

TABLE NO. 22F - B 18 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0474 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	5 - 6	6 - 0	6 - 6	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	11 - 0	12 - 0	12 - 4	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5388	5344	5307	5276	5250	5227	5207	5189	5173	5159	5146	5124	5106	5100	1.044
		2	5795	5714	5647	5590	5541	5498	5461	5428	5399	-	-	-	-	-	0.528
		3	5999	5899	5816	5746	5686	5634	5588	5548	5512	5480	5451	5402	5360	-	0.424
		4	6202	6084	5986	5903	5831	5770	5716	5668	5625	5587	5553	5494	5445	5430	0.354
		5	6406	6269	6156	6059	5977	5905	5843	5788	5738	5695	5655	5587	5530	5513	0.304
		6	6609	6454	6325	6216	6122	6041	5970	5907	5852	5802	5757	5679	5615	5596	0.266
		7	6813	6639	6495	6372	6268	6177	6097	6027	5965	5909	5859	5772	5700	5678	0.237
		8	7016	6824	6664	6529	6413	6312	6224	6147	6078	6016	5960	5864	5784	5761	0.213
		9	7220	7009	6834	6686	6558	6448	6352	6266	6191	6123	6062	5957	5869	5843	0.194
		10	7423	7194	7004	6842	6704	6584	6479	6386	6304	6230	6164	6049	5954	5926	0.178
		11	7627	7379	7173	6999	6849	6719	6606	6506	6417	6337	6266	6142	6039	6008	0.164
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	3724	3680	3644	3613	3586	3563	3543	3525	3509	3495	3482	3460	3442	3437	1.044
		2	4131	4050	3983	3926	3877	3834	3797	3765	3735	-	-	-	-	-	0.528
		3	4335	4235	4152	4082	4022	3970	3925	3884	3849	3817	3788	3738	3697	-	0.424
		4	4538	4420	4322	4239	4168	4106	4052	4004	3962	3924	3889	3830	3781	3767	0.354
		5	4742	4605	4492	4395	4313	4241	4179	4124	4075	4031	3991	3923	3866	3849	0.304
		6	4946	4791	4661	4552	4458	4377	4306	4243	4188	4138	4093	4016	3951	3932	0.266
		7	5149	4976	4831	4709	4604	4513	4433	4363	4301	4245	4195	4108	4036	4014	0.237
		8	5353	5161	5001	4865	4749	4649	4561	4483	4414	4352	4297	4201	4121	4097	0.213
		9	5556	5346	5170	5022	4895	4784	4688	4603	4527	4459	4398	4293	4205	4179	0.194
		10	5760	5531	5340	5178	5040	4920	4815	4722	4640	4566	4500	4386	4290	4262	0.178
		11	5963	5716	5509	5335	5185	5056	4942	4842	4753	4674	4602	4478	4375	4344	0.164

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1398 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 23A - B 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
No Fill (Bare Deck)	36/9 (B) D_n = 31	0	2170	1790	1519	1410	1315	1231	1157	1090	1030	976	927	840	719	639	0.461
		2	2631	2218	1886	1753	1636	1534	1442	-	-	-	-	-	-	-	0.333
		3	2841	2417	2069	1924	1797	1685	1585	1496	1415	1343	1277	1161	-	-	0.293
		4	3045	2599	2253	2095	1957	1836	1728	1631	1544	1465	1394	1268	1086*	-	0.261
		5	3242	2776	2420	2266	2118	1987	1870	1766	1672	1587	1510	1375*	1177*	1047*	0.235
		6	3432	2948	2576	2422	2278	2138	2013	1901	1801	1710*	1627*	1482*	1269*	1128*	0.214
		7	3615	3116	2729	2567	2423	2289	2156	2036	1929*	1832*	1744*	1589*	1361*	1210*	0.197
		8	3790	3278	2878	2710	2559	2424	2298	2172*	2057*	1954*	1860*	1696*	1452*	1291*	0.182
		9	3958	3436	3024	2850	2693	2552	2425*	2307*	2186*	2077*	1977*	1803*	1544*	1373*	0.169
		10	4119	3588	3166	2986	2825	2679*	2546*	2425*	2314*	2199*	2094*	1910*	1636*	1454*	0.158
		11	4273	3736	3304	3120	2954*	2803*	2666*	2541*	2426*	2321*	2211*	2017*	1728*	1536*	0.148
	36/7 (B) D_n = 31	0	1333	1102	936	870	813	762	716	676	639	606	576	523	448	398	0.691
		2	1829	1530	1303	1213	1134	1064	1002	-	-	-	-	-	-	-	0.439
		3	2054	1737	1487	1384	1294	1215	1144	1081	1024	973	926	844	-	-	0.371
		4	2272	1927	1670	1555	1455	1366	1287	1216	1153	1095	1043	951	815	-	0.322
		5	2481	2113	1835	1721	1615	1517	1429	1351	1281	1217	1160	1058	906	806*	0.284
		6	2683	2293	1997	1874	1766	1668	1572	1487	1409	1340	1276	1165	998*	887*	0.254
		7	2876	2468	2154	2024	1908	1804	1711	1622	1538	1462	1393	1272	1090*	969*	0.229
		8	3061	2637	2308	2171	2048	1938	1839	1749	1666	1584	1510	1379*	1182*	1050*	0.209
		9	3237	2800	2458	2314	2185	2069	1965	1869	1783	1703*	1626*	1486*	1273*	1132*	0.193
		10	3405	2957	2603	2454	2319	2198	2088	1988	1897*	1813*	1737*	1593*	1365*	1213*	0.178
		11	3565	3109	2744	2590	2450	2324	2209	2105*	2009*	1922*	1841*	1698*	1457*	1295*	0.166
	36/5 (B) D_n = 198	0	1234	1019	866	804	751	703	661	623	589	559	531	482	413	367	0.830
		2	1671	1424	1232	1147	1072	1005	946	-	-	-	-	-	-	-	0.491
		3	1870	1602	1397	1312	1232	1156	1089	1029	975	926	881	803	-	-	0.408
		4	2056	1771	1551	1459	1377	1303	1232	1164	1103	1048	998	910	779	-	0.349
		5	2229	1932	1699	1601	1513	1433	1361	1296	1231	1170	1115	1017	871	774*	0.304
		6	2390	2085	1841	1737	1644	1559	1483	1413	1349	1290	1231	1124	963*	856*	0.270
		7	2538	2228	1976	1868	1771	1682	1601	1526	1458	1396	1338	1231	1054*	937*	0.243
		8	2675	2363	2105	1994	1892	1800	1715	1637	1565	1499	1438	1330*	1146*	1019*	0.221
		9	2802	2489	2228	2114	2009	1913	1825	1744	1669	1600	1536	1422*	1235*	1100*	0.202
		10	2918	2608	2344	2228	2121	2022	1931	1848	1770	1698*	1632*	1512*	1316*	1181*	0.186
		11	3024	2718	2454	2336	2228	2127	2034	1948	1868	1794*	1724*	1600*	1395*	1253*	0.173
	36/4 (B) D_n = 282	0	937	771	653	606	565	528	496	467	441	417	396	358	306	272	1.037
		2	1373	1174	1020	948	886	830	781	-	-	-	-	-	-	-	0.557
		3	1559	1344	1178	1108	1046	981	924	872	826	784	746	679	-	-	0.452
		4	1728	1503	1324	1249	1180	1119	1063	1007	954	906	863	786	673	-	0.381
		5	1882	1650	1462	1382	1309	1243	1183	1128	1077	1029	979	893	765	680	0.329
		6	2019	1785	1591	1507	1431	1361	1297	1238	1184	1134	1088	1000	857	761*	0.289
		7	2142	1909	1712	1625	1546	1473	1406	1344	1287	1234	1185	1098	948	843*	0.258
		8	2252	2022	1824	1736	1655	1579	1510	1446	1386	1331	1279	1187	1034*	924*	0.233
		9	2350	2126	1928	1839	1757	1680	1609	1542	1481	1423	1370	1273	1112*	1000*	0.212
		10	2438	2220	2024	1936	1853	1775	1702	1635	1571	1512	1457	1356*	1188*	1071*	0.195
		11	2516	2305	2113	2025	1942	1864	1791	1722	1658	1597	1540	1436*	1262*	1139*	0.181

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
No Fill	All	B	6650	4618	3393	2955	2597	2301	2052	1842	1662	1508	1374	1154	848	670	0.3546

See page 30 for table notes.

TABLE NO. 23B - B 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	5896	5731	5612	5565	5524	5488	5455	5426	5400	5376	5355	5317	5258	5219	1.037
		2	6409	6158	5979	5908	5845	5790	5740	-	-	-	-	-	-	-	0.557
		3	6666	6372	6163	6079	6005	5941	5883	5832	5785	5743	5705	5638	-	-	0.452
		4	6923	6586	6346	6250	6166	6092	6026	5967	5914	5866	5822	5745	5625	-	0.381
		5	7180	6800	6530	6421	6326	6243	6168	6102	6042	5988	5939	5852	5717	5627	0.329
		6	7436	7014	6713	6592	6487	6394	6311	6237	6170	6110	6055	5959	5809	5708	0.289
		7	7693	7228	6896	6764	6647	6545	6454	6372	6299	6232	6172	6066	5900	5790	0.258
		8	7950	7442	7080	6935	6808	6696	6596	6507	6427	6355	6289	6173	5992	5871	0.233
		9	8207	7656	7263	7106	6968	6847	6739	6642	6556	6477	6405	6280	6084	5953	0.212
		10	8464	7870	7447	7277	7129	6998	6882	6778	6684	6599	6522	6387	6175	6034	0.195
		11	8720	8084	7630	7448	7289	7149	7024	6913	6812	6721	6639	6494	6267	6116	0.181
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	36/4 K_3 = 2377 (kip/in.)	0	4232	4067	3949	3901	3860	3824	3791	3762	3736	3713	3691	3654	3595	3555	1.037
		2	4746	4495	4316	4244	4181	4126	4077	-	-	-	-	-	-	-	0.557
		3	5002	4709	4499	4415	4342	4277	4219	4168	4121	4079	4041	3975	-	-	0.452
		4	5259	4923	4682	4586	4502	4428	4362	4303	4250	4202	4158	4082	3961	-	0.381
		5	5516	5137	4866	4757	4663	4579	4505	4438	4378	4324	4275	4189	4053	3963	0.329
		6	5773	5351	5049	4929	4823	4730	4647	4573	4507	4446	4392	4296	4145	4044	0.289
		7	6029	5565	5233	5100	4984	4881	4790	4708	4635	4569	4508	4403	4237	4126	0.258
		8	6286	5779	5416	5271	5144	5032	4933	4844	4763	4691	4625	4510	4328	4207	0.233
		9	6543	5993	5599	5442	5305	5183	5075	4979	4892	4813	4742	4617	4420	4289	0.212
		10	6800	6207	5783	5613	5465	5334	5218	5114	5020	4935	4858	4724	4512	4370	0.195
		11	7057	6421	5966	5785	5626	5485	5361	5249	5149	5058	4975	4831	4603	4452	0.181

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 23C - B 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
No Fill (Bare Deck)	36/9 (B) D_n = 31	0	2170	1790	1519	1410	1315	1231	1157	1090	1030	976	927	840	719	639	0.461
		2	3027	2583	2236	2080	1943	1822	1715	-	-	-	-	-	-	-	0.240
		3	3407	2925	2555	2402	2256	2117	1994	1883	1783	1693	1611*	1468*	-	-	0.194
		4	3758	3249	2851	2684	2535	2400	2272	2147*	2034*	1932*	1839*	1677*	1436*	-	0.162
		5	4083	3554	3134	2956	2795	2650*	2519*	2399*	2285*	2171*	2067*	1886*	1615*	1436*	0.140
		6	4380	3840	3402	3215	3045*	2891*	2751*	2623*	2506*	2398*	2296*	2095*	1794*	1595*	0.123
		7	4653	4106	3656	3462*	3285*	3123*	2976*	2840*	2716*	2601*	2495*	2304*	1974*	1754*	0.109
		8	4901	4355	3897*	3697*	3514*	3346*	3192*	3050*	2919*	2799*	2687*	2487*	2153*	1914*	0.098
		9	5127	4585	4123*	3919*	3732*	3559*	3400*	3252*	3116*	2990*	2873*	2663*	2318*	2073*	0.090
		10	5332	4798	4336*	4130*	3939*	3762*	3599*	3447*	3306*	3175*	3054*	2834*	2473*	2222*	0.082
		11	5519	4996	4536*	4328*	4136*	3956*	3789*	3634*	3489*	3355*	3229*	3001*	2624*	2361*	0.076
	36/7 (B) D_n = 31	0	1333	1102	936	870	813	762	716	676	639	606	576	523	448	398	0.691
		2	2252	1910	1654	1540	1440	1352	1274	-	-	-	-	-	-	-	0.290
		3	2656	2269	1975	1854	1746	1647	1553	1468	1392	1323	1260	1151	-	-	0.225
		4	3028	2606	2280	2144	2023	1914	1816	1727	1643	1562	1489	1360*	1165*	-	0.184
		5	3368	2922	2570	2422	2289	2169	2060	1961	1871	1788*	1713*	1569*	1344*	1195*	0.155
		6	3676	3215	2844	2686	2543	2414	2296	2188*	2090*	1999*	1916*	1768*	1523*	1354*	0.135
		7	3954	3486	3102	2936	2785	2648*	2522*	2407*	2301*	2204*	2114*	1953*	1694*	1514*	0.119
		8	4204	3736	3343	3172	3015*	2871*	2739*	2617*	2505*	2402*	2306*	2134*	1854*	1662*	0.106
		9	4428	3965	3568	3393*	3232*	3083*	2946*	2819*	2701*	2592*	2491*	2309*	2011*	1805*	0.096
		10	4628	4174	3778	3601*	3436*	3284*	3143*	3011*	2890*	2776*	2670*	2480*	2165*	1946*	0.088
		11	4807	4365	3972*	3794*	3628*	3474*	3330*	3195*	3070*	2953*	2843*	2644*	2315*	2084*	0.080
	36/5 (B) D_n = 198	0	1234	1019	866	804	751	703	661	623	589	559	531	482	413	367	0.830
		2	2039	1756	1537	1446	1364	1291	1219	-	-	-	-	-	-	-	0.312
		3	2368	2065	1822	1719	1626	1543	1466	1397	1333	1275	1215	1109	-	-	0.238
		4	2651	2339	2082	1971	1871	1778	1694	1617	1546	1481	1420	1313*	1130*	-	0.192
		5	2892	2582	2318	2202	2096	1998	1908	1824	1747	1676	1610*	1492*	1298*	1163*	0.161
		6	3096	2794	2530	2412	2302	2201	2106	2018	1937*	1861*	1790*	1663*	1452*	1305*	0.139
		7	3269	2979	2719	2601	2490	2387	2290	2199*	2114*	2035*	1961*	1826*	1601*	1443*	0.122
		8	3414	3140	2888	2771	2661	2557	2459*	2367*	2280*	2198*	2121*	1980*	1744*	1575*	0.109
		9	3538	3280	3038	2924	2815	2712*	2614*	2521*	2433*	2350*	2271*	2127*	1880*	1704*	0.098
		10	3642	3402	3170	3060	2954*	2853*	2756*	2663*	2575*	2492*	2412*	2265*	2011*	1827*	0.089
		11	3732	3507	3288	3182	3080*	2981*	2885*	2794*	2707*	2623*	2543*	2394*	2135*	1946*	0.082
	36/4 (B) D_n = 282	0	937	771	653	606	565	528	496	467	441	417	396	358	306	272	1.037
		2	1714	1489	1311	1236	1169	1108	1052	-	-	-	-	-	-	-	0.338
		3	2001	1767	1574	1490	1414	1345	1282	1223	1170	1120	1075	986	-	-	0.253
		4	2233	2002	1804	1716	1635	1561	1491	1428	1368	1314	1262	1171	1020*	-	0.202
		5	2419	2199	2003	1914	1831	1754	1682	1614	1551	1492	1437	1337*	1171*	1055*	0.168
		6	2567	2362	2174	2086	2004	1926	1852	1783	1718	1656	1598*	1493*	1315*	1188*	0.144
		7	2686	2498	2319	2235	2154	2077	2004	1935	1869	1806*	1747*	1637*	1450*	1315*	0.126
		8	2782	2610	2443	2363	2286	2211	2139	2070	2004*	1942*	1882*	1770*	1577*	1436*	0.112
		9	2860	2704	2549	2473	2400	2328	2258	2191*	2127*	2064*	2005*	1893*	1696*	1550*	0.101
		10	2924	2782	2639	2568	2499	2430	2364*	2299*	2236*	2175*	2116*	2005*	1807*	1658*	0.091
		11	2976	2848	2716	2650	2585	2520	2457*	2394*	2334*	2275*	2217*	2108*	1910*	1759*	0.084

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
No Fill	All	B	6650	4618	3393	2955	2597	2301	2052	1842	1662	1508	1374	1154	848	670	0.3546

See page 30 for table notes.

TABLE NO. 23D - B 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in. **Φ (EQ): 0.50** **Ω (EQ): 3.25**
Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.50** **Ω (Wind): 3.25**
Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds **Φ (Other): 0.50** **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	5896	5731	5612	5565	5524	5488	5455	5426	5400	5376	5355	5317	5258	5219	1.037
		2	6900	6567	6330	6234	6151	6078	6013	-	-	-	-	-	-	-	0.338
		3	7401	6985	6688	6569	6465	6373	6292	6219	6153	6093	6039	5945	-	-	0.253
		4	7903	7404	7047	6904	6779	6668	6570	6483	6404	6332	6268	6154	5975	-	0.202
		5	8405	7822	7405	7238	7092	6964	6849	6747	6655	6571	6496	6363	6155	6016	0.168
		6	8907	8240	7764	7573	7406	7259	7128	7011	6906	6810	6724	6572	6334	6175	0.144
		7	9409	8658	8122	7908	7720	7554	7407	7275	7157	7049	6952	6781	6513	6334	0.126
		8	9911	9077	8481	8242	8034	7849	7686	7539	7408	7288	7180	6990	6692	6494	0.112
		9	10413	9495	8839	8577	8347	8145	7965	7804	7659	7527	7408	7200	6872	6653	0.101
		10	10915	9913	9198	8911	8661	8440	8244	8068	7910	7766	7636	7409	7051	6812	0.091
		11	11417	10331	9556	9246	8975	8735	8522	8332	8161	8005	7865	7618	7230	6972	0.084
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	4232	4067	3949	3901	3860	3824	3791	3762	3736	3713	3691	3654	3595	3555	1.037
		2	5236	4903	4666	4571	4488	4414	4349	-	-	-	-	-	-	-	0.338
		3	5738	5322	5024	4905	4801	4709	4628	4555	4489	4430	4376	4281	-	-	0.253
		4	6240	5740	5383	5240	5115	5005	4907	4819	4740	4669	4604	4490	4312	-	0.202
		5	6742	6158	5741	5575	5429	5300	5186	5083	4991	4908	4832	4699	4491	4352	0.168
		6	7243	6576	6100	5909	5742	5595	5464	5347	5242	5147	5060	4908	4670	4511	0.144
		7	7745	6995	6458	6244	6056	5890	5743	5611	5493	5386	5288	5118	4849	4671	0.126
		8	8247	7413	6817	6578	6370	6186	6022	5876	5744	5625	5516	5327	5029	4830	0.112
		9	8749	7831	7175	6913	6683	6481	6301	6140	5995	5864	5744	5536	5208	4989	0.101
		10	9251	8249	7534	7248	6997	6776	6580	6404	6246	6103	5973	5745	5387	5149	0.091
		11	9753	8668	7892	7582	7311	7071	6859	6668	6497	6342	6201	5954	5566	5308	0.084

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 23E - B 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.65 **Ω (EQ): 2.50**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.65 **Ω (Other): 2.50**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)														K_1 ($ft.^{-1}$)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
No Fill (Bare Deck)	36/9 (B) D_n = 31	0	1336	1102	935	868	810	758	712	671	634	601	570	517	442	393	0.521
		2	1781	1516	1302	1211	1131	1060	998	-	-	-	-	-	-	-	0.363
		3	1981	1695	1478	1382	1291	1211	1140	1077	1019	968	921	838	-	-	0.316
		4	2169	1867	1633	1536	1449	1362	1283	1212	1148	1090	1037	945	809	-	0.279
		5	2346	2030	1783	1679	1586	1502	1425	1347	1276	1212	1154	1052	901	801*	0.250
		6	2511	2185	1927	1817	1719	1629	1549	1475	1405	1334	1271	1159	993*	882*	0.227
		7	2664	2332	2065	1950	1847	1753	1668	1590	1519	1453	1387	1266	1084*	964*	0.207
		8	2807	2471	2197	2079	1971	1873	1784	1702	1627	1558	1494	1373*	1176*	1045*	0.191
		9	2939	2602	2323	2201	2091	1989	1896	1811	1732	1660	1593*	1473*	1268*	1127*	0.177
		10	3061	2726	2443	2319	2205	2101	2005	1917	1835	1760*	1690*	1565*	1360*	1208*	0.165
		11	3175	2842	2557	2432	2316	2209	2110	2019	1935*	1857*	1785*	1654*	1441*	1290*	0.154
	36/7 (B) D_n = 31	0	821	678	576	536	500	469	441	416	393	373	355	322	276	245	0.782
		2	1298	1099	943	878	821	771	726	-	-	-	-	-	-	-	0.474
		3	1511	1286	1117	1048	982	922	869	821	779	740	705	643	-	-	0.396
		4	1711	1465	1278	1200	1131	1069	1012	956	907	862	821	750	643	-	0.340
		5	1898	1635	1432	1347	1271	1203	1141	1086	1035	984	938	857	734	653	0.298
		6	2071	1796	1580	1489	1407	1333	1266	1205	1150	1099	1053	964	826	734	0.265
		7	2230	1947	1721	1625	1538	1459	1387	1322	1262	1207	1157	1067	918	816*	0.239
		8	2376	2089	1855	1754	1663	1580	1504	1435	1371	1313	1259	1163	1007*	897*	0.217
		9	2510	2221	1982	1878	1783	1697	1617	1545	1477	1416	1358	1256	1090*	976*	0.199
		10	2632	2345	2102	1996	1898	1809	1726	1650	1580	1515	1455	1348*	1172*	1051*	0.184
		11	2744	2459	2215	2107	2008	1916	1831	1752	1680	1612	1549*	1437*	1252*	1124*	0.171
	36/5 (B) D_n = 198	0	760	627	533	495	462	433	407	384	363	344	327	297	254	226	0.938
		2	1180	1012	884	831	783	735	692	-	-	-	-	-	-	-	0.527
		3	1359	1177	1035	975	921	872	828	788	748	711	677	618	-	-	0.432
		4	1517	1328	1175	1110	1051	998	949	905	864	827	792	725	621	-	0.366
		5	1657	1464	1305	1237	1174	1116	1064	1016	971	931	893	826	712	633	0.318
		6	1779	1587	1425	1354	1288	1228	1173	1121	1074	1030	990	917	798	715	0.281
		7	1885	1697	1535	1462	1395	1333	1275	1221	1172	1125	1082	1005	877	788*	0.251
		8	1977	1796	1635	1562	1494	1430	1371	1316	1264	1216	1171	1089	954	859*	0.228
		9	2057	1883	1725	1653	1585	1521	1461	1404	1351	1302	1255	1170	1028*	928*	0.208
		10	2127	1961	1808	1736	1669	1605	1544	1487	1434	1383	1335	1248	1100*	995*	0.191
		11	2188	2030	1882	1812	1746	1682	1622	1565	1511	1459	1411	1322*	1169*	1060*	0.177
	36/4 (B) D_n = 282	0	576	475	402	373	348	325	305	287	271	257	244	220	189	168	1.172
		2	987	853	748	704	665	627	591	-	-	-	-	-	-	-	0.594
		3	1147	1004	889	840	796	756	719	685	655	624	594	541	-	-	0.476
		4	1282	1138	1017	965	917	873	832	795	761	729	700	648	555	-	0.397
		5	1394	1253	1131	1077	1026	980	937	897	861	826	794	737	643	575	0.341
		6	1488	1352	1232	1177	1126	1078	1034	992	953	917	883	822	720	648	0.299
		7	1565	1437	1320	1266	1215	1167	1122	1079	1039	1002	966	902	794	717	0.266
		8	1630	1510	1398	1345	1295	1247	1202	1159	1119	1080	1044	977	864	782*	0.239
		9	1683	1572	1466	1415	1366	1320	1275	1232	1191	1153	1116	1048	931	846*	0.218
		10	1728	1626	1525	1477	1430	1384	1341	1298	1258	1220	1183	1114	994*	906*	0.200
		11	1766	1672	1578	1531	1486	1442	1400	1359	1319	1281	1244	1175	1054*	964*	0.184

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = (B) 3.518 (BA) 3.967
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Fill Type	Support Fastener Pattern	Type	Nominal Shear Due To Buckling, S_n (plf) Center to Center Span (ft. - in.)														I ($in.^4$/ft.)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
No Fill	All	B	6650	4618	3393	2955	2597	2301	2052	1842	1662	1508	1374	1154	848	670	0.3546

See page 30 for table notes.

TABLE NO. 23F - B 16 GA. DIAPHRAGM DESIGN

Design Thickness = 0.0598 in.
Support Fasteners: # 12 Screws
Side Lap Fasteners: # 10 Screws

Φ (EQ): 0.50 **Ω (EQ): 3.25**
Φ (Wind): 0.50 **Ω (Wind): 3.25**
Φ (Other): 0.50 **Ω (Other): 3.25**

Fill Type	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) Center to Center Span (ft. - in.)													K_1 ($ft.^{-1}$)
			5 - 0	6 - 0	7 - 0	7 - 6	8 - 0	8 - 6	9 - 0	9 - 6	10 - 0	10 - 6	11 - 0	12 - 0	14 - 0	15 - 9	
2 1/2" 145 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	5515	5413	5340	5311	5286	5263	5243	5226	5209	5195	5182	5159	5122	5098	1.172
		2	6028	5841	5707	5654	5607	5565	5529	-	-	-	-	-	-	-	0.594
		3	6285	6055	5890	5825	5767	5716	5671	5631	5595	5562	5532	5480	-	-	0.476
		4	6542	6269	6074	5996	5928	5868	5814	5766	5723	5684	5649	5587	5489	-	0.397
		5	6799	6483	6257	6167	6088	6019	5957	5901	5851	5806	5765	5694	5581	5506	0.341
		6	7055	6697	6441	6338	6249	6170	6099	6036	5980	5929	5882	5801	5673	5587	0.299
		7	7312	6911	6624	6510	6409	6321	6242	6172	6108	6051	5999	5908	5764	5669	0.266
		8	7569	7125	6808	6681	6570	6472	6385	6307	6237	6173	6115	6015	5856	5750	0.239
		9	7826	7339	6991	6852	6730	6623	6527	6442	6365	6295	6232	6122	5948	5832	0.218
		10	8082	7553	7174	7023	6891	6774	6670	6577	6493	6418	6349	6229	6039	5913	0.200
		11	8339	7767	7358	7194	7051	6925	6813	6712	6622	6540	6466	6336	6131	5995	0.184
2 1/2" 110 pcf Concrete (Above Deck) f'_c = 3,000 psi	**36/4** K_3 = 2377 (kip/in.)	0	3851	3749	3676	3647	3622	3600	3580	3562	3546	3531	3518	3495	3458	3434	1.172
		2	4364	4177	4043	3990	3943	3902	3865	-	-	-	-	-	-	-	0.594
		3	4621	4391	4227	4161	4103	4053	4008	3967	3931	3898	3868	3816	-	-	0.476
		4	4878	4605	4410	4332	4264	4204	4150	4102	4059	4020	3985	3923	3825	-	0.397
		5	5135	4819	4594	4503	4424	4355	4293	4237	4188	4143	4102	4030	3917	3842	0.341
		6	5392	5033	4777	4675	4585	4506	4436	4373	4316	4265	4218	4137	4009	3923	0.299
		7	5648	5247	4960	4846	4745	4657	4578	4508	4444	4387	4335	4244	4100	4005	0.266
		8	5905	5461	5144	5017	4906	4808	4721	4643	4573	4509	4452	4351	4192	4086	0.239
		9	6162	5675	5327	5188	5066	4959	4864	4778	4701	4632	4568	4458	4284	4168	0.218
		10	6419	5889	5511	5359	5227	5110	5006	4913	4830	4754	4685	4565	4376	4249	0.200
		11	6675	6103	5694	5530	5387	5261	5149	5048	4958	4876	4802	4672	4467	4331	0.184

Diaphragm Stiffness, G' (kip/in.)

K_2 = 1764 kip/in.
K_4 = 3.518
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + 3 K_1 L_v} + K_3$$

See page 30 for table notes.

TABLE NO. 24A - N 22, 20, 18 & 16 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.55 **Ω (EQ): 3.00**
Φ (Wind): 0.70 **Ω (Wind): 2.35**
Φ (Other): 0.60 **Ω (Other): 2.65**

Support Fasteners: 5/8" Puddle Welds
Side Lap Fasteners: # 10 Screws

Gage	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) No Fill (Bare Deck) Center to Center Span (ft. - in.)													K_1 ($ft.^{-1}$)	
			7 - 0	8 - 0	9 - 0	10 - 0	10 - 6	11 - 0	11 - 6	12 - 0	12 - 6	13 - 0	14 - 0	15 - 0	15 - 6	3 Span	2 Span
		0	318	279	248	223	212	203	194	186	178	171	159	149	144	1.093	-
		2	499	437	388	-	-	-	-	-	-	-	-	-	-	0.587	-
		3	590	516	459	413	393	375	359	344	-	-	-	-	-	0.476	-
		4	680	595	529	476	454	433	414	397	381	366	340	317	-	0.401	-
22	**24/4**	5	771	674	600	540	514	491	469	450	432	415	385	360	348	0.346	-
		6	860	754	670	603	574	548	524	502	482	464	431	402	389	0.305	-
0.0295	D_n = 673	7	935	831	740	666	635	606	579	555	533	512	476	444	430	0.272	-
Design Thickness		8	1007	897	808	730	695	663	634	608	584	561	521	486	471	0.246	-
		9	1077	962	867	789	755	721	689	661	634	610	566	529	512	0.224	-
		10	1144	1024	926	843	807	774	743	714	685	659	612	571	552	0.206	-
K_2 = 870		11	1208	1085	982	896	858	823	791	761	733	707	657	613	593	0.190	-
			8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 4	3 Span	2 Span
		0	335	297	268	243	223	206	191	178	167	112	106	100	94	1.204	1.605
		3	623	554	498	453	415	-	-	-	-	-	-	-	-	0.525	0.746
		4	719	639	575	523	479	442	411	383	-	-	-	-	-	0.442	0.633
		5	815	724	652	593	543	501	466	435	407	263	248	-	-	0.381	0.550
20	**24/4**	6	911	810	729	663	607	561	521	486	455	293	277	262	245	0.335	0.486
		7	1003	895	806	732	671	620	575	537	504	323	305	289	270	0.299	0.436
0.0358	D_n = 503	8	1084	976	883	802	735	679	630	588	552	353	333	316	295	0.270	0.395
Design Thickness		9	1162	1048	954	872	799	738	685	640	600	383	362	343	320	0.247	0.361
		10	1238	1119	1019	935	864	797	740	691	648	413	390	370	346	0.227	0.332
		11	1311	1187	1084	995	920	855	795	742	696	443	419	397	371	0.210	0.308
K_2 = 1056		12	1382	1254	1146	1054	975	907	847	793	744	474	447	424	396	0.195	0.287
			10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 0	21 - 0	22 - 0	3 Span	2 Span
		0	347	316	289	267	248	232	217	145	137	130	123	118	112	1.385	1.846
		4	754	686	629	580	539	503	-	-	-	-	-	-	-	0.508	0.729
		5	856	778	713	659	612	571	535	345	326	-	-	-	-	0.439	0.633
		6	958	871	798	737	684	639	599	385	363	344	327	311	-	0.386	0.560
18	**24/4**	7	1060	963	883	815	757	706	662	425	401	380	361	344	328	0.345	0.501
		8	1161	1056	968	893	830	774	726	465	439	416	395	376	359	0.311	0.454
0.0474	D_n = 330	9	1253	1148	1053	972	902	842	790	504	476	451	429	408	390	0.284	0.415
Design Thickness		10	1340	1230	1136	1050	975	910	853	544	514	487	463	441	421	0.261	0.382
		11	1425	1309	1210	1124	1048	978	917	584	552	523	497	473	451	0.241	0.354
		12	1507	1387	1283	1193	1115	1045	980	624	590	558	531	505	482	0.224	0.330
K_2 = 1398		13	1588	1463	1355	1261	1179	1106	1042	664	627	594	564	538	513	0.210	0.309
			10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 0	21 - 0	22 - 0	3 Span	2 Span
		0	429	390	357	330	306	286	268	179	169	160	152	145	139	1.556	2.074
		4	942	857	785	725	673	628	-	-	-	-	-	-	-	0.571	0.819
		5	1071	973	892	824	765	714	669	431	407	-	-	-	-	0.493	0.711
		6	1199	1090	999	922	857	799	749	481	455	431	409	390	-	0.434	0.628
16	**24/4**	7	1328	1207	1106	1021	948	885	830	532	502	476	452	430	411	0.387	0.563
		8	1456	1324	1213	1120	1040	971	910	582	550	521	495	471	450	0.350	0.510
0.0598	D_n = 233	9	1569	1438	1320	1219	1132	1056	990	632	597	566	538	512	489	0.319	0.466
Design Thickness		10	1677	1540	1422	1317	1223	1142	1070	683	645	611	580	553	528	0.293	0.429
		11	1784	1639	1516	1409	1315	1227	1151	733	692	656	623	594	567	0.271	0.398
		12	1887	1737	1608	1495	1397	1311	1231	784	740	701	666	634	605	0.252	0.370
K_2 = 1764		13	1988	1832	1698	1581	1478	1387	1306	834	788	746	709	675	644	0.235	0.347

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)
K_4 = 4.360
L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1\,L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) No Fill (Bare Deck) Center to Center Span (ft. - in.) From Table Above													I ($in.^4/ft.$)
22	24/4	3798	2908	2298	1861	1688	1538	1407	1293	1191	1101	950	827	775	0.8976
20		3886	3071	2487	2055	1727	1472	1269	1105	972	861	768	689	602	1.0887
18		3786	3129	2629	2240	1932	1683	1479	1310	1169	1049	947	859	782	1.4398
16		5360	4430	3722	3172	2735	2382	2094	1855	1654	1485	1340	1215	1107	1.8144

See page 30 for table notes.

TABLE NO. 24B - N 20, 18 & 16 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.55 **Ω (EQ): 3.00**

Support Fasteners: 5/8" Puddle Welds **Φ (Wind): 0.70** **Ω (Wind): 2.35**

Side Lap Fasteners: 5/8" Puddle Welds or 1 1/2" Long Fillet Welds **Φ (Other): 0.60** **Ω (Other): 2.65**

Gage	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) No Fill (Bare Deck) Center to Center Span (ft. - in.)													K_1 ($ft.^{-1}$)	
			8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 4	3 Span	2 Span
		0	335	297	268	243	223	206	191	178	167	112	106	100	94	1.204	1.605
		3	922	819	737	670	615	-	-	-	-	-	-	-	-	0.293	0.427
		4	1096	987	894	813	745	688	639	596	-	-	-	-	-	0.234	0.343
		5	1252	1132	1032	947	874	808	750	700	657	419	396	-	-	0.195	0.287
20	**24/4**	6	1397	1269	1160	1068	988	919	858	805	755	480	454	430	402	0.167	0.246
		7	1532	1398	1282	1183	1097	1022	956	898	846	542	512	485	453	0.146	0.216
0.0358	D_n = 503	8	1657	1518	1398	1294	1202	1122	1051	988	932	603	570	540	504	0.130	0.192
Design Thickness		9	1772	1631	1507	1398	1303	1218	1143	1076	1016	665	628	595	556	0.117	0.173
		10	1877	1735	1609	1498	1399	1310	1232	1161	1098	726	686	650	607	0.106	0.157
K_2 = 1056		11	1973	1832	1705	1591	1490	1399	1317	1243	1177*	786	744	705	658	0.097	0.144
		12	2061	1921	1794	1680	1576	1483	1399	1323*	1254*	841	798	758	710*	0.090	0.133
			10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 0	21 - 0	22 - 0	3 Span	2 Span
		0	347	316	289	267	248	232	217	145	137	130	123	118	112	1.385	1.846
		4	1160	1055	967	893	829	774	-	-	-	-	-	-	-	0.269	0.395
		5	1339	1229	1135	1049	974	909	852	544	514	-	-	-	-	0.224	0.330
		6	1506	1386	1282	1192	1114	1045	979	624	589	558	530	505	-	0.192	0.283
18	**24/4**	7	1665	1536	1424	1327	1241	1165	1098	703	664	629	598	569	543	0.168	0.248
		8	1815	1679	1560	1456	1364	1283	1210	783	740	701	666	634	605	0.149	0.221
0.0474	D_n = 330	9	1956	1815	1691	1581	1484	1397	1319	863	815	772	733	698	667	0.134	0.199
Design Thickness		10	2089	1944	1815	1701	1599	1507	1425	942	890	843	801	763	728	0.122	0.181
		11	2213	2065	1934	1815	1709	1614	1528	1020	965	915	869	827	790	0.112	0.166
K_2 = 1398		12	2329	2180	2046	1925	1816	1717	1627	1092	1035	984	937	892	851	0.103	0.153
		13	2437	2288	2152	2029	1917	1816	1723*	1163	1103	1049	1000	955	913*	0.096	0.142
			10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 0	21 - 0	22 - 0	3 Span	2 Span
		0	429	390	357	330	306	286	268	179	169	160	152	145	139	1.556	2.074
		4	1433	1302	1194	1102	1023	955	-	-	-	-	-	-	-	0.303	0.443
		5	1653	1517	1401	1295	1203	1122	1052	671	634	-	-	-	-	0.252	0.370
		6	1859	1711	1583	1472	1375	1290	1209	770	727	689	654	623	-	0.216	0.318
16	**24/4**	7	2055	1896	1758	1638	1532	1439	1355	868	820	777	738	703	671	0.189	0.279
		8	2240	2073	1926	1798	1684	1584	1494	967	913	865	822	783	747	0.168	0.248
0.0598	D_n = 233	9	2415	2241	2087	1952	1832	1724	1628	1065	1006	953	905	862	823	0.151	0.223
Design Thickness		10	2578	2400	2241	2100	1974	1861	1759	1163	1099	1041	989	942	899	0.137	0.203
		11	2732	2550	2387	2241	2110	1992	1886	1260	1192	1129	1073	1022	975	0.126	0.187
K_2 = 1764		12	2875	2691	2526	2376	2241	2119	2009	1348	1278	1215	1156	1101	1051	0.116	0.172
		13	3008	2824	2657	2505	2367	2242	2127	1436	1362	1295	1234	1179	1127	0.108	0.160

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)

K_4 = 4.360

L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) No Fill (Bare Deck) Center to Center Span (ft. - in.) From Table Above													I ($in.^4$/ft.)
20	24/4	3886	3071	2487	2055	1727	1472	1269	1105	972	861	768	689	602	1.0887
18		3786	3129	2629	2240	1932	1683	1479	1310	1169	1049	947	859	782	1.4398
16		5360	4430	3722	3172	2735	2382	2094	1855	1654	1485	1340	1215	1107	1.8144

See page 30 for table notes.

TABLE NO. 24C - N 22, 20, 18 & 16 GA. DIAPHRAGM DESIGN

Φ (EQ): 0.65 **Ω (EQ): 2.50**

Support Fasteners: # 12 Screws **Φ (Wind): 0.70** **Ω (Wind): 2.35**

Side Lap Fasteners: # 10 Screws **Φ (Other): 0.65** **Ω (Other): 2.50**

Gage	Support Fastener Pattern	Side Lap Conn. per Span	Nominal Diaphragm Shear Strength (plf) No Fill (Bare Deck) Center to Center Span (ft. - in.)													K_1 (ft.$^{-1}$)	
			7 - 0	8 - 0	9 - 0	10 - 0	10 - 6	11 - 0	11 - 6	12 - 0	12 - 6	13 - 0	14 - 0	15 - 0	15 - 6	3 Span	2 Span
		0	186	163	145	130	124	118	113	109	104	100	93	87	84	1.235	-
		2	367	321	285	-	-	-	-	-	-	-	-	-	-	0.625	-
		3	457	400	356	320	305	291	278	267	-	-	-	-	-	0.502	-
		4	540	479	426	384	365	349	334	320	307	295	274	256	-	0.419	-
22	**24/4**	5	611	545	491	447	426	406	389	372	358	344	319	298	288	0.359	-
		6	679	608	550	501	480	460	442	425	408	392	364	340	329	0.315	-
0.0295	D_n = 673	7	741	667	606	553	530	509	489	471	454	438	409	382	370	0.280	-
Design Thickness		8	799	723	659	604	579	556	535	515	497	480	449	421	409	0.252	-
		9	853	775	709	651	626	602	580	559	539	521	488	458	445	0.229	-
		10	902	824	756	697	670	646	622	600	580	561	526	494	480	0.210	-
K_2 = 870		11	948	870	801	741	713	687	663	641	619	599	562	530	515	0.194	-
			8 - 0	9 - 0	10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 4	3 Span	2 Span
		0	198	176	158	144	132	122	113	105	99	66	62	59	55	1.361	1.814
		3	486	432	389	353	324	-	-	-	-	-	-	-	-	0.552	0.789
		4	582	517	465	423	388	358	332	310	-	-	-	-	-	0.461	0.664
		5	662	596	542	493	452	417	387	362	339	217	205	-	-	0.396	0.573
20	**24/4**	6	738	667	608	558	515	476	442	413	387	247	233	221	206	0.347	0.504
		7	810	735	672	618	571	531	496	464	435	277	262	248	232	0.308	0.450
0.0358	D_n = 503	8	878	799	732	675	626	582	544	511	481	307	290	275	257	0.278	0.406
Design Thickness		9	941	860	791	730	678	632	592	556	524	337	319	302	282	0.253	0.370
		10	1000	918	846	783	729	680	638	600	566	368	347	329	307	0.232	0.340
		11	1055	972	899	834	777	727	683	643	607	398	376	356	332	0.214	0.315
K_2 = 1056		12	1107	1023	949	883	824	772	726	684	647	428	404	383	358	0.199	0.293
			10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 0	21 - 0	22 - 0	3 Span	2 Span
		0	209	190	174	161	149	139	131	88	83	78	74	71	68	1.566	2.087
		4	616	560	514	474	440	411	-	-	-	-	-	-	-	0.531	0.764
		5	718	653	598	552	513	479	449	287	271	-	-	-	-	0.455	0.659
		6	805	739	682	631	586	547	512	327	309	293	278	265	-	0.399	0.580
18	**24/4**	7	889	818	756	703	657	614	576	367	346	328	312	297	283	0.355	0.518
		8	970	894	828	771	721	677	637	407	384	364	346	329	314	0.319	0.467
0.0474	D_n = 330	9	1047	967	898	837	784	736	694	447	422	400	380	362	345	0.291	0.426
Design Thickness		10	1120	1037	965	901	845	794	749	487	460	435	414	394	376	0.266	0.391
		11	1190	1105	1029	963	904	851	804	527	497	471	448	426	407	0.246	0.362
		12	1256	1169	1091	1023	961	906	857	566	535	507	481	459	438	0.229	0.337
K_2 = 1398		13	1319	1230	1151	1080	1017	960	908	606	573	543	515	491	469	0.213	0.315
			10 - 0	11 - 0	12 - 0	13 - 0	14 - 0	15 - 0	16 - 0	17 - 0	18 - 0	19 - 0	20 - 0	21 - 0	22 - 0	3 Span	2 Span
		0	264	240	220	203	189	176	165	110	104	99	94	89	85	1.758	2.345
		4	778	707	648	598	555	518	-	-	-	-	-	-	-	0.596	0.858
		5	906	824	755	697	647	604	566	362	342	-	-	-	-	0.512	0.740
		6	1016	932	861	796	739	690	646	412	390	369	351	334	-	0.448	0.651
16	**24/4**	7	1122	1032	954	887	828	775	727	463	437	414	393	375	358	0.399	0.581
		8	1223	1128	1045	973	909	854	804	513	485	459	436	415	397	0.359	0.525
0.0598	D_n = 233	9	1321	1220	1133	1056	989	929	876	564	532	504	479	456	435	0.326	0.478
Design Thickness		10	1413	1309	1217	1137	1065	1002	946	614	580	549	522	497	474	0.299	0.440
		11	1501	1394	1299	1215	1140	1074	1014	664	627	594	565	538	513	0.276	0.407
		12	1585	1475	1377	1290	1213	1143	1081	715	675	639	607	578	552	0.257	0.378
K_2 = 1764		13	1664	1552	1452	1363	1283	1211	1146	765	722	684	650	619	591	0.240	0.353

Diaphragm Stiffness, G' (kip/in.)

K_2 = Varies (kip/in.)

K_4 = 4,360

L_v = Span (ft.)

$$G' = \frac{K_2}{K_4 + \frac{0.3\,D_n}{L_v} + 3\,K_1 L_v}$$

Φ (Buckling): 0.80 **Ω (Buckling): 2.00**

Gage	Support Fastener Pattern	Nominal Shear Due To Buckling, S_n (plf) No Fill (Bare Deck) Center to Center Span (ft. - in.) From Table Above													I (in.^{4}/ft.)
22	24/4	3798	2908	2298	1861	1688	1538	1407	1293	1191	1101	950	827	775	0.8976
20		3886	3071	2487	2055	1727	1472	1269	1105	972	861	768	689	602	1.0887
18		3786	3129	2629	2240	1932	1683	1479	1310	1169	1049	947	859	782	1.4398
16		5360	4430	3722	3172	2735	2382	2094	1855	1654	1485	1340	1215	1107	1.8144

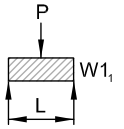
See page 30 for table notes.

FLOOR DECK DESIGN FOR CONSTRUCTION LOADS

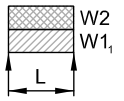
The moment diagrams represent the maximum bending moment magnitudes resulting from loading applied in a sequence that simulates concrete placement. In addition to bending and deflection shown below, due consideration must be given to the effects of shear, bending and shear interaction, and web crippling. The minimum construction live loads P and W2 shown below must be increased by the designer when anticipated construction loading or methods will exceed the minimum values. **The diagrams below are for "Form Deck Bending Moment Loading" and "Composite Deck Bending Moment Loading". Reinforced concrete slab design must be in accordance with ACI 318.**

FORM DECK BENDING MOMENT LOADING DIAGRAMS

P = 150 lbs. concentrated construction live load
$W1_1$ = 1.5 x slab weight + deck weight ≤ slab weight + 30 psf + deck weight (weights - psf)
W1 = Slab weight + deck weight (psf)
W2 = 20 psf uniform construction live load
L = Clear span length (ft.)
Note: Live loads P and W2 listed are minimums, increase when actual construction loads dictate.

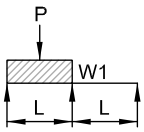


$+M = 0.25\ P\ L + 0.125\ W1_1 L^2$

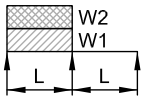


$+M = 0.125\ (W1_1 + W2)\ L^2$

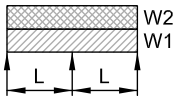
SINGLE SPAN CONDITION



$+M = 0.203\ P\ L + 0.096\ W1\ L^2$

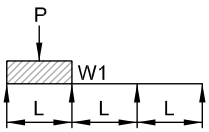


$+M = 0.096\ (W1 + W2)\ L^2$

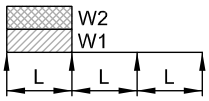


$-M = 0.125\ (W1 + W2)\ L^2$

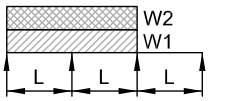
DOUBLE SPAN CONDITION



$+M = 0.2\ P\ L + 0.094\ W1\ L^2$



$+M = 0.094\ (W1 + W2)\ L^2$

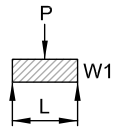


$-M = 0.117\ (W1 + W2)\ L^2$

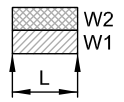
TRIPLE SPAN CONDITION

COMPOSITE DECK BENDING MOMENT LOADING DIAGRAMS

P = 150 lbs. concentrated construction live load
W1 = Slab weight + deck weight (psf)
W2 = 20 psf uniform construction live load
L = Clear span length (ft.)
Note: Live loads P and W2 listed are minimums, increase when actual construction loads dictate.

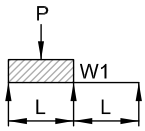


$+M = 0.25\ P\ L + 0.125\ W1\ L^2$

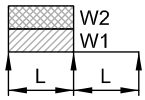


$+M = 0.125\ (W1 + W2)\ L^2$

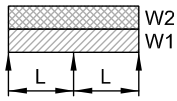
SINGLE SPAN CONDITION



$+M = 0.203\ P\ L + 0.096\ W1\ L^2$

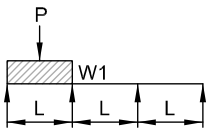


$+M = 0.096\ (W1 + W2)\ L^2$

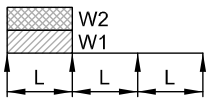


$-M = 0.125\ (W1 + W2)\ L^2$

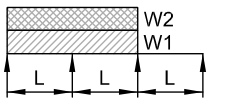
DOUBLE SPAN CONDITION



$+M = 0.2\ P\ L + 0.094\ W1\ L^2$



$+M = 0.094\ (W1 + W2)\ L^2$

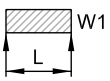


$-M = 0.117\ (W1 + W2)\ L^2$

TRIPLE SPAN CONDITION

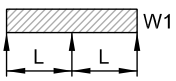
FORM & COMPOSITE DECK DEFLECTION LOADING DIAGRAMS

I = Deck moment of inteia ($in.^4$/ft.)
W1 = Slab weight + deck weight (psf)
E = 29.5×10^6 (psi)
L = Clear span length (ft.)



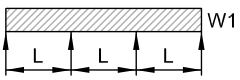
$$\Delta = \frac{0.013\ W1\ L^4}{EI}$$

SINGLE SPAN CONDITION



$$\Delta = \frac{0.0054\ W1\ L^4}{EI}$$

DOUBLE SPAN CONDITION



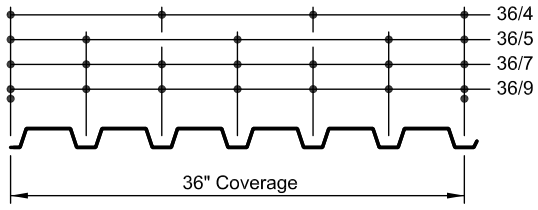
$$\Delta = \frac{0.0069\ W1\ L^4}{EI}$$

TRIPLE SPAN CONDITION

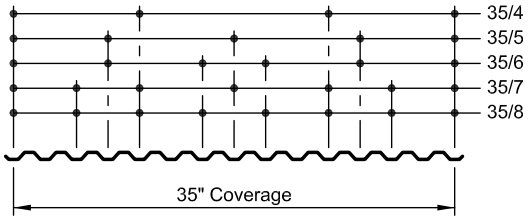
DIAPHRAGM DESIGN

FIGURE 1

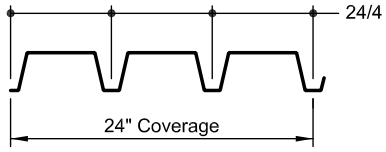
TYPICAL FASTENER LAYOUTS



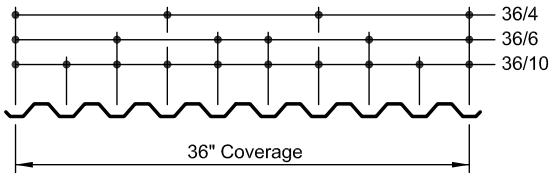
B, BI, F, 1.5FDR,1.5FDI, 1.5CD, 1.5CDI



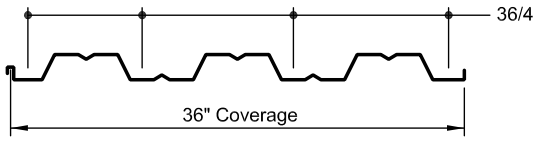
0.6FD



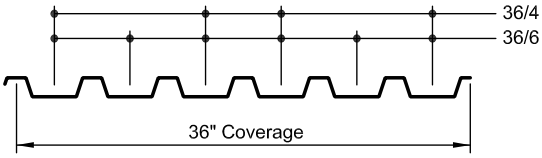
N



1.0RD, 1.0FD



2.0FD, 3.0FD, 2.0CD, 3.0CD



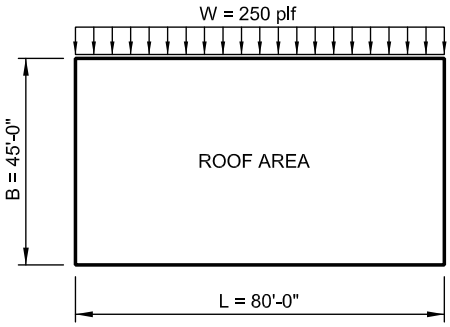
1.5FD

DIAPHRAGM SHEAR STRENGTH AND STIFFNESS DESIGN EXAMPLE

From the roof plan shown below, calculate the deflection of the diaphragm at the center line and check the shear strength.

Framing conditions:
- Deck type B, 20 gage (bare deck)
- Supports spaced at 6'-0" ctr. to ctr.
- 3 span condition
- Support fasteners - 5/8" dia. puddle welds at 36/4 pattern
- 2 #10 screws per span at side laps

From diaphragm shear tables:
K_1 = 0.431 ($ft.^{-1}$)
K_2 = 1056 (kip/in.)
K_4 = 3.518
D_n = 608 (ft.)
Span L_v = 6 (ft.)
Nominal diaphragm shear strength = 724 (plf)



ROOF PLAN

Symbol Reference:
B = Diaphragm dimension
L = Diaphragm dimension
G' = Stiffness (kip/in.)
R = Reaction (lbs.)
S = Shear (plf)
W = Net lateral wind load

$$G' = \frac{K_2}{K_4 + \frac{0.3\ D_n}{L_v} + 3\ K_1\ L_v} = \frac{1056}{3.518 + \frac{0.3 \times 608}{6} + 3 \times 0.431 \times 6} = 25.34 \text{ kip/in.}$$

$$\Delta = \frac{W(klf)\ L^2}{8\ B\ G'} = \frac{0.250 \times 80^2}{8 \times 45 \times 25.34} = 0.18 \text{ in. (at center line)}$$

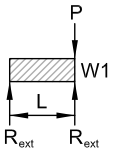
$$R = \frac{W(plf)\ L}{2} = \frac{250 \times 80}{2} = 10{,}000 \text{ lbs.} \qquad S = \frac{R}{B} = \frac{10000}{45} = 223 \text{ plf}$$

$$\text{Allowable diaphragm shear strength} = \frac{\text{nom. strength}}{\Omega \text{ (wind)}} = \frac{724}{2.35} = 308 \text{ plf} > 223 \text{ plf - Okay}$$

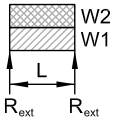
TABLE NO. 25 - WEB CRIPPLING SUPPORT REACTIONS

(based on one flange loading - see Table B)

SUPPORT REACTION LOADING DIAGRAMS

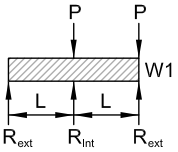


R_{ext} = 0.5 (W1) L + P



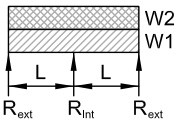
R_{ext} = 0.5 (W1 + W2) L

SINGLE SPAN CONDITION



R_{ext} = 0.375 (W1) L + P

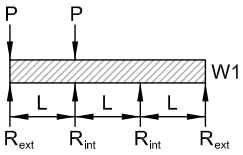
R_{int} = 1.25 (W1) L + P



R_{ext} = 0.375 (W1 + W2) L

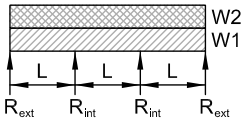
R_{int} = 1.25 (W1 + W2) L

DOUBLE SPAN CONDITION



R_{ext} = 0.4 (W1) L + P

R_{int} = 1.1 (W1) L + P



R_{ext} = 0.4 (W1 + W2) L

R_{int} = 1.1 (W1 + W2) L

TRIPLE SPAN CONDITION

P = 150 lbs. conc. constr. live load
W1 = Slab weight + deck weight (psf)
W2 = 20 psf uniform constr. live load
L = Clear span length (ft.)
Note: Live loads P and W2 listed are minimums, increase when actual construction loads dictate.

ALLOWABLE REACTIONS AT EXTERIOR SUPPORTS (R_{ext}) - ASD

Type	Gage	F_y (ksi)	Allowable Exterior Reaction (lbs./ft. of width) Bearing Length (in.)									
			1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
0.6FD	28	60	583	640	640	640	640	640	640	640	640	640
	26		811	887	887	887	887	887	887	887	887	887
	24		1352	1470	1470	1470	1470	1470	1470	1470	1470	1470
	22		1984	2149	2149	2149	2149	2149	2149	2149	2149	2149
1.0FD	26	60	466	517	561	601	632	632	632	632	632	632
	24		789	870	941	1006	1055	1055	1055	1055	1055	1055
	22		1169	1285	1387	1479	1548	1548	1548	1548	1548	1548
	20		1665	1824	1964	2091	2183	2183	2183	2183	2183	2183
1.5FD 1.5FDR	22	33	539	593	640	683	722	727	727	727	727	727
	20		769	843	907	966	1020	1026	1026	1026	1026	1026
	18		1285	1401	1503	1596	1681	1686	1686	1686	1686	1686
	16		1964	2133	2282	2416	2540	2541	2541	2541	2541	2541
1.5CD	22	40	654	719	776	827	875	881	881	881	881	881
	20		932	1021	1100	1171	1236	1243	1243	1243	1243	1243
	18		1557	1698	1822	1934	2037	2043	2043	2043	2043	2043
	16		2381	2586	2766	2929	3079	3080	3080	3080	3080	3080
2.0FD 2.0CD	22	40	292	321	347	370	391	411	429	447	463	479
	20		419	459	494	526	556	583	608	633	656	678
	18		705	769	825	876	922	966	1007	1045	1082	1117
	16		1083	1176	1258	1333	1401	1464	1524	1580	1634	1685
3.0FD 3.0CD	22	40	283	311	336	358	379	398	416	433	449	465
	20		409	448	482	514	542	569	594	618	640	662
	18		694	756	811	861	907	950	990	1028	1064	1099
	16		1071	1164	1245	1318	1386	1449	1508	1563	1616	1667

ALLOWABLE REACTIONS AT INTERIOR SUPPORTS (R_{int}) - ASD

Type	Gage	F_y (ksi)	Allowable Interior Reaction (lbs./ft. of width) Bearing Length (in.)									
			1 1/2	2	2 1/2	3	3 1/2	4	4 1/2	5	5 1/2	6
0.6FD	28	60	838	910	910	910	910	910	910	910	910	910
	26		1182	1278	1278	1278	1278	1278	1278	1278	1278	1278
	24		2008	2160	2160	2160	2160	2160	2160	2160	2160	2160
	22		2989	3201	3201	3201	3201	3201	3201	3201	3201	3201
1.0FD	26	60	662	724	779	828	867	867	867	867	867	867
	24		1149	1251	1341	1422	1483	1483	1483	1483	1483	1483
	22		1733	1879	2009	2126	2213	2213	2213	2213	2213	2213
	20		2504	2707	2886	3047	3165	3165	3165	3165	3165	3165
1.5FD 1.5FDR	22	33	794	861	920	974	1023	1030	1030	1030	1030	1030
	20		1150	1243	1325	1399	1467	1475	1475	1475	1475	1475
	18		1961	2109	2240	2358	2467	2473	2473	2473	2473	2473
	16		3047	3263	3454	3627	3786	3787	3787	3787	3787	3787
1.5CD	22	40	962	1044	1116	1181	1240	1248	1248	1248	1248	1248
	20		1393	1506	1606	1696	1779	1787	1787	1787	1787	1787
	18		2377	2557	2715	2858	2990	2998	2998	2998	2998	2998
	16		3693	3955	4187	4396	4589	4590	4590	4590	4590	4590
2.0FD 2.0CD	22	40	458	497	531	562	590	617	641	665	687	709
	20		662	716	763	806	845	882	916	949	979	1009
	18		1128	1213	1288	1356	1419	1477	1531	1583	1632	1679
	16		1750	1875	1985	2084	2175	2260	2340	2415	2487	2555
3.0FD 3.0CD	22	40	466	506	541	572	601	628	653	677	700	722
	20		675	730	778	821	862	899	934	967	998	1029
	18		1151	1238	1314	1384	1447	1507	1562	1615	1665	1713
	16		1787	1914	2026	2127	2221	2307	2389	2466	2539	2609