



DIVISION: 05 00 00—METALS

Section: 05 31 00—Steel Decking

REPORT HOLDER:

NUCOR CORPORATION—VULCRAFT DIVISION

EVALUATION SUBJECT:

VULCRAFT STEEL DECK PANELS

ROOF DECK PROFILES: 1.5A, 1.5B, 1.5BI, 1.5F, 3N, AND 3NI

FLOOR DECK PROFILES: 1.5VLI, 2.0VLI AND 3.0VLI

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 *International Building Code*® (IBC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

- Other Codes (see Section 8.0)

Property evaluated:

Structural

2.0 USES

Vulcraft steel deck panels are used in roof and composite floor deck systems.

3.0 DESCRIPTION

3.1 General:

The steel deck panels described in this report are cold formed from steel sheets into panels with fluted sections having galvanized, painted / painted or phosphatized / painted finishes. Phosphatized / painted deck panels have a phosphatized (uncoated) top surface and primer painted bottom surface. Painted / painted steel deck panels have primer painted top and bottom surfaces. See Table 2 and Figures 1 through 5 for section properties and profiles described in this report.

3.2 1.5A, 1.5B, 1.5BI, 1.5F, 3N and 3NI Roof Decks:

The 1.5A, 1.5B, 1.5BI, 1.5F, 3N and 3NI steel roof deck panels are available with a galvanized or painted / painted finish. The 1.5A, 1.5B, 1.5F, 1.5N and 1.5NI galvanized steel panels are formed from ASTM A653 SS Grade 33 (minimum) steel with a minimum G30 coating. The 1.5BI galvanized steel panels are formed from ASTM A653 SS Grade 40 (minimum) steel with a minimum G30 coating. The 1.5A, 1.5B, 1.5F, 1.5N and 1.5NI painted / painted panels are formed from ASTM A1008 SS Grade 33

(minimum) steel. The 1.5BI painted / painted panels are formed from ASTM A1008 SS Grade 40 (minimum) steel. See Table 2 for section properties.

3.3 1.5VLI, 2VLI and 3VLI Composite Decks:

The 1.5VLI, 2VLI and 3VLI composite steel floor deck panels are available with a galvanized or phosphatized / painted finish. The galvanized steel panels are formed from ASTM A653 SS Grade 50 (minimum) steel with a minimum G30 coating. The phosphatized / painted steel panels are formed from ASTM A1008 SS Grade 50 (minimum) steel. See Table 2 for section properties.

4.0 DESIGN, INSTALLATION AND INSPECTIONS

4.1 Design:

4.1.1 General: Allowable gravity loads must be based on section properties shown in Table 2. Allowable reactions based on web crippling must not exceed values in Table 3. Allowable diaphragm values and superimposed loads are shown in Tables 4 through 29.

Increases in allowable stresses specified in the appropriate materials section of the IBC or referenced standard must not be used with the load combinations noted in Section 1605.3.1 of the IBC. The one-third increase in stress normally permitted for wind or seismic forces does not apply for diaphragm shears.

The allowable tension (uplift) load for arc spot welds fastening steel sheets to a supporting member must be calculated in accordance with Section E2.2.2 of AISI S100.

The diaphragm design must take into account the following considerations:

1. Diaphragm classification (flexible or rigid) must comply with Section 1602 of the IBC; the diaphragm deflection must be calculated using the equations noted in Table 1 (Diaphragm Flexibility Limitations).
2. Diaphragm Flexibility Limitations must comply with Table 1.
3. Diaphragm deflection limits must comply with Section 12.10.1 and 12.12.2 of ASCE 7.
4. Horizontal shears must be distributed in accordance with Section 12.8.4 of ASCE 7.

4.1.2 Composite Decks: Composite decks must be constructed with 1.5VLI, 2VLI or 3VLI steel deck panels and concrete fill. The concrete fill must be normal-weight or structural lightweight concrete with a minimum specified compressive strength (f'_c) of 3,000 psi (20.7 MPa). The minimum thickness is 2 inches (51 mm) above the top surface of the steel deck. Concrete fill must be reinforced

with minimum reinforcement of 6-by-6–W1.4 x W1.4 welded wire mesh, which must be placed at the center of the fill. Where the thickness of the concrete fill exceeds 3¹/₂ inches (88.9 mm), the concrete is reinforced in each direction with steel having a cross-sectional area equal to 0.01 times the depth of fill over the top of the deck.

4.2 Installation:

4.2.1 General: All steel deck panels welded to supporting members must use minimum E60XX filler metal. E60XX filler metal must be used for top arc-seam welds (TSWs), side-lap welds (SLWs), and fillet welds. Other weld requirements must comply with AWS D 1.3. Button-punched side seams must be used where specified. End laps of single sheet deck panels must be a minimum of 2¹/₂ inches (64 mm). See Table Notes for other requirements.

4.2.2 Composite Decks: Phosphatized / painted composite steel deck panels must be installed with the phosphatized panel face in contact with the concrete and the prime-painted panel surface on the underside.

4.3 Special Inspections:

4.3.1 Concrete: Continuous special inspection for concrete and concrete reinforcement must be in accordance with Section 1704.4 of the IBC. The inspector's duties include sampling and testing, and verification of concrete mixes, reinforcement types and placement, and concrete placement.

4.3.2 Jobsite Welding: Special inspection for welding must be in accordance with Section 1704.3 of the IBC. Prior to proceeding, the welder must demonstrate the ability to produce the prescribed weld to the special inspector's satisfaction. The inspector's duties include verification of materials, weld preparation, welding procedures, and welding processes.

4.3.3 Additional Requirements for Installation:

4.3.3.1 Periodic Special Inspections: Periodic special inspections in accordance with Section 1706.3 of the IBC are required where the steel deck systems are used as part of the main wind force-resisting system in structures assigned to Wind Exposure Category B, where the basic wind speed is 120 miles per hour (52.8 m/sec) or greater, or to Wind Exposure Category C or D, where the basic wind speed is 110 miles per hour (49 m/sec) or greater. Periodic special inspections, in accordance with Section 1707.4 of the IBC, are required where the steel deck systems are used as part of a seismic force-resisting system in structures assigned to Seismic Design Category C, D, E or F. Periodic special inspections apply to connections made with button punches. Periodic special inspections also apply where noted in Tables 1704.3 and 1704.4 of the IBC.

4.3.3.2 Continuous Special Inspections: Continuous special inspections must be provided where noted in Tables 1704.3 and 1704.4 of the IBC.

4.3.3.3 Statement of Special Inspection: A statement of special inspection must be prepared by the registered design professional in charge and submitted to the code official as set forth in IBC Section 1705. The statement must include the inspector's duties noted in this Section (Section 4.3).

5.0 CONDITIONS OF USE

The Vulcraft steel deck panels described in this report comply with, or are suitable alternatives to what is specified in, the 2009 IBC, subject to the following conditions:

- 5.1 The vertical load design of steel deck panels is based on section properties shown in Table 2 of the report.
- 5.2 Where the panels are used as diaphragms:
 - 5.2.1 Increase in allowable stress must not be used for shear values in the diaphragm tables with the loads or load combinations per the IBC.
 - 5.2.2 Allowable shear values are as set forth in the tables accompanying this report for the type of deck panel involved.
 - 5.2.3 Diaphragm deflections must not exceed the permitted relative deflections of walls between the diaphragm level and the floor below. The flexibility limitations shown in Table 1 may be used as a guide in lieu of rational analysis of the anticipated deflections.
 - 5.2.4 Diaphragms may be zoned by varying deck gage and/or connections across a diaphragm to meet varying shear and stiffness demands.
- 5.3 Composite steel deck panel sections are prohibited for loads which are predominantly vibratory.
- 5.4 The allowable loads and deflections are as set forth in this report. Calculations demonstrating that the applied loads comply with this report must be submitted to the code official for approval.
- 5.5 Vulcraft steel decks have not been evaluated for use without a roof covering.
- 5.6 The steel deck panels are manufactured and installed in accordance with this report.
- 5.7 Bundles marked in accordance with Section 7.0 of this report must provide the material traceability required to conform to the requirements of Table 1704.3, Item 3, of the 2009 IBC.
- 5.8 The optional hanger tabs in the 1.5VLI, 2VLI and 3VLI panels are outside the scope of this report and have not been evaluated.

6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Steel Deck Roof and Floor Systems (AC43), dated October 2010.

7.0 IDENTIFICATION

7.1 Each bundle of Vulcraft deck panels described in this report is identified by a stamp bearing the manufacturer's name (Vulcraft), the manufacturing location (Norfolk, Nebraska, Chemung, New York, Fort Payne, Alabama, Florence, South Carolina, Saint Joe, Indiana, or Grapeland, Texas), the product type with base-metal thickness, and the evaluation report number (ESR-1227).

7.2 The report holder's contact information is the following:

**NUCOR CORPORATION—VULCRAFT DIVISION
2100 REXFORD ROAD
CHARLOTTE, NORTH CAROLINA 28211
(704) 366-7000**

8.0 OTHER CODES

The products described in this report were also evaluated for compliance with the requirements of the 2006 *International Building Code*[®] (2006 IBC). The products comply with the 2006 IBC as described in Sections 2.0 through 7.0 of this report with the following modifications:

- For the 2006 IBC, replace the third paragraph in Section 4.1.1 with the following: The allowable tension (uplift) for arc spot welds fastening steel sheets to supporting

member must be calculated in accordance with Section E2.2.2 of the 2001 AISI-NAS.

- For the 2006 IBC, replace the wording of Section 4.3.3.1 with the following:

Periodic special inspections in accordance with Section 1707.4 of the IBC are required where the steel deck systems are used as part of a seismic force-resisting system in structures assigned to Seismic Design

Category C, D, E or F. Periodic special inspections apply to connections such as side seam attachments and button punches. Periodic special inspections also apply where noted in Tables 1704.3 and 1704.4 of the IBC.

- Section 5.7 does not apply to the 2006 IBC.

TABLE OF CONTENTS

Table	Topic	Page
General		
	Table Notes	4
1	Diaphragm Flexibility Limitations	5
2	Section Properties	6
3	Web Crippling Values	7
Allowable Diaphragm Shear Values and Flexibility Factors		
4 & 5	1.5A and 1.5F Decks with Side Seam Welds.....	8
6	1.5B and 1.5BI Decks with Side Seam Welds	8
7	1.5B and 1.5BI Decks with Side Seam Welds	9
8 & 9	1.5BI Deck with Button-Punched Seams	9
10 & 11	1.5BI Deck with Top Seam Welds	10
12	3N Deck with Side Seam Welds	10
13	3N Deck with Side Seam Welds	11
14	3NI Deck with Button-Punched Seams.....	11
15	3NI Deck with Button-Punched Seams.....	12
16 & 17	3NI Deck with Top Seam Welds	12
18	1.5VLI Decks with Normal Weight Concrete Fill	13
19A	2VLI Decks with Normal and Light Weight Concrete Fill.....	14
19B	2VLI Decks with Normal and Light Weight Concrete Fill.....	15
20A	3VLI Decks with Normal and Light Weight Concrete Fill.....	16
20B	3VLI Decks with Normal and Light Weight Concrete Fill.....	17
Allowable Superimposed Live Loads		
21	1.5VLI Deck with Phosphatized/Painted or Galvanized Finish with Normal Weight Concrete	18
22	1.5VLI Deck with Phosphatized/Painted Finish with Light Weight Concrete	18
23	1.5VLI Deck with Galvanized Finish with Light Weight Concrete.....	18
24	2VLI Deck with Phosphatized/Painted or Galvanized Finish with Normal Weight Concrete	19
25	2VLI Deck with Phosphatized/Painted or Galvanized Finish with Lightweight Concrete.....	19
26	3VLI Deck with Galvanized Finish with Normal Weight Concrete	20
27	3VLI Deck with Galvanized Finish with Lightweight Concrete.....	20
28	3VLI Deck with Phosphatized/Painted Finish with Normal Weight Concrete	21
29	3VLI Deck with Phosphatized/Painted Finish with Lightweight Concrete.....	21
Figures		Page
Steel Deck Profiles		
1	1.5A, 1.5F, 1.5B and 1.5B1.....	22
2	1.5VLI	23
3	2VLI	24
4	3VLI	25
5	3N and 3N1.....	26

TABLE NOTES

The notes below apply to all of the tables unless noted otherwise:

1. Attachments at interior lines of shear transfer perpendicular to deck flutes: The shear transfer from a diaphragm to interior collector elements perpendicular to steel deck panel corrugations must not exceed the shear values indicated in the tables. Two lines of arc spot welds are permitted to be used to develop the actual shear transfer to these collector elements.
2. Where individual steel deck panels are cut, the partial steel deck panel must be fastened to fully transfer the shears at the point of the diaphragm to the adjacent full steel deck panels for the values specified in the tables.
3. Side-lap welds, top arc seam welds, and fillet welds must be a minimum of 1¹/₂ inches long.
4. Arc Spot Welds must have a fusion area to supporting members not less than ³/₈ inch in diameter. A ³/₈-inch-by-1-inch Arc Seam Weld is permitted to be used in lieu of an Arc Spot Weld.
5. End puddle (arc spot) weld pattern (deck to support)
 - a. For deck profiles with 7 flutes (1.5A, 1.5F, 1.5B, 1.5BI and 1.5VLI):
 - i. For weld patterns calling for 4 welds per sheet to support, place one weld at first, third, fifth and seventh flutes.
 - ii. For weld patterns calling for 7 welds per sheet to support, place one weld at each flute.
 - b. For deck profiles with 4 flutes (3N and 3NI):
 - i. For weld patterns calling for 2 welds per sheet to support, place one weld at first and third flutes.
 - ii. For weld patterns calling for 4 welds per sheet to support, place one weld at each flute.
 - c. For deck profiles with 4 flutes (2VLI and 3VLI) and for weld patterns calling for 4 welds per sheet to support, place one weld at each flute.
 - d. For deck profiles with 3 flutes (2VLI and 3VLI) and for welds patterns calling for 3 welds per sheet to support, place one weld at each flute.
6. Standing side seams must be fastened either with top arc seam welds 1¹/₂ inches long, button punches. Nestable side seams must be fastened either with side lap welds 1¹/₂ inches long or with screws.
7. Weld attachments to boundary members parallel to flutes must be as follows:

t = Base-metal thickness of the deck panel, inches.

v = Actual diaphragm shear (at supports parallel to flutes) or shear to be transferred to the collector element, pounds per foot (kN/m).

l_w = Minimum length of seam weld, which must not be less than 1¹/₂ inches.

In no case must the spacing of welds exceed the span of the steel deck panel divided by 3.0 or 36 inches on center.

 - a. Arc spot welds are used to connect decks to members parallel to flutes, including chords and collector elements, except for diaphragm edge with short lip, and must have a spacing, in feet (m), equal to 32,000 (t)/v [for **SI**: 6.130 (t)/v].
 - b. Fillet welds from diaphragm edge with short lip to diaphragm chords must have a spacing, in feet (m), equal to 480 l_w/v (for **SI**: 0.084 l_w/v).
 - c. Fillet welds from diaphragm edge with short lip to diaphragm collector elements, such as struts and ties, must have a spacing, in feet (m), equal to 300 l_w/v (for **SI**: 0.052 l_w/v).
8. The one-third increase in stress normally permitted for wind or seismic loads does not apply for diaphragm shears.
9. For **SI** dimensions:

1 inch = 25.4 mm, 1 plf = 14.6 N/m, 1 inch² = 645.16 mm², 1 inch³ = 16.4 x 10⁴ mm³, 1 inch⁴ = 41.6 x 10⁴ mm⁴,
 1 psf = 4.88 kg/m², 1 pcf = 16.018 kg/m³, 1 inch-kip = 0.113 kN-m, 1 kip = 4.448 kN, 1 ksi = 6.89 MPa,
 1 foot = 304.8 mm.

TABLE 1—DIAPHRAGM FLEXIBILITY LIMITATIONS

F	Maximum Diaphragm Span for Masonry or Concrete Walls (feet)	Diaphragm Span-Depth Limitations			
		Rotation Not Considered in Diaphragm		Rotation considered in Diaphragm	
		Masonry or Concrete Walls	Flexible Walls	Masonry or Concrete Walls	Flexible Walls
> 50	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
< 1	no limitation	as required for deflection	no limitation	as required for deflection	3 1/2:1

¹Diaphragms are to be investigated regarding their flexibility and recommended span-depth limitations.

²Diaphragms supporting masonry or concrete walls are to have their deflection limited to the following amount:

$$\Delta_{wall} = \frac{H^2(f_c)}{0.01 E (t)}$$

where:

H = Unsupported height of wall (feet).

t = Thickness of wall (inch).

E = Modulus of elasticity of wall material for deflection determination (psi).

f_c = Allowable compression strength of wall material in flexure (psi)

For concrete, f_c = 0.45 F_c

For masonry, f_c = F_b = 0.33 f_m

³The total deflection of the diaphragm may be computed from the following equation:

$$\Delta_{total} = \Delta_{flexural} + \Delta_{web}$$

where:

Δ_{flexural} = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams (inch).

Δ_{web} = The web deflection may be determined by the equation (inch):

$$\Delta_{web} = \frac{q_{ave}(L)(F)}{10^6}$$

where:

L = Distance 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 (pounds per foot over length L)

F = Flexibility Factor: The average micro inches (μm) a diaphragm web will deflect in a span of 1 foot under a shear of 1 pound per foot.

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

⁵Diaphragm classification (flexible or rigid) and deflection limits must comply with the Diaphragm Design Consideration listed in this evaluation report.

TABLE 2—VULCRAFT STEEL DECK SECTION PROPERTIES^{1,2,3}

Deck Panel ⁴	Design Thickness (inch)	F _y (ksi)	F _b (ksi)	I _{gr} (in ⁴ /ft)	I _{on} (in ⁴ /ft width)	S _{en} (in ³ /ft width)	I _{oi} (in ⁴ /ft width)	S _{ei} (in ³ /ft width)
1.5A22	0.0295	33	19.8	0.116	0.104	0.098	0.120	0.106
1.5A20	0.0358	33	19.8	0.141	0.134	0.122	0.145	0.130
1.5A18	0.0474	33	19.8	0.187	0.190	0.167	0.193	0.172
1.5F22	0.0295	33	19.8	0.125	0.113	0.112	0.129	0.121
1.5F20	0.0358	33	19.8	0.152	0.145	0.139	0.157	0.148
1.5F18	0.0474	33	19.8	0.202	0.206	0.190	0.208	0.195
1.5B22	0.0295	33	19.8	0.178	0.155	0.186	0.183	0.192
1.5B20	0.0358	33	19.8	0.216	0.201	0.234	0.222	0.247
1.5B18	0.0474	33	19.8	0.287	0.289	0.318	0.295	0.327
1.5BI22 ⁵	0.0295	33	19.8	0.178	0.151	0.181	0.178	0.187
1.5BI20 ⁵	0.0358	33	19.8	0.216	0.196	0.224	0.216	0.238
1.5BI18 ⁵	0.0474	33	19.8	0.287	0.284	0.308	0.288	0.318
3N22	0.0295	33	19.8	0.892	0.659	0.382	0.884	0.433
3N20	0.0358	33	19.8	1.082	0.848	0.501	1.079	0.552
3N19	0.0418	33	19.8	1.262	1.045	0.597	1.260	0.659
3N18	0.0474	33	19.8	1.430	1.235	0.688	1.430	0.749
3N16	0.0598	33	19.8	1.801	1.683	0.893	1.807	0.944
3NI22	0.0295	33	19.8	0.892	0.648	0.374	0.878	0.443
3NI20	0.0358	33	19.8	1.082	0.835	0.492	1.069	0.556
3NI19	0.0418	33	19.8	1.262	1.030	0.589	1.249	0.659
3NI18	0.0474	33	19.8	1.430	1.221	0.680	1.418	0.747
3NI16	0.0598	33	19.8	1.801	1.663	0.885	1.792	0.942
1.5VLI22	0.0295	50	30	0.181	0.139	0.167	0.173	0.177
1.5VLI20	0.0358	50	30	0.220	0.182	0.218	0.215	0.226
1.5VLI18	0.0474	50	30	0.292	0.265	0.298	0.286	0.314
2VLI22	0.0295	50	30	0.347	0.311	0.241	0.311	0.250
2VLI20	0.0358	50	30	0.409	0.398	0.321	0.397	0.332
2VLI19	0.0418	50	30	0.492	0.483	0.403	0.481	0.414
2VLI18	0.0474	50	30	0.558	0.553	0.477	0.552	0.491
2VLI16 ⁶	0.0598	40	24	0.705	0.698	0.632	0.698	0.646
3VLI22	0.0295	50	30	0.782	0.704	0.385	0.711	0.406
3VLI20	0.0358	50	30	0.949	0.899	0.508	0.903	0.533
3VLI19	0.0418	50	30	1.107	1.089	0.634	1.091	0.661
3VLI18	0.0474	50	30	1.255	1.243	0.756	1.243	0.785
3VLI16 ⁶	0.0598	40	24	1.583	1.571	1.009	1.571	1.009

¹Effective Section Modulus values are net ("effective") values.

²I_{gr} = gross moment of inertia
 I_{on} = effective moment of inertia, normal position
 S_{en} = effective section modulus, normal position
 I_{oi} = effective moment of inertia, inverted position
 S_{ei} = effective section modulus, inverted position

³The following equations are permitted to determine deflections:

I_D = moment of inertia used in deflection calculations

For simple spans under uniform load:

$$I_D = (I_{gr} + 2I_{on})/3, \text{ or } I_{on}$$

For multiple spans under uniform load:

$$I_D = (I_{gr} + 2I_{oi})/3, (I_{gr} + 2I_{on})/3, \text{ or the minimum of } I_{on} \text{ and } I_{oi}.$$

⁴The last two numbers indicate the gage thickness.

⁵For these deck panels, the properties are based on F_y = 33 ksi. These values are conservative for the roof deck panels described in Section 3.2.

⁶For these deck panels, the properties are based on F_y = 40 ksi. These values are conservative for the composite deck panels described in Section 3.3.

TABLE 3—ALLOWABLE REACTIONS BASED ON WEB CRIPPLING, P_n/Ω_w , (plf)^{1,2,3}

Deck Panel	Fy (ksi)	Load Type	Bearing Length (inches)								
			1½"	2"	2½"	3"	3½"	4"	4½"	5"	6"
A22	33	End	554	609	657	701	741	741	741	741	741
		Interior	823	893	954	1010	1060	1060	1060	1060	1060
A20	33	End	790	866	932	993	1045	1045	1045	1045	1045
		Interior	1191	1287	1372	1449	1516	1516	1516	1516	1516
A18	33	End	1322	1441	1546	1642	1716	1716	1716	1716	1716
		Interior	2030	2183	2319	2441	2537	2537	2537	2537	2537
F22	33	End	511	562	607	647	684	718	718	718	718
		Interior	768	833	891	942	990	1034	1034	1034	1034
F20	33	End	730	800	862	917	969	1014	1014	1014	1014
		Interior	1112	1202	1281	1353	1419	1477	1477	1477	1477
F18	33	End	1224	1335	1432	1520	1602	1667	1667	1667	1667
		Interior	1897	2040	2166	2281	2386	2471	2471	2471	2471
B & BI 22	33	End	540	593	641	683	722	740	740	740	740
		Interior	806	875	935	990	1040	1062	1062	1062	1062
B & BI 20	33	End	771	844	909	968	1022	1044	1044	1044	1044
		Interior	1167	1262	1345	1420	1490	1517	1517	1517	1517
B & BI 18	33	End	1290	1407	1510	1603	1688	1716	1716	1716	1716
		Interior	1990	2141	2273	2393	2503	2539	2539	2539	2539
N & NI 22	33	End	382	420	453	483	511	537	561	584	626
		Interior	621	673	720	762	800	836	870	902	961
N & NI 20	33	End	551	603	650	691	730	766	800	831	891
		Interior	899	972	1036	1094	1147	1197	1243	1288	1370
N & NI 19	33	End	737	805	865	920	970	1016	1060	1101	1178
		Interior	1207	1301	1384	1459	1528	1593	1653	1710	1816
N & NI 18	33	End	932	1017	1091	1158	1220	1277	1331	1382	1477
		Interior	1533	1649	1751	1843	1928	2007	2081	2151	2282
N & NI 16	33	End	1440	1563	1672	1771	1862	1946	2025	2100	2240
		Interior	2381	2550	2700	2835	2959	3074	3183	3285	3476
1.5VLI22	50	End	818	899	971	1035	1095	1121	1121	1121	1121
		Interior	1222	1325	1417	1499	1575	1609	1609	1609	1609
1.5VLI20	50	End	1168	1279	1378	1467	1549	1582	1582	1582	1582
		Interior	1768	1912	2038	2152	2257	2299	2299	2299	2299
1.5VLI18	50	End	1955	2132	2288	2428	2558	2600	2600	2600	2600
		Interior	3015	3244	3444	3626	3793	3847	3847	3847	3847
2VLI22	50	End	363	399	431	460	486	511	534	556	596
		Interior	570	618	661	699	735	767	798	828	882
2VLI20	50	End	522	572	616	655	692	726	758	788	844
		Interior	825	892	951	1004	1053	1099	1141	1182	1257
2VLI19	50	End	696	761	818	869	916	960	1002	1041	1114
		Interior	1108	1195	1271	1340	1403	1462	1517	1570	1667
2VLI18	50	End	879	959	1029	1092	1151	1205	1256	1304	1393
		Interior	1407	1514	1608	1692	1770	1843	1911	1975	2095
2VLI16	40	End	1083	1176	1258	1333	1401	1464	1524	1580	1685
		Interior	1750	1875	1985	2084	2175	2260	2340	2415	2555
3VLI22	50	End	353	388	419	447	472	496	518	540	579
		Interior	581	631	674	713	749	783	814	844	900
3VLI20	50	End	510	559	602	640	676	709	741	770	825
		Interior	842	910	970	1025	1075	1121	1165	1206	1283
3VLI19	50	End	683	747	803	853	899	943	983	1022	1093
		Interior	1131	1220	1297	1368	1432	1493	1549	1603	1702
3VLI18	50	End	866	944	1013	1075	1133	1186	1236	1284	1372
		Interior	1437	1545	1641	1728	1807	1881	1951	2017	2139
3VLI16	40	End	1071	1164	1245	1318	1386	1449	1508	1563	1667
		Interior	1787	1914	2026	2127	2221	2307	2389	2466	2609

¹Tabulated values based on One-Flange Loading, Fastened to Support.

²Allowable reactions are based ASD with $\Omega_w = 1.70$ for end reactions and $\Omega_w = 1.75$ for interior reactions.

³Values measure per foot width of panel.

TABLE 4—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 1.5A AND 1.5F DECKS WITH SIDE SEAM WELDS

Deck Panel	Welds Per Sheet to Support	1½ inch Side Seam Welding Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	36" o.c.	310	270	240	220	210	190
		24" o.c.	330	290	270	250	230	210
		12" o.c.	330	300	270	250	240	210
	7	36" o.c.	400	340	300	270	250	220
		24" o.c.	460	400	360	380	310	280
		12" o.c.	600	540	500	460	430	390
20	4	36" o.c.	430	380	350	320	300	270
		24" o.c.	430	380	350	330	310	280
		12" o.c.	430	390	360	330	310	280
	7	36" o.c.	700	590	510	460	420	360
		24" o.c.	740	660	600	550	510	450
		12" o.c.	760	690	630	590	550	500
18	4	36" o.c.	620	560	510	470	440	400
		24" o.c.	630	560	520	480	450	400
		12" o.c.	640	570	530	490	460	410
	7	36" o.c.	1010	900	830	770	720	650
		24" o.c.	1020	920	840	780	740	660
		12" o.c.	1060	950	880	820	770	690

TABLE 5—FLEXIBILITY FACTORS (F) FOR 1.5A AND 1.5F DECKS WITH SIDE SEAM WELDS^{1,2}

Deck Gage	Welds Per Sheet to Support	1½ inch Side Seam Welding Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	36" o.c.	11.6+282R	11.0+225R	10.4+188R	10.0+161R	9.6+141R	8.9+113R
		24" o.c.	10.2+282R	9.5+225R	9.0+188R	8.5+161R	8.1+141R	7.5+113R
		12" o.c.	7.8+282R	7.2+225R	6.7+188R	6.3+161R	6.0+141R	5.5+113R
	7	36" o.c.	10.2+70.4R	9.9+56.3R	9.6+46.9R	9.3+40.2R	9.1+35.2R	8.6+28.2R
		24" o.c.	9.3+70.4R	8.9+56.3R	8.5+46.9R	8.2+40.2R	7.9+35.2R	7.4+28.2R
		12" o.c.	7.5+70.4R	7.0+56.3R	6.6+46.9R	6.3+40.2R	6.1+35.2R	5.7+28.2R
20	4	36" o.c.	9.0+158R	8.6+126R	8.3+105R	8.0+90R	7.7+788R	7.3+63R
		24" o.c.	8.0+158R	7.6+126R	7.2+105R	6.9+90R	6.6+788R	6.2+63R
		12" o.c.	6.3+158R	5.9+126R	5.8+105R	5.3+90R	5.0+788R	4.7+63R
	7	36" o.c.	7.8+39.4R	7.7+31.5R	7.5+26.3R	7.4+22.5R	7.2+19.7R	7.0+15.8R
		24" o.c.	7.2+39.4R	7.0+31.5R	6.8+26.3R	6.6+22.5R	6.4+19.7R	6.1+15.8R
		12" o.c.	6.0+39.4R	5.7+31.5R	5.4+26.3R	5.2+22.5R	5.0+19.7R	4.7+15.8R
18	4	36" o.c.	6.0+68R	5.9+54R	5.8+45R	5.6+39R	5.5+34R	5.3+27R
		24" o.c.	5.5+68R	5.3+54R	5.2+45R	5.0+39R	4.8+34R	4.6+27R
		12" o.c.	4.8+68R	4.3+54R	4.1+45R	3.9+39R	3.8+34R	3.5+27R
	7	36" o.c.	5.2+17R	5.2+14R	5.2+11R	5.1+10R	5.1+9R	5.0+7R
		24" o.c.	4.9+17R	4.8+14R	4.8+11R	4.7+10R	4.6+9R	4.5+7R
		12" o.c.	4.3+17R	4.1+14R	4.0+11R	3.8+10R	3.7+9R	3.5+7R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 6—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 1.5B AND 1.5BI DECKS WITH SIDE SEAM WELDS

Deck Panel	Welds Per Sheet to Support	1½ inch Side Seam Welding Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	36" o.c.	300	260	240	220	210	190
		24" o.c.	360	320	300	280	260	250
		12" o.c.	540	500	470	450	440	420
	7	36" o.c.	390	340	300	270	250	220
		24" o.c.	450	400	380	330	310	280
		12" o.c.	630	570	530	500	480	460
20	4	36" o.c.	520	450	400	370	340	300
		24" o.c.	610	540	490	450	480	390
		12" o.c.	870	790	750	710	690	650
	7	36" o.c.	690	580	510	460	420	360
		24" o.c.	780	670	590	540	500	450
		12" o.c.	1040	930	850	800	760	710
18	4	36" o.c.	1110	950	840	760	700	610
		24" o.c.	1260	1100	990	910	850	760
		12" o.c.	1700	1550	1450	1370	1300	1220
	7	36" o.c.	1510	1250	1080	950	860	730
		24" o.c.	1660	1400	1230	1100	1010	890
		12" o.c.	2110	1850	1680	1560	1470	1340

TABLE 7—FLEXIBILITY FACTORS (F) FOR 1.5B AND 1.5BI DECKS WITH SIDE SEAM WELDS^{1,2}

Deck Gage	Welds Per Sheet to Support	1½ inch Side Seam Welding Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	36" o.c.	11.6+292R	10.9+234R	10.4+195R	9.9+167R	9.5+146R	8.9+117R
		24" o.c.	10.2+292R	9.5+234R	8.9+195R	8.4+167R	8.1+146R	7.4+117R
		12" o.c.	7.8+292R	7.1+234R	6.7+195R	6.3+167R	6.0+146R	5.5+117R
	7	36" o.c.	10.3+73R	9.9+58.4R	9.6+48.7R	9.3+41.7R	9.0+36.5R	8.6+29.2R
		24" o.c.	9.3+73R	8.8+58.4R	8.4+48.7R	8.1+41.7R	7.8+36.5R	7.4+29.2R
		12" o.c.	7.5+73R	7.0+58.4R	6.6+48.7R	6.3+41.7R	6.0+36.5R	5.6+29.2R
20	4	36" o.c.	8.9+163R	8.6+131R	8.2+109R	7.9+93.4R	7.7+81.7R	7.2+65.4R
		24" o.c.	8.0+163R	7.6+131R	7.2+109R	6.9+93.4R	6.6+81.7R	6.2+65.4R
		12" o.c.	6.3+163R	5.9+131R	5.5+109R	5.2+93.4R	5.0+81.7R	4.6+65.4R
	7	36" o.c.	7.8+40.9R	7.6+32.7R	7.5+27.2R	7.3+73.4R	7.2+20.4R	6.9+16.3R
		24" o.c.	7.2+40.9R	6.9+32.7R	6.7+27.2R	6.5+73.4R	6.4+20.4R	6.0+16.3R
		12" o.c.	6.0+40.9R	5.7+32.7R	5.4+27.2R	5.2+73.4R	5.0+20.4R	4.7+16.3R
18	4	36" o.c.	6.0+70.4R	5.9+56.3R	5.7+46.9R	5.6+40.2R	5.5+35.2R	5.3+28.2R
		24" o.c.	5.5+70.4R	5.3+56.3R	5.1+46.9R	5.0+40.2R	4.8+35.2R	4.6+28.2R
		12" o.c.	4.6+70.4R	4.3+56.3R	4.1+46.9R	3.9+40.2R	3.8+35.2R	3.5+28.2R
	7	36" o.c.	5.2+17.6R	5.2+14.1R	5.2+11.7R	5.1+10.1R	5.1+8.8R	5.0+7R
		24" o.c.	4.9+17.6R	4.8+14.1R	4.7+11.7R	4.7+10.1R	4.6+8.8R	4.4+7R
		12" o.c.	4.2+17.6R	4.1+14.1R	3.9+11.7R	3.8+10.1R	3.7+8.8R	3.5+7R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 8—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 1.5BI DECK WITH BUTTON-PUNCHED SEAMS

Deck Panel	Welds Per Sheet to Support	Button Punched Side Seam Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	24" o.c.	470	420	390	370	330	270
		12" o.c.	550	510	480	450	410	350
	7	24" o.c.	650	580	530	490	460	390
		12" o.c.	730	670	620	580	550	470
21	4	24" o.c.	580	520	470	410	370	300
		12" o.c.	670	620	570	500	450	380
	7	24" o.c.	800	720	650	600	530	440
		12" o.c.	900	820	750	700	630	520
20	4	24" o.c.	680	610	520	450	400	330
		12" o.c.	790	720	620	550	490	410
	7	24" o.c.	940	840	760	660	590	480
		12" o.c.	1050	950	870	760	680	570
19	4	24" o.c.	900	730	620	540	480	390
		12" o.c.	1020	840	720	640	570	480
	7	24" o.c.	1280	1080	910	790	700	570
		12" o.c.	1400	1190	1020	890	800	660

TABLE 9—FLEXIBILITY FACTORS (F) FOR 1.5BI DECKS WITH BUTTON-PUNCHED SEAMS^{1,2}

Deck Panel	Welds Per Sheet to Support	Button Punched Side Seam Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	24" o.c.	18.8+164R	18.7+131R	18.6+109R	18.6+93.7R	18.6+82.0R	18.6+65.6R
		12" o.c.	16.2+164R	15.9+131R	15.7+109R	15.5+93.7R	15.4+82.0R	15.2+65.6R
	7	24" o.c.	15.1+73.0R	15.2+58.4R	15.3+48.7R	15.4+41.7R	15.5+36.5R	15.8+29.2R
		12" o.c.	13.6+73.0R	13.5+58.4R	13.5+48.7R	13.5+41.7R	13.5+36.5R	13.5+29.2R
21	4	24" o.c.	15.8+118R	15.7+94.5R	15.8+78.8R	15.8+67.5R	15.8+59.1R	15.9+47.3R
		12" o.c.	13.8+118R	13.6+94.5R	13.5+78.8R	13.4+67.5R	13.3+59.1R	13.2+47.3R
	7	24" o.c.	12.6+52.7R	12.8+42.1R	12.9+35.1R	13.1+30.1R	13.2+26.3R	13.5+21.1R
		12" o.c.	11.5+52.7R	11.5+42.1R	11.6+35.1R	11.6+30.1R	11.6+26.3R	11.7+21.1R
20	4	24" o.c.	13.8+91.7R	13.8+73.4R	13.8+61.1R	13.9+52.4R	14.0+45.9R	14.1+36.7R
		12" o.c.	12.2+91.7R	12.1+73.4R	12.0+61.1R	11.9+52.4R	11.9+45.9R	11.8+36.7R
	7	24" o.c.	11.1+40.9R	11.2+32.7R	11.4+27.2R	11.5+23.4R	11.7+20.4R	12.0+16.3R
		12" o.c.	10.2+40.9R	10.2+32.7R	10.2+27.2R	10.3+23.4R	10.4+20.4R	10.5+16.3R
19	4	24" o.c.	10.7+57.6R	10.8+46.1R	10.9+38.4R	11.0+32.9R	11.1+28.8R	11.3+23.0R
		12" o.c.	9.7+57.6R	9.6+46.1R	9.6+38.4R	9.6+32.9R	9.6+28.8R	9.6+23.0R
	7	24" o.c.	8.6+25.7R	8.8+20.5R	9.0+17.1R	9.1+14.7R	9.3+12.8R	9.6+10.3R
		12" o.c.	8.1+25.7R	8.1+20.5R	8.2+17.1R	8.3+14.7R	8.4+12.8R	8.5+10.3R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 10—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 1.5BI DECK WITH TOP SEAM WELDS

Deck Panel	Welds Per Sheet to Support	1½ inch Top Seam Weld Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	24" o.c.	480	460	440	430	420	400
		12" o.c.	600	580	560	550	540	530
	7	24" o.c.	800	740	690	660	630	590
		12" o.c.	920	860	810	780	750	710
21	4	24" o.c.	560	530	510	500	490	470
		12" o.c.	700	670	650	630	620	600
	7	24" o.c.	960	890	830	790	750	660
		12" o.c.	1100	1020	960	920	890	790
20	4	24" o.c.	640	600	580	560	550	520
		12" o.c.	780	750	730	710	690	670
	7	24" o.c.	1100	1020	950	900	840	710
		12" o.c.	1260	1170	1100	1050	980	840
19	4	24" o.c.	810	760	730	700	680	640
		12" o.c.	980	930	900	870	850	820
	7	24" o.c.	1460	1330	1200	1060	960	810
		12" o.c.	1630	1500	1370	1220	1110	850

TABLE 11—FLEXIBILITY FACTORS (F) FOR 1.5BI DECKS WITH TOP SEAM WELDS^{1,2}

Deck Panel	Welds Per Sheet to Support	1½ inch Top Seam Weld Spacing	Deck Span (feet-inch)					
			4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	10'-0"
22	4	24" o.c.	14.3+164R	11.5+131R	9.7+109R	8.5+93.7R	7.6+82R	6.5+65.6R
		12" o.c.	12.0+164R	9.7+131R	8.2+109R	7.3+93.7R	6.6+82R	5.6+65.6R
	7	24" o.c.	16.3+73.0R	13.4+58.4R	11.5+48.7R	10.1+41.7R	9.1+36.5R	7.8+29.2R
		12" o.c.	14.5+73.0R	11.9+58.4R	10.2+48.7R	9.0+41.7R	8.1+36.5R	6.9+29.2R
21	4	24" o.c.	12.6+118R	10.2+94.5R	8.6+78.8R	7.6+67.5R	6.8+59.1R	5.8+47.3R
		12" o.c.	10.6+118R	8.6+94.5R	7.4+78.8R	6.5+67.5R	5.9+59.1R	5.1+47.3R
	7	24" o.c.	14.0+52.7R	11.5+42.1R	9.9+35.1R	8.8+30.1R	8.0+26.3R	6.9+21.1R
		12" o.c.	12.5+52.7R	10.3+42.1R	8.9+35.1R	7.9+30.1R	7.2+26.3R	6.2+21.1R
20	4	24" o.c.	11.3+91.7R	9.2+73.4R	7.8+61.1R	6.9+52.4R	6.2+45.9R	5.3+36.7R
		12" o.c.	9.6+91.7R	7.9+73.4R	6.7+61.1R	6.0+52.4R	5.4+45.9R	4.6+36.7R
	7	24" o.c.	12.4+40.9R	10.3+32.7R	8.9+27.2R	7.9+23.4R	7.2+20.4R	6.2+16.3R
		12" o.c.	11.2+40.9R	9.3+32.7R	8.0+27.2R	7.1+23.4R	6.5+20.4R	5.6+16.3R
19	4	24" o.c.	9.4+57.6R	7.7+46.1R	6.6+38.4R	5.8+32.9R	5.3+28.8R	4.5+23.0R
		12" o.c.	8.1+57.6R	6.6+46.1R	5.7+38.4R	5.1+32.9R	4.6+28.8R	4.0+23.0R
	7	24" o.c.	9.9+25.7R	8.3+20.5R	7.3+17.1R	6.5+14.7R	6.0+12.8R	5.2+10.3R
		12" o.c.	9.1+25.7R	7.6+20.5R	6.6+17.1R	5.9+14.7R	5.4+12.8R	4.7+10.3R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 12—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 3N DECK WITH SIDE SEAM WELDS

Deck Panel	Welds Per Sheet to Support	1½ inch Top Seam Weld Spacing	Deck Span (feet-inch)				
			6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
22	2	24" o.c.	200	180	170	170	160
		12" o.c.	340	320	310	310	300
	4	24" o.c.	270	230	210	200	190
		12" o.c.	410	370	350	340	330
20	2	24" o.c.	310	290	270	260	250
		12" o.c.	520	490	480	470	460
	4	24" o.c.	440	380	340	320	300
		12" o.c.	650	590	550	520	510
19	2	24" o.c.	460	410	390	370	360
		12" o.c.	740	700	670	650	640
	4	24" o.c.	660	560	500	460	430
		12" o.c.	940	840	780	740	710
18	2	24" o.c.	630	560	520	490	470
		12" o.c.	990	920	880	850	830
	4	24" o.c.	910	760	670	610	570
		12" o.c.	1280	1130	1040	980	940
16	2	24" o.c.	970	860	800	770	740
		12" o.c.	1480	1380	1330	1300	1290
	4	24" o.c.	1330	1140	1030	960	920
		12" o.c.	1800	1630	1540	1490	1460

TABLE 13—FLEXIBILITY FACTORS (F) FOR 3N DECK WITH SIDE SEAM WELDS^{1,2}

Deck Panel	Welds Per Sheet to Support	1½ inch Top Seam Weld Spacing	Deck Span (feet-inch)				
			6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
22	2	24" o.c.	17.6+1590R	14.9+1190R	13.1+954R	11.7+795R	10.7+681R
		12" o.c.	11.4+1590R	9.6+1190R	8.5+954R	7.7+795R	7.1+681R
	4	24" o.c.	13.5+177R	12.2+132R	11.2+106R	10.4+83.3R	9.8+75.7R
		12" o.c.	9.8+177R	8.7+132R	7.9+106R	7.3+83.3R	6.8+75.7R
20	2	24" o.c.	14.5+889R	12.5+667R	11.0+534R	10.0+445R	9.2+381R
		12" o.c.	9.7+889R	8.2+667R	7.3+534R	6.6+445R	6.1+381R
	4	24" o.c.	10.7+98.8R	9.9+74.1R	9.2+59.3R	8.7+49.4R	8.3+42.3R
		12" o.c.	8.1+98.8R	7.2+74.1R	6.6+59.3R	6.2+49.4R	5.8+42.3R
19	2	24" o.c.	12.2+559R	10.7+419R	9.5+335R	8.7+279R	8.0+239R
		12" o.c.	8.3+559R	7.1+419R	6.3+335R	5.8+279R	5.3+239R
	4	24" o.c.	8.9+62.1R	8.3+46.6R	7.8+37.2R	7.4+31.0R	7.1+26.6R
		12" o.c.	6.8+62.1R	6.2+46.6R	5.7+37.2R	5.3+31.0R	5.1+26.6R
18	2	24" o.c.	10.6+383R	9.3+287R	8.4+230R	7.7+192R	7.1+164R
		12" o.c.	7.3+383R	6.3+287R	5.6+230R	5.1+192R	4.8+164R
	4	24" o.c.	7.5+42.6R	7.1+31.9R	6.8+25.5R	6.5+21.3R	6.2+18.2R
		12" o.c.	5.9+42.6R	5.4+31.9R	5.0+25.5R	4.7+21.3R	4.5+18.2R
16	2	24" o.c.	7.8+191R	7.0+143R	6.4+114R	5.9+95.4R	5.6+81.8R
		12" o.c.	5.6+191R	4.9+143R	4.4+114R	4.1+95.4R	3.8+81.8R
	4	24" o.c.	5.5+21.2R	5.3+15.9R	5.1+12.7R	5.0+10.6R	4.8+9.1R
		12" o.c.	4.4+21.2R	4.1+15.9R	3.9+12.7R	3.7+10.6R	3.5+9.1R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 14—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 3NI DECK WITH BUTTON-PUNCHED SEAMS

Deck Panel	Welds Per Sheet to Support	Button Punched Side Seam Spacing	Deck Span (feet-inch)				
			6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
22	2	24" o.c.	130	110	100	90	90
		12" o.c.	180	160	150	150	140
	4	24" o.c.	220	180	160	140	130
		12" o.c.	270	230	210	190	180
20	2	24" o.c.	200	160	140	130	120
		12" o.c.	260	230	210	190	190
	4	24" o.c.	350	280	240	210	190
		12" o.c.	410	340	300	270	250
19	2	24" o.c.	270	220	190	170	160
		12" o.c.	340	290	260	250	230
	4	24" o.c.	490	380	320	280	250
		12" o.c.	550	450	390	360	330
18	2	24" o.c.	350	280	240	220	200
		12" o.c.	430	360	320	300	280
	4	24" o.c.	620	490	410	350	320
		12" o.c.	700	560	480	430	400
16	2	24" o.c.	530	420	350	310	280
		12" o.c.	610	510	440	400	380
	4	24" o.c.	910	710	590	510	450
		12" o.c.	1000	790	670	600	540

TABLE 15—FLEXIBILITY FACTORS (F) FOR 3NI DECK WITH BUTTON-PUNCHED SEAMS^{1,2}

Deck Panel	Welds Per Sheet to Support	Button Punched Side Seam Spacing	Deck Span (feet-inch)				
			6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
22	2	24" o.c.	37.1+1590R	43.8+1190R	49.3+954R	53.9+795R	57.9+681R
		12" o.c.	27.4+1590R	30.8+1190R	33.3+954R	35.3+795R	37.0+681R
	4	24" o.c.	21.5+177R	26.8+132R	31.8+106R	36.5+83.3R	40.9+75.7R
		12" o.c.	18.1+177R	21.6+132R	24.6+106R	27.3+83.3R	29.7+75.7R
20	2	24" o.c.	29.1+889R	35.2+667R	40.5+534R	45.1+445R	49.2+381R
		12" o.c.	22.7+889R	26.1+667R	28.9+534R	31.2+445R	33.1+381R
	4	24" o.c.	16.2+98.8R	20.7+74.1R	25.0+59.3R	29.2+49.4R	33.2+42.3R
		12" o.c.	14.2+98.8R	17.4+74.1R	20.3+59.3R	22.9+49.4R	25.3+42.3R
19	2	24" o.c.	23.4+559R	28.9+419R	33.7+335R	38.1+279R	42.1+239R
		12" o.c.	19.0+559R	22.4+419R	25.1+335R	27.5+279R	29.5+239R
	4	24" o.c.	12.9+62.1R	16.6+46.6R	20.3+37.2R	24.0+31.0R	27.6+26.6R
		12" o.c.	11.6+62.1R	14.4+46.6R	17.0+37.2R	19.5+31.0R	21.9+26.6R
18	2	24" o.c.	19.4+383R	24.3+287R	28.7+230R	32.8+192R	36.5+164R
		12" o.c.	16.3+383R	19.4+287R	22.1+230R	24.4+192R	26.5+164R
	4	24" o.c.	10.6+42.6R	13.8+31.9R	17.0+25.5R	20.3+21.3R	23.6+18.2R
		12" o.c.	9.7+42.6R	12.2+31.9R	14.6+25.5R	16.9+21.3R	19.1+18.2R
16	2	24" o.c.	13.5+191R	17.2+143R	20.7+114R	24.0+95.4R	27.2+81.8R
		12" o.c.	11.8+191R	14.4+143R	16.8+114R	18.9+95.4R	20.8+81.8R
	4	24" o.c.	7.4+21.2R	9.7+15.9R	12.2+12.7R	14.8+10.6R	17.4+9.1R
		12" o.c.	6.9+21.2R	8.9+15.9R	10.8+12.7R	12.7+10.6R	14.6+9.1R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 16—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), FOR 3NI DECK WITH TOP SEAM WELDS

Deck Panel	Welds Per Sheet to Support	1/2 inch Top Seam Weld Spacing	Deck Span (feet-inch)				
			6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
22	2	24" o.c.	160	140	140	130	130
		12" o.c.	260	250	240	240	230
	4	24" o.c.	230	190	170	160	150
		12" o.c.	330	300	280	270	260
20	2	24" o.c.	260	230	210	200	200
		12" o.c.	410	390	370	360	350
	4	24" o.c.	380	320	280	260	240
		12" o.c.	540	480	440	420	400
19	2	24" o.c.	380	340	310	290	280
		12" o.c.	590	550	520	510	490
	4	24" o.c.	580	480	420	380	350
		12" o.c.	790	690	630	590	570
18	2	24" o.c.	520	460	420	390	370
		12" o.c.	790	730	690	670	650
	4	24" o.c.	800	660	570	520	480
		12" o.c.	1080	930	850	790	750
16	2	24" o.c.	830	720	660	620	600
		12" o.c.	1210	1110	1060	1030	1010
	4	24" o.c.	1190	1000	880	810	770
		12" o.c.	1550	1370	1270	1210	1170

TABLE 17—FLEXIBILITY FACTORS (F) FOR 3NI DECK WITH TOP SEAM WELDS^{1,2}

Deck Panel	Welds Per Sheet to Support	1/2 inch Top Seam Weld Spacing	Deck Span (feet-inch)				
			6'-0"	8'-0"	10'-0"	12'-0"	14'-0"
22	2	24" o.c.	21.6+1590R	18.4+1190R	16.1+954R	14.5+795R	13.2+681R
		12" o.c.	14.1+1590R	11.8+1190R	10.3+954R	9.3+795R	8.5+681R
	4	24" o.c.	15.6+177R	14.2+132R	13.1+106R	12.3+83.3R	11.5+75.7R
		12" o.c.	11.5+117R	10.2+132R	9.2+106R	8.5+83.3R	8.0+75.7R
20	2	24" o.c.	17.6+889R	15.2+667R	13.5+534R	12.2+445R	11.2+381R
		12" o.c.	11.8+889R	10.0+667R	8.8+534R	7.9+445R	7.3+381R
	4	24" o.c.	12.2+98.8R	11.4+74.1R	10.7+59.3R	10.1+49.4R	9.6+42.3R
		12" o.c.	9.3+98.8R	8.4+74.1R	7.7+59.3R	7.2+49.4R	6.8+42.3R
19	2	24" o.c.	14.7+559R	12.9+419R	11.5+335R	10.5+279R	9.7+239R
		12" o.c.	10.1+559R	8.7+419R	7.7+335R	6.9+279R	6.4+239R
	4	24" o.c.	9.9+62.1R	9.4+46.6R	8.9+37.2R	8.5+31.0R	8.2+26.6R
		12" o.c.	7.8+62.1R	7.1+46.6R	6.6+37.2R	6.2+31.0R	5.9+26.6R
18	2	24" o.c.	12.5+383R	11.1+287R	10.1+230R	9.2+192R	8.6+164R
		12" o.c.	8.3+383R	7.6+287R	6.8+230R	6.2+192R	5.7+164R
	4	24" o.c.	8.4+42.6R	8.0+31.9R	7.7+25.5R	7.4+21.3R	7.1+18.2R
		12" o.c.	6.7+42.6R	6.2+31.9R	5.8+25.5R	5.4+21.3R	5.2+18.2R
16	2	24" o.c.	9.1+191R	8.3+143R	7.6+114R	7.0+95.4R	6.6+81.8R
		12" o.c.	6.7+191R	5.9+143R	5.3+114R	4.8+95.4R	4.5+81.8R
	4	24" o.c.	6.0+21.2R	5.9+15.9R	5.7+12.7R	5.6+10.6R	5.4+9.1R
		12" o.c.	4.9+21.2R	4.6+15.9R	4.4+12.7R	4.2+10.6R	4.0+9.1R

¹The R factor is the ratio of the vertical load span of the deck to the total length of the deck.

²For diaphragm flexibility limitations, see Table 1.

TABLE 18—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), AND FLEXIBILITY FACTORS, F, FOR 1.5VLI DECKS WITH NORMAL WEIGHT CONCRETE FILL (f'c = 3000 psi)¹

Total Slab Depth and Conc. Type ²	Deck Gauge	Welds per Sheet to Support	Deck Span, feet				
			6'-0"	7'-0"	8'-0"	9'-0"	10'-0"
3 1/2" Normal Weight 145 pcf	22	4	1820	1750	1700	1660	1620
		7	2030	1930	1850	1790	1750
	20	4	1890	1810	1740	1690	1650
		7	2140	2020	1930	1860	1800
	18	4	2040	1930	1840	1780	1720
		7	2370	2210	2090	2000	1920
4" Normal Weight 145 pcf	22	4	2060	1990	1940	1900	1860
		7	2270	2170	2090	2030	1990
	20	4	2130	2050	1980	1930	1890
		7	2380	2260	2170	2100	2040
	18	4	2280	2170	2080	2020	1960
		7	2610	2450	2330	2240	2160
5" Normal Weight 145 pcf	22	4	2540	2470	2420	2370	2340
		7	2740	2650	2570	2510	2470
	20	4	2610	2520	2460	2410	2370
		7	2860	2740	2650	2580	2520
	18	4	2760	2650	2560	2490	2440
		7	3090	2930	2810	2720	2640
6" Normal Weight 145 pcf	22	4	3020	2950	2980	2850	2820
		7	3220	3120	3050	2990	2940
	20	4	3090	3000	2940	2890	2850
		7	3340	3220	3130	3060	3000
	18	4	3240	3120	3040	2970	2920
		7	3570	3410	3290	3190	3120
3 1/2" Light-Weight 110 pcf	22	4	1500	1430	1370	1330	1300
		7	1700	1600	1530	1470	1420
	20	4	1570	1480	1420	1370	1330
		7	1820	1700	1610	1540	1480
	18	4	1720	1600	1520	1450	1400
		7	2050	1890	1770	1670	1600
4" Light-Weight 110 pcf	22	4	1650	1580	1530	1490	1460
		7	1860	1760	1690	1630	1580
	20	4	1730	1640	1580	1530	1490
		7	1980	1850	1760	1690	1640
	18	4	1870	1760	1680	1610	1560
		7	2210	2050	1930	1830	1760
4 3/4" Light-Weight 110 pcf	22	4	1890	1820	1770	1730	1700
		7	2100	2000	1920	1870	1820
	20	4	1960	1880	1810	1760	1720
		7	2210	2090	2000	1930	1870
	18	4	2110	2000	1910	1850	1800
		7	2440	2280	2160	2070	1990
5 3/4" Light-Weight 110 pcf	22	4	2210	2140	2080	2040	2010
		7	2410	2310	2240	2180	2130
	20	4	2280	2190	2130	2080	2040
		7	2530	2410	2320	2250	2190
	18	4	2430	2310	2230	2160	2110
		7	2760	2600	2480	2390	2310

¹The flexibility factors for diaphragm covered by the table are less than one. See Table 1 for applications.

²Total slab depth is nominal depth from the top of concrete to bottom of deck.

TABLE 19A—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), AND FLEXIBILITY FACTORS, F, FOR 2VLI DECKS WITH NORMAL WEIGHT CONCRETE FILL (f'c=3000 psi)^{1,2}

Total Slab Depth and Concrete Type ³	Deck Gauge	2VLI - 24" Wide					
		Deck Span, feet					
		7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
4" Normal Weight 145 pcf	22	1700 (1.15)	1650 (1.18)	1620 (1.20)	1590 (1.22)	1570 (1.24)	1550 (1.26)
	20	1740 (1.02)	1680 (1.05)	1640 (1.08)	1610 (1.10)	1580 (1.12)	1560 (1.13)
	19	1780	1720	1670	1630 (1.00)	1600 (1.02)	1570 (1.04)
	18	1830	1760	1700	1660	1620	1590
	16	1940	1850	1780	1730	1680	1640
4½" Normal Weight 145 pcf	22	1940 (1.01)	1890 (1.03)	1860 (1.05)	1830 (1.06)	1810 (1.08)	1790 (1.09)
	20	1970	1920	1880	1850	1820	1800
	19	2020	1960	1910	1870	1840	1810
	18	2070	2000	1940	1900	1860	1830
	16	2180	2090	2020	1970	1920	1880
5½" Normal Weight 145 pcf	22	2410	2370	2340	2310	2290	2270
	20	2450	2400	2360	2320	2300	2280
	19	2500	2440	2390	2350	2320	2290
	18	2540	2470	2420	2380	2340	2310
	16	2660	2570	2500	2440	2400	2360
6½" Normal Weight 145 pcf	22	2890	2850	2810	2790	2760	2750
	20	2930	2880	2840	2800	2780	2750
	19	2980	2910	2870	2830	2800	2770
	18	3020	2950	2900	2850	2820	2790
	16	3140	3050	2980	2920	2880	2840

Total Slab Depth and Concrete Type ³	Deck Gauge	2VLI - 36" Wide					
		Deck Span, feet					
		7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
4" Normal Weight 145 pcf	22	1770	1720	1680	1640	1610	1590
	20	1830	1760	1710	1670	1640	1610
	19	1890	1820	1760	1710	1670	1640
	18	1960	1870	1800	1750	1700	1660
	16	2100	1990	1910	1840	1780	1740
4½" Normal Weight 145 pcf	22	2010	1960	1920	1880	1850	1830
	20	2070	2000	1950	1910	1880	1850
	19	2130	2050	1990	1950	1910	1880
	18	2190	2110	2040	1990	1940	1900
	16	2340	2230	2150	2080	2020	1980
5½" Normal Weight 145 pcf	22	2490	2440	2390	2360	2330	2310
	20	2550	2480	2430	2390	2360	2330
	19	2610	2530	2470	2430	2390	2350
	18	2670	2590	2520	2460	2420	2380
	16	2820	2710	2630	2560	2500	2460
6½" Normal Weight 145 pcf	22	2970	2910	2870	2840	2810	2790
	20	3030	2960	2910	2870	2830	2810
	19	3090	3010	2950	2900	2860	2830
	18	3150	3060	3000	2940	2900	2860
	16	3300	3190	3100	3040	2980	2930

¹Three arc spot (puddle) welds for 24 inches wide and four for 36 inches wide decks in each sheet (one weld at each flute).

²Flexibility factors in parentheses. Where no value is listed, the flexibility factor is less than one. See Table 2 for applications.

³Slab depth is in inches measured from the bottom of deck to top of concrete.

TABLE 19B—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), AND FLEXIBILITY FACTORS, F, FOR 2VLI DECKS WITH LIGHT WEIGHT CONCRETE FILL (f'c=3000 psi)^{1,2}

Total Slab Depth and Concrete Type ³	Deck Gauge	2VLI - 24" Wide					
		Deck Span, feet					
		7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
4" Light Weight 110 pcf	22	1370 (1.42)	1330 (1.47)	1290 (1.50)	1270 (1.54)	1240 (1.56)	1230 (1.59)
	20	1410 (1.25)	1360 (1.30)	1320 (1.34)	1280 (1.38)	1260 (1.41)	1230 (1.43)
	19	1460 (1.12)	1390 (1.17)	1350 (1.22)	1310 (1.25)	1280 (1.28)	1250 (1.31)
	18	1500 (1.02)	1430 (1.07)	1380 (1.11)	1330 (1.15)	1300 (1.18)	1270 (1.21)
	16	1620	1530	1460	1400	1360 (1.01)	1320 (1.04)
4 1/2" Light Weight 110 pcf	22	1530 (1.27)	1490 (1.31)	1450 (1.34)	1420 (1.37)	1400 (1.39)	1380 (1.41)
	20	1570 (1.13)	1520 (1.17)	1470 (1.20)	1440 (1.23)	1410 (1.25)	1390 (1.27)
	19	1610 (1.01)	1550 (1.05)	1500 (1.09)	1460 (1.12)	1430 (1.14)	1410 (1.16)
	18	1660	1590	1540 (1.00)	1490 (1.03)	1460 (1.05)	1430 (1.08)
	16	1770	1690	1620	1560	1520	1480
5 1/4" Light Weight 110 pcf	22	1770 (1.10)	1720 (1.13)	1690 (1.15)	1660 (1.17)	1640 (1.19)	1620 (1.20)
	20	1810	1750 (1.01)	1710 (1.03)	1680 (1.05)	1650 (1.07)	1630 (1.08)
	19	1850	1790	1740	1700	1670	1640
	18	1900	1830	1770	1730	1690	1660
	16	2010	1920	1850	1800	1750	1720
6 1/4" Light Weight 110 pcf	22	2080	2040	2000	1980	1960 (1.00)	1940 (1.00)
	20	2120	2070	2030	1990	1970	1940
	19	2170	2100	2060	2020	1990	1960
	18	2210	2140	2090	2040	2010	1980
	16	2330	2240	2170	2110	2070	2030

Total Slab Depth and Concrete Type ³	Deck Gauge	2VLI - 36" Wide					
		Deck Span, feet					
		7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
4" Light Weight 110 pcf	22	1450	1390	1350	1320	1290	1270
	20	1510	1440	1390	1350	1310	1290
	19	1570	1490	1430	1380	1340	1310
	18	1630	1540	1480	1420	1380	1340
	16	1780	1670	1580	1520	1460	1410
4 1/2" Light Weight 110 pcf	22	1610	1550	1510	1480	1450	1430
	20	1660	1600	1550	1510	1470	1440
	19	1730	1650	1590	1540	1500	1470
	18	1790	1700	1630	1580	1540	1500
	16	1940	1830	1740	1670	1620	1570
5 1/4" Light Weight 110 pcf	22	1840	1790	1750	1710	1690	1660
	20	1900	1830	1780	1740	1710	1680
	19	1960	1890	1830	1780	1740	1710
	18	2030	1940	1870	1820	1770	1740
	16	2180	2070	1980	1910	1860	1810
6 1/4" Light Weight 110 pcf	22	2160	2100	2060	2030	2000	1980
	20	2220	2150	2100	2060	2020	2000
	19	2280	2200	2140	2090	2060	2020
	18	2340	2250	2190	2130	2090	2050
	16	2490	2380	2300	2230	2170	2120

¹Three arc spot (puddle) welds for 24 inches wide and four for 36 inches wide decks in each sheet (one weld at each flute).
²Flexibility factors in parentheses. Where no value is listed, the flexibility factor is less than one. See Table 2 for applications.
³Slab depth is in inches measured from the bottom of deck to top of concrete.

TABLE 20A—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), AND FLEXIBILITY FACTORS, F, FOR 3VLI DECKS WITH NORMAL WEIGHT CONCRETE FILL (f'c=3000 psi)^{1,2}

Total Slab Depth and Concrete Type ³	Deck Gauge	3VLI - 24" Wide						
		Deck Span, feet						
		9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
5" Normal Weight 145 pcf	22	1620 (1.20)	1590 (1.22)	1570 (1.24)	1550 (1.26)	1530 (1.27)	1520 (1.28)	1510 (1.29)
	20	1640 (1.08)	1610 (1.10)	1580 (1.12)	1560 (1.13)	1540 (1.15)	1520 (1.16)	1510 (1.17)
	19	1670	1630 (1.00)	1600 (1.02)	1570 (1.04)	1550 (1.05)	1530 (1.07)	1520 (1.08)
	18	1700	1660	1620	1590	1570	1550	1530 (1.01)
	16	1780	1730	1680	1640	1610	1590	1560
5½" Normal Weight 145 pcf	22	1860 (1.05)	1830 (1.06)	1810 (1.08)	1790 (1.09)	1770 (1.10)	1760 (1.11)	1750 (1.11)
	20	1880	1850	1820	1800	1780	1760 (1.00)	1750 (1.01)
	19	1910	1870	1840	1810	1790	1770	1750
	18	1940	1900	1860	1830	1810	1780	1770
	16	2020	1970	1920	1880	1850	1820	1800
6½" Normal Weight 145 pcf	22	2340	2310	2290	2270	2250	2240	2230
	20	2360	2320	2300	2280	2260	2240	2230
	19	2390	2350	2320	2290	2270	2250	2230
	18	2420	2380	2340	2310	2280	2260	2240
	16	2500	2440	2400	2360	2330	2300	2280
7½" Normal Weight 145 pcf	22	2810	2790	2760	2750	2730	2720	2700
	20	2840	2800	2780	2750	2730	2720	2700
	19	2870	2830	2800	2770	2750	2730	2710
	18	2900	2850	2820	2790	2760	2740	2720
	16	2980	2920	2880	2840	2810	2780	2760

Total Slab Depth and Concrete Type ³	Deck Gauge	3VLI - 36" Wide						
		Deck Span, feet						
		9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
5" Normal Weight 145 pcf	22	1670	1640	1610	1590	1570	1550	1540
	20	1710	1670	1640	1610	1590	1560	1550
	19	1750	1710	1670	1630	1610	1580	1560
	18	1800	1740	1700	1660	1630	1600	1580
	16	1910	1840	1780	1730	1700	1660	1630
5½" Normal Weight 145 pcf	22	1910	1880	1850	1830	1810	1790	1780
	20	1950	1910	1880	1850	1820	1800	1790
	19	1990	1940	1910	1870	1850	1820	1800
	18	2040	1980	1940	1900	1870	1840	1820
	16	2140	2080	2020	1970	1930	1900	1870
6½" Normal Weight 145 pcf	22	2390	2360	2330	2310	2290	2270	2260
	20	2430	2390	2350	2330	2300	2280	2260
	19	2470	2420	2380	2350	2320	2300	2280
	18	2510	2460	2420	2380	2350	2320	2300
	16	2620	2550	2500	2450	2410	2380	2350
7½" Normal Weight 145 pcf	22	2870	2840	2810	2790	2770	2750	2740
	20	2910	2870	2830	2800	2780	2760	2740
	19	2950	2900	2860	2830	2800	2780	2760
	18	2990	2940	2890	2860	2830	2800	2780
	16	3100	3030	2980	2930	2890	2860	2830

¹Three arc spot (puddle) welds for 24 inches wide and four for 36 inches wide decks in each sheet (one weld at each flute).

²Flexibility factors in parentheses. Where no value is listed, the flexibility factor is less than one. See Table 2 for applications.

³Slab depth is in inches measured from the bottom of deck to top of concrete.

TABLE 20B—ALLOWABLE DIAPHRAGM SHEAR VALUES, Q (plf), AND FLEXIBILITY FACTORS, F, FOR 3VLI DECKS WITH LIGHT WEIGHT CONCRETE FILL ($f'_c=3000$ psi)^{1,2}

Total Slab Depth and Concrete Type ³	Deck Gauge	3VLI - 24" Wide						
		Deck Span, feet						
		9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
5" Light Weight 110 pcf	22	1290 (1.50)	1270 (1.54)	1240 (1.56)	1230 (1.59)	1210 (1.61)	1200 (1.63)	1180 (1.64)
	20	1320 (1.34)	1280 (1.38)	1260 (1.41)	1230 (1.43)	1210 (1.45)	1200 (1.47)	1180 (1.49)
	19	1350 (1.22)	1310 (1.25)	1280 (1.28)	1250 (1.31)	1230 (1.33)	1210 (1.35)	1190 (1.37)
	18	1380 (1.11)	1330 (1.15)	1300 (1.18)	1270 (1.21)	1240 (1.24)	1220 (1.26)	1200 (1.28)
	16	1460	1400	1360 (1.01)	1320 (1.04)	1290 (1.06)	1260 (1.08)	1240 (1.10)
5½" Light Weight 110 pcf	22	1450 (1.34)	1420 (1.37)	1400 (1.39)	1380 (1.41)	1370 (1.42)	1350 (1.44)	1340 (1.45)
	20	1470 (1.20)	1440 (1.23)	1410 (1.25)	1390 (1.27)	1370 (1.29)	1360 (1.30)	1340 (1.32)
	19	1500 (1.09)	1460 (1.12)	1430 (1.14)	1410 (1.16)	1380 (1.18)	1370 (1.20)	1350 (1.21)
	18	1540 (1.00)	1490 (1.03)	1460 (1.05)	1430 (1.08)	1400 (1.10)	1380 (1.11)	1360 (1.13)
	16	1620	1560	1520	1480	1450	1420	1400
6¼" Light Weight 110 pcf	22	1690 (1.15)	1660 (1.17)	1640 (1.19)	1620 (1.20)	1610 (1.21)	1590 (1.22)	1580 (1.23)
	20	1710 (1.03)	1680 (1.05)	1650 (1.07)	1630 (1.08)	1610 (1.10)	1590 (1.11)	1580 (1.12)
	19	1740	1700	1670	1640	1620 (1.01)	1600 (1.02)	1590 (1.03)
	18	1770	1730	1690	1660	1640	1620	1600
	16	1850	1800	1750	1720	1680	1660	1630
7¼" Light Weight 110 pcf	22	2000	1980	1960 (1.00)	1940 (1.00)	1920 (1.01)	1910 (1.02)	1900 (1.03)
	20	2030	1990	1970	1940	1930	1910	1890
	19	2060	2020	1990	1960	1940	1920	1900
	18	2090	2040	2010	1980	1950	1930	1910
	16	2170	2110	2070	2030	2000	1970	1950

Total Slab Depth and Concrete Type ³	Deck Gauge	3VLI - 36" Wide						
		Deck Span, feet						
		9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"
5" Light Weight 110 pcf	22	1350	1320	1290	1270	1250	1230	1220
	20	1390	1350	1310	1280	1260	1240	1220
	19	1430	1380	1340	1310	1280	1260	1240
	18	1470	1420	1370	1340	1310	1280	1260
	16	1580	1570	1460	1410	1370	1340	1310
5½" Light Weight 110 pcf	22	1510	1470	1450	1420	1400	1390	1370
	20	1540	1500	1470	1440	1420	1400	1380
	19	1590	1540	1500	1470	1440	1420	1400
	18	1630	1580	1530	1500	1460	1440	1410
	16	1740	1670	1610	1570	1530	1500	1470
6¼" Light Weight 110 pcf	22	1740	1710	1680	1660	1640	1620	1610
	20	1780	1740	1710	1680	1660	1640	1620
	19	1820	1780	1740	1700	1680	1650	1630
	18	1870	1810	1770	1730	1700	1670	1650
	16	1980	1910	1850	1810	1770	1730	1700
7¼" Light Weight 110 pcf	22	2060	2030	2000	1980	1960	1940	1930
	20	2100	2060	2020	1990	1970	1950	1930
	19	2140	2090	2050	2020	1990	1970	1950
	18	2180	2130	2090	2050	2020	1990	1970
	16	2290	2220	2170	2120	2080	2050	2020

¹Three arc spot (puddle) welds for 24 inches wide and four for 36 inches wide decks in each sheet (one weld at each flute).
²Flexibility factors in parentheses. Where no value is listed, the flexibility factor is less than one. See Table 2 for applications.
³Slab depth is in inches measured from the bottom of deck to top of concrete.

TABLE 21—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 1.5VLI DECK WITH PHOSPHATIZED / PAINTED OR GALVANIZED FINISH WITH NORMAL WEIGHT (145 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	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"	12'-0"
3 1/2"	22	5'-10"	7'-8"	7'-9"	314	249	220	196	176	159	144	132	121	111	102	94	87	81	75
	20	6'-11"	9'-2"	9'-4"	345	306	275	218	196	177	161	147	135	124	114	106	98	91	85
	18	8'-5"	10'-10"	11'-1"	395	351	315	285	260	238	189	172	158	146	135	125	116	108	101
4"	22	5'-6"	7'-3"	7'-4"	331	290	256	228	205	185	168	153	140	129	119	109	101	94	87
	20	6'-6"	8'-8"	8'-9"	400	356	284	253	228	206	187	171	157	144	133	123	114	106	99
	18	7'-11"	10'-3"	10'-6"	400	400	364	330	301	239	218	200	183	169	156	145	135	125	117
4 1/2"	22	5'-2"	6'-11"	7'-0"	380	332	294	262	235	213	193	176	161	148	136	126	116	108	100
	20	6'-2"	8'-3"	8'-4"	400	400	325	290	261	236	215	196	180	165	152	141	131	121	113
	18	7'-6"	9'-9"	10'-0"	400	400	400	377	302	274	250	228	210	193	179	166	154	143	134
5"	22	5'-0"	6'-8"	6'-9"	400	376	333	297	267	241	219	199	182	167	154	142	132	122	113
	20	5'-10"	7'-11"	8'-0"	400	400	368	329	296	267	243	222	203	187	173	160	148	138	128
	18	7'-1"	9'-4"	9'-7"	400	400	400	380	342	310	282	258	237	219	202	188	174	162	152
5 1/2"	22	4'-9"	6'-5"	6'-6"	400	400	373	332	299	270	245	223	204	188	173	160	148	137	-
	20	5'-8"	7'-7"	7'-8"	400	400	400	368	331	299	272	248	228	210	193	179	166	154	144
	18	6'-9"	9'-0"	9'-3"	400	400	400	400	383	347	316	289	266	245	226	210	195	182	170
6"	22	4'-7"	6'-2"	6'-3"	400	400	400	369	331	299	271	248	227	208	192	177	164	-	-
	20	5'-5"	7'-4"	7'-5"	400	400	400	400	367	332	302	276	253	232	214	198	184	171	159
	18	6'-6"	8'-8"	8'-11"	400	400	400	400	400	384	350	320	294	271	251	233	216	202	188

¹Shoring calculations are determined for stress and deflection criteria based on deck supporting dead load of concrete metal deck and 20 psf construction load or 150 lbs concentrated load plus additional weight of concrete to account for the possibility of concrete piling at unshored single span condition only (See ASCE 3-91). Dead load deflection limited to 1/180 of span or 3/4 inch, whichever is less. No allowance has been made for deflection of steel deck or support member.

²Exterior or end deck supports must provide a minimum 2-inch bearing length. Interior supports must provide a minimum 4-inch bearing length.

³Support reactions due to dead loads and construction live loads before curing of concrete must not exceed the Allowable Web Crippling values (P_n/Ω_w) set forth in Table 3.

⁴Total slab depth is the depth from top of concrete to bottom of deck.

⁵One row of shoring required at midspan length longer than the maximum unshored clear span.

TABLE 22—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 1.5VLI DECK WITH PHOSPHATIZED / PAINTED FINISH WITH LIGHT WEIGHT (110 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	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"	12'-0"
3 1/2"	22	6'-4"	8'-3"	8'-5"	325	288	235	211	190	173	157	144	133	123	113	105	98	90	81
	20	7'-6"	9'-6"	9'-10"	356	316	284	257	211	191	175	160	148	136	126	118	110	102	96
	18	9'-3"	11'-2"	11'-7"	400	362	325	294	268	246	227	186	172	159	148	138	128	120	108
4"	22	6'-0"	7'-11"	8'-0"	378	309	274	245	221	201	183	168	154	143	132	123	114	107	98
	20	7'-1"	9'-6"	9'-7"	400	368	330	271	245	222	203	186	171	158	147	137	127	119	111
	18	8'-8"	11'-1"	11'-5"	400	400	376	341	310	285	235	216	199	184	171	159	149	139	130
4 1/2"	22	5'-8"	7'-7"	7'-8"	400	354	315	282	254	231	210	193	177	164	152	141	131	122	114
	20	6'-9"	9'-0"	9'-2"	400	400	378	311	281	255	233	213	197	182	168	157	146	136	128
	18	8'-3"	10'-8"	10'-11"	400	400	400	390	355	294	269	247	228	211	196	182	170	159	149
4 3/4"	22	5'-7"	7'-5"	7'-6"	400	378	335	300	271	246	224	205	189	174	162	150	140	130	122
	20	6'-7"	8'-10"	8'-11"	400	400	370	331	299	272	248	227	209	194	180	167	156	145	136
	18	8'-0"	10'-5"	10'-8"	400	400	400	400	378	313	286	263	243	224	208	194	181	170	159
5"	22	5'-5"	7'-3"	7'-4"	400	400	356	319	288	261	238	218	201	185	172	160	149	139	130
	20	6'-6"	8'-8"	8'-9"	400	400	393	352	318	289	263	242	223	206	191	177	165	155	145
	18	7'-10"	10'-3"	10'-6"	400	400	400	400	400	333	304	279	258	238	221	206	193	180	169
5 1/4"	22	5'-2"	6'-11"	7'-0"	400	400	400	376	340	308	281	258	237	219	203	188	175	164	153
	20	6'-1"	8'-2"	8'-3"	400	400	400	400	375	340	311	285	263	243	225	209	195	182	171
	18	7'-5"	9'-8"	9'-11"	400	400	400	400	400	392	359	329	304	281	261	243	227	213	199

See Table 21 footnotes.

TABLE 23—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 1.5VLI DECK WITH GALVANIZED FINISH WITH LIGHT WEIGHT (110 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	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"	12'-0"
3 1/2"	22	6'-4"	8'-3"	8'-5"	278	247	199	177	160	145	132	120	110	102	94	87	81	75	70
	20	7'-6"	9'-6"	9'-10"	305	271	243	220	177	161	146	134	123	114	105	97	91	84	79
	18	9'-3"	11'-2"	11'-7"	350	311	279	252	230	211	194	156	144	133	123	114	107	100	93
4"	22	6'-0"	7'-11"	8'-0"	324	261	231	207	186	168	153	140	128	118	109	101	94	87	82
	20	7'-1"	9'-6"	9'-7"	355	315	283	228	206	187	170	156	143	132	122	113	105	98	92
	18	8'-8"	11'-1"	11'-5"	400	360	323	292	266	244	197	181	167	154	143	132	123	115	108
4 1/2"	22	5'-8"	7'-7"	7'-8"	372	299	265	237	213	193	176	161	148	136	125	116	108	100	94
	20	6'-9"	9'-0"	9'-2"	400	361	324	262	236	214	195	178	164	151	140	130	121	112	105
	18	8'-3"	10'-8"	10'-11"	400	400	369	334	305	248	226	207	191	176	163	152	141	132	123
4 3/4"	22	5'-7"	7'-5"	7'-6"	396	319	283	253	227	206	187	171	157	145	134	124	115	107	100
	20	6'-7"	8'-10"	8'-11"	400	385	312	279	252	228	208	190	175	161	149	138	129	120	112
	18	8'-0"	10'-5"	10'-8"	400	400	393	356	324	264	241	221	203	188	174	162	151	141	132
5"	22	5'-5"	7'-3"	7'-4"	386	339	300	269	242	219	199	182	167	154	142	132	122	114	106
	20	6'-6"	8'-8"	8'-9"	400	400	332	297	267	242	221	202	186	171	158	147	137	127	119
	18	7'-10"	10'-3"	10'-6"	400	400	400	378	344	280	256	234	216	199	185	172	160	149	140
5 1/4"	22	5'-2"	6'-11"	7'-0"	400	400	355	317	285	258	235	215	197	182	168	156	145	135	125
	20	6'-1"	8'-2"	8'-3"	400	400	391	350	315	286	261	239	219	202	187	174	162	151	141
	18	7'-5"	9'-8"	9'-11"	400	400	400	400	364	330	301	276	254	235	218	203	189	176	165

See Table 21 footnotes.

TABLE 24—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 2VLI DECK WITH PHOSPHATIZED / PAINTED OR GALVANIZED FINISH WITH NORMAL WEIGHT (145 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"
4"	22	6'-11"	9'-2"	9'-5"	216	187	164	144	128	114	101	91	81	73	66	59	53	-	-
	20	8'-4"	10'-7"	10'-11"	275	244	218	161	142	127	114	102	92	83	75	68	61	55	50
	19	9'-6"	11'-9"	12'-2"	298	264	237	213	157	141	126	113	102	93	84	76	69	63	57
	18	10'-6"	12'-10"	12'-9"	316	280	251	226	205	187	135	122	110	99	90	82	74	68	62
4 1/2"	22	6'-7"	8'-9"	8'-11"	243	211	184	162	144	127	114	102	91	82	74	66	60	54	-
	20	7'-10"	10'-1"	10'-5"	309	274	205	180	160	142	127	114	103	93	84	76	68	62	56
	19	9'-0"	11'-2"	11'-7"	335	297	266	240	176	157	141	127	114	103	94	85	77	70	64
	18	9'-11"	12'-2"	12'-3"	353	313	280	253	229	168	151	135	122	110	100	91	82	75	68
5"	22	6'-3"	8'-4"	8'-6"	272	236	206	181	160	142	127	114	102	91	82	74	66	60	54
	20	7'-5"	9'-7"	9'-11"	346	261	229	202	179	159	142	128	115	103	93	84	76	69	62
	19	8'-6"	10'-9"	11'-1"	374	332	297	221	197	175	157	141	127	115	104	95	86	78	71
	18	9'-5"	11'-8"	11'-11"	393	349	312	281	210	187	167	150	135	122	111	101	92	83	76
5 1/2"	22	6'-0"	8'-0"	8'-2"	302	262	229	201	178	158	141	126	113	101	91	82	74	66	60
	20	7'-1"	9'-3"	9'-6"	385	290	254	224	198	177	158	142	127	115	104	94	85	77	69
	19	8'-2"	10'-3"	10'-7"	400	368	278	245	218	195	174	157	141	128	116	105	95	86	78
	18	9'-0"	11'-2"	11'-7"	400	386	345	262	233	208	184	166	150	135	123	111	101	92	84
6"	22	5'-9"	7'-5"	7'-11"	333	289	252	222	196	174	155	139	124	112	100	90	81	73	66
	20	6'-10"	8'-10"	9'-2"	367	319	280	247	219	195	174	156	140	127	114	103	93	84	76
	19	7'-10"	9'-11"	10'-3"	400	400	306	270	240	214	192	173	156	141	127	115	105	95	86
	18	8'-7"	10'-9"	11'-1"	400	400	380	288	255	226	203	182	165	149	135	123	111	101	92
6 1/2"	22	5'-8"	6'-11"	7'-7"	364	316	276	243	215	191	170	152	136	122	110	99	89	80	-
	20	6'-8"	8'-7"	8'-10"	400	350	306	270	240	213	191	171	154	139	125	113	102	92	84
	19	7'-7"	9'-7"	9'-10"	400	381	335	296	263	234	210	189	170	154	139	126	115	104	95
	18	8'-5"	10'-5"	10'-9"	400	400	356	313	277	247	222	199	180	163	148	134	122	111	101
16	8'-8"	10'-7"	11'-0"	400	400	400	374	277	247	222	199	180	163	148	134	122	111	101	

See Table 21 footnotes.

TABLE 25—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 2VLI DECK WITH PHOSPHATIZED / PAINTED OR GALVANIZED FINISH WITH LIGHT WEIGHT (110 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"
5"	22	7'-8"	9'-11"	10'-3"	251	196	172	153	136	122	110	99	90	82	74	68	62	57	52
	20	9'-2"	11'-6"	11'-10"	275	244	218	196	151	135	122	110	100	91	83	76	70	64	59
	19	10'-6"	12'-9"	13'-2"	298	264	237	213	194	177	135	122	111	101	92	85	78	71	66
	18	11'-7"	13'-11"	13'-7"	316	280	251	226	205	187	172	158	119	108	99	90	83	76	70
5 1/2"	22	7'-3"	9'-6"	9'-10"	284	221	194	172	153	137	123	111	101	92	83	76	69	63	58
	20	8'-8"	11'-0"	11'-4"	309	274	246	190	170	152	137	124	113	102	93	85	78	72	66
	19	10'-0"	12'-3"	12'-8"	335	297	266	240	218	167	151	137	124	113	103	95	87	80	73
	18	11'-0"	13'-3"	13'-1"	353	313	280	253	229	209	192	146	132	120	110	101	92	85	78
6"	22	6'-11"	9'-2"	9'-5"	283	247	217	192	171	153	138	125	113	102	93	85	77	71	65
	20	8'-3"	10'-6"	10'-11"	346	307	275	213	190	170	153	139	126	114	104	95	87	80	73
	19	9'-6"	11'-9"	12'-2"	374	332	297	268	208	186	168	152	138	126	115	106	97	89	82
	18	10'-6"	12'-9"	12'-8"	393	349	312	281	255	233	180	162	146	133	122	112	103	94	87
6 1/4"	22	6'-9"	8'-11"	9'-2"	298	260	229	203	181	162	146	131	119	108	98	89	82	75	68
	20	8'-1"	10'-4"	10'-8"	365	324	253	224	200	180	162	146	133	121	110	101	92	84	77
	19	9'-3"	11'-6"	11'-11"	395	350	313	282	219	197	177	161	146	133	121	111	102	94	86
	18	10'-3"	12'-6"	12'-6"	400	367	329	296	269	209	189	170	154	140	128	118	108	99	91
6 1/2"	22	6'-8"	8'-9"	9'-0"	314	274	241	214	190	170	153	138	125	114	103	94	86	78	72
	20	7'-11"	10'-2"	10'-6"	385	341	266	236	211	189	170	154	140	127	116	106	97	89	81
	19	9'-1"	11'-4"	11'-8"	400	368	330	297	230	207	187	169	154	140	128	117	107	99	91
	18	10'-0"	12'-3"	12'-4"	400	386	345	311	283	220	198	178	162	148	135	124	113	104	96
7 1/4"	22	6'-3"	8'-4"	8'-7"	362	316	278	247	220	197	177	160	144	131	119	109	99	91	83
	20	7'-6"	9'-8"	9'-11"	400	349	307	273	243	218	197	178	161	147	134	122	112	103	94
	19	8'-7"	10'-9"	11'-1"	400	400	380	297	265	238	215	195	177	161	147	135	124	114	105
	18	9'-5"	11'-8"	11'-11"	400	400	397	358	282	252	226	205	186	170	155	142	131	120	111
16	9'-9"	11'-11"	12'-4"	400	400	397	358	325	297	226	205	186	170	155	142	131	120	111	

See Table 21 footnotes.

TABLE 26—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 3VLI DECK WITH GALVANIZED FINISH WITH NORMAL WEIGHT (145 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"
5"	22	8'-9"	10'-7"	11'-4"	109	96	85	76	67	60	53	-	-	-	-	-	-	-	-
	20	10'-4"	12'-9"	13'-2"	172	157	106	95	85	76	68	61	55	50	-	-	-	-	-
	19	11'-9"	14'-2"	14'-7"	195	178	163	151	101	91	82	74	67	61	55	-	-	-	-
	18	12'-10"	15'-5"	15'-0"	216	197	181	167	155	144	95	86	79	72	65	60	54	-	-
5 1/2"	22	8'-4"	9'-8"	10'-10"	118	104	92	81	72	64	57	50	-	-	-	-	-	-	-
	20	9'-10"	12'-2"	12'-7"	188	128	114	102	91	81	73	65	59	52	-	-	-	-	-
	19	11'-2"	13'-6"	14'-0"	212	194	178	120	108	97	88	79	72	65	58	53	-	-	-
	18	12'-4"	14'-9"	14'-7"	235	214	197	181	168	112	101	92	84	76	69	63	57	52	-
6"	22	8'-0"	8'-10"	10'-1"	127	112	99	87	77	69	61	54	-	-	-	-	-	-	-
	20	9'-4"	11'-8"	12'-0"	156	138	123	110	98	87	78	70	63	56	50	-	-	-	-
	19	10'-7"	13'-0"	13'-5"	231	211	145	130	116	105	94	85	77	69	62	56	51	-	-
	18	11'-9"	14'-2"	14'-2"	256	233	214	197	133	121	109	99	90	81	74	67	61	55	50
6 1/2"	22	7'-8"	8'-3"	9'-4"	138	121	107	94	83	74	65	57	51	-	-	-	-	-	-
	20	9'-0"	11'-2"	11'-7"	169	150	133	118	106	94	84	75	67	60	-	-	-	-	-
	19	10'-2"	12'-6"	12'-11"	251	229	156	140	126	113	102	92	83	74	67	60	54	-	-
	18	11'-3"	13'-8"	13'-10"	278	253	233	160	144	130	118	106	96	87	79	72	65	59	53
7"	22	7'-5"	7'-8"	8'-8"	149	131	115	102	90	79	70	62	54	-	-	-	-	-	-
	20	8'-9"	10'-10"	11'-2"	183	162	143	128	114	102	91	81	72	64	57	51	-	-	-
	19	9'-11"	12'-1"	12'-5"	272	189	169	151	135	122	109	99	89	80	72	65	58	52	-
	18	10'-11"	13'-2"	13'-6"	301	274	192	173	155	140	127	115	104	94	85	77	70	63	57
7 1/2"	22	7'-3"	7'-2"	8'-2"	161	141	124	110	97	85	75	66	-	-	-	-	-	-	-
	20	8'-6"	10'-2"	10'-9"	197	174	154	137	122	109	98	87	78	69	61	54	-	-	-
	19	9'-8"	11'-8"	12'-1"	229	204	182	163	146	131	118	106	95	86	77	69	62	56	50
	18	10'-8"	12'-9"	13'-2"	324	296	207	186	167	151	136	123	111	101	91	83	75	68	61
7 1/4"	22	7'-0"	7'-10"	9'-4"	138	121	107	94	83	74	65	57	51	-	-	-	-	-	-
	20	8'-4"	10'-8"	11'-1"	169	150	133	118	106	94	84	75	67	60	-	-	-	-	-
	19	9'-6"	11'-10"	12'-3"	251	229	156	140	126	113	102	92	83	74	67	60	54	-	-
	18	10'-8"	12'-11"	13'-4"	278	253	233	160	144	130	118	106	96	87	79	72	65	59	53

See Table 21 footnotes.

TABLE 27—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 3VLI DECK WITH GALVANIZED FINISH LIGHT WEIGHT (110 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)														
		1 Span	2 Span	3 Span	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"
5"	22	9'-9"	12'-0"	12'-5"	167	124	111	100	91	82	75	68	62	56	52	-	-	-	-
	20	11'-6"	13'-11"	14'-4"	196	179	164	151	111	101	92	84	77	71	65	60	55	51	-
	19	13'-1"	15'-5"	15'-7"	222	202	186	171	159	147	108	99	91	84	77	71	66	61	56
	18	13'-8"	16'-10"	16'-0"	246	225	206	190	176	164	153	143	104	96	89	82	76	71	66
5 1/2"	22	9'-3"	11'-6"	11'-11"	150	134	120	108	98	89	80	73	66	61	55	50	-	-	-
	20	10'-11"	13'-4"	13'-9"	214	195	179	132	119	109	99	90	83	76	70	64	59	54	50
	19	12'-5"	14'-10"	15'-1"	241	220	202	187	173	127	116	106	98	90	83	76	70	65	60
	18	13'-3"	16'-2"	15'-7"	267	244	224	207	191	178	166	121	111	103	95	88	81	75	70
6"	22	8'-10"	10'-9"	11'-5"	163	146	131	118	106	96	87	79	72	65	59	54	-	-	-
	20	10'-5"	12'-10"	13'-3"	233	213	158	143	129	118	107	98	89	82	75	69	63	58	53
	19	11'-11"	14'-3"	14'-8"	263	240	220	203	151	137	125	115	105	97	89	82	76	70	65
	18	12'-11"	15'-7"	15'-1"	291	265	244	225	208	193	142	131	120	111	102	95	87	81	75
6 1/4"	22	8'-8"	10'-4"	11'-2"	170	152	136	122	110	100	91	82	75	68	62	56	51	-	-
	20	10'-3"	12'-7"	13'-0"	243	222	165	149	135	122	111	102	93	85	78	71	66	60	55
	19	11'-7"	14'-0"	14'-6"	274	251	230	212	157	143	131	120	110	101	93	85	79	73	67
	18	12'-9"	15'-3"	14'-11"	303	277	254	234	217	202	148	136	125	115	106	98	91	84	78
6 1/2"	22	8'-6"	10'-0"	11'-0"	177	158	142	127	115	104	94	85	78	71	64	58	53	-	-
	20	10'-0"	12'-4"	12'-9"	254	190	171	155	140	127	116	106	97	88	81	74	68	62	57
	19	11'-5"	13'-9"	14'-3"	286	261	240	221	163	149	136	124	114	105	96	89	82	75	70
	18	12'-7"	15'-0"	14'-9"	316	288	265	244	226	168	154	141	130	120	110	102	94	87	81
7 1/4"	22	8'-1"	9'-1"	10'-4"	199	178	159	143	129	117	106	96	87	79	72	-	-	-	-
	20	9'-6"	11'-9"	12'-2"	286	214	192	174	157	143	130	119	108	99	91	83	76	70	64
	19	10'-9"	13'-2"	13'-7"	322	294	270	201	183	167	152	139	127	117	108	99	91	84	78
	18	11'-10"	14'-4"	14'-3"	355	324	298	275	206	189	173	158	146	134	124	114	106	98	90
7 1/2"	22	7'-0"	7'-10"	9'-4"	138	121	107	94	83	74	65	57	51	-	-	-	-	-	-
	20	8'-4"	10'-8"	11'-1"	169	150	133	118	106	94	84	75	67	60	-	-	-	-	-
	19	9'-6"	11'-10"	12'-3"	251	229	156	140	126	113	102	92	83	74	67	60	54	-	-
	18	10'-8"	12'-11"	13'-4"	278	253	233	160	144	130	118	106	96	87	79	72	65	59	53

See Table 21 footnotes.

TABLE 28—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 3VLI DECK WITH PHOSPHATIZED / PAINTED FINISH WITH NORMAL WEIGHT (145 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

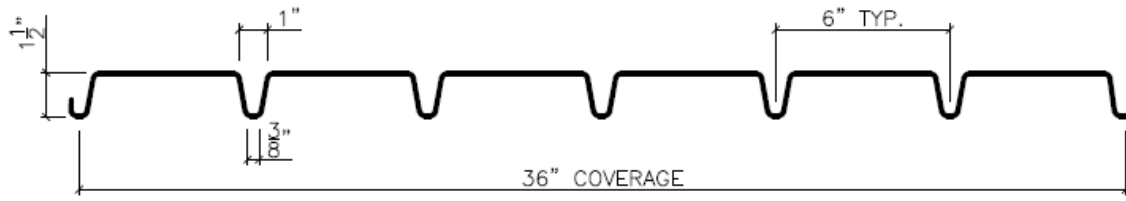
Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)															
		1 Span	2 Span	3 Span	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	
5"	22	8'-9"	10'-7"	11'-4"	141	125	112	100	90	81	73	66	59	53						
	20	10'-4"	12'-9"	13'-2"	209	191	137	123	111	101	91	83	75	69	62	57	52			
	19	11'-9"	14'-2"	14'-7"	237	216	199	183	131	119	108	99	90	83	76	69	64	58	53	
	18	12'-10"	15'-5"	15'-0"	263	240	220	203	188	175	124	114	104	96	88	81	74	69	63	
5 1/2"	22	8'-4"	9'-8"	10'-10"	152	135	121	108	97	87	78	70	63	57	51					
	20	9'-10"	12'-2"	12'-7"	228	165	148	133	120	108	98	89	81	73	66	60	55	50		
	19	11'-2"	13'-6"	14'-0"	258	236	216	156	141	128	116	106	97	88	81	74	67	62	56	
	18	12'-4"	14'-9"	14'-7"	286	261	239	221	204	146	133	121	111	102	94	86	79	73	67	
6"	22	8'-0"	8'-10"	10'-1"	165	147	131	117	105	94	84	76	68	61	55					
	20	9'-4"	11'-8"	12'-0"	200	179	160	144	129	117	106	96	87	79	71	65	59	53		
	19	10'-7"	13'-0"	13'-5"	281	257	187	168	152	138	125	114	104	95	87	79	72	66	60	
	18	11'-9"	14'-2"	14'-2"	311	284	260	240	173	157	143	131	120	110	101	92	85	78	71	
6 1/2"	22	7'-8"	8'-3"	9'-4"	179	159	142	126	113	101	91	81	73	66	59	52				
	20	9'-0"	11'-2"	11'-7"	217	194	173	156	140	126	114	103	94	85	77	70	63	57	51	
	19	10'-2"	12'-6"	12'-11"	306	279	202	182	164	149	135	123	112	102	93	85	78	71	64	
	18	11'-3"	13'-8"	13'-10"	337	308	283	206	187	170	155	141	129	118	108	99	91	84	77	
7"	22	7'-5"	7'-8"	8'-8"	194	172	153	137	122	109	98	88	79	70	63	56	50			
	20	8'-9"	10'-10"	11'-2"	235	209	187	168	151	136	123	111	101	91	83	75	68	61	55	
	19	9'-11"	12'-1"	12'-5"	331	243	218	197	178	161	146	133	121	110	100	91	83	76	69	
	18	10'-11"	13'-2"	13'-6"	365	334	247	223	202	183	167	152	139	127	117	107	98	90	82	
7 1/2"	22	7'-3"	7'-2"	8'-2"	209	185	165	147	131	118	105	94	85	76	68	60	54			
	20	8'-6"	10'-2"	10'-9"	253	226	202	181	163	147	132	120	108	98	89	80	72	65	59	
	19	9'-8"	11'-8"	12'-1"	293	262	235	212	191	173	157	143	130	118	108	98	90	82	74	
	18	10'-8"	12'-9"	13'-2"	394	360	266	240	217	197	180	164	150	137	125	115	105	96	88	
7 1/4"	22	11'-0"	12'-10"	13'-4"	400	400	395	365	272	248	227	208	191	176	162	150	138	128	118	

See Table 21 footnotes.

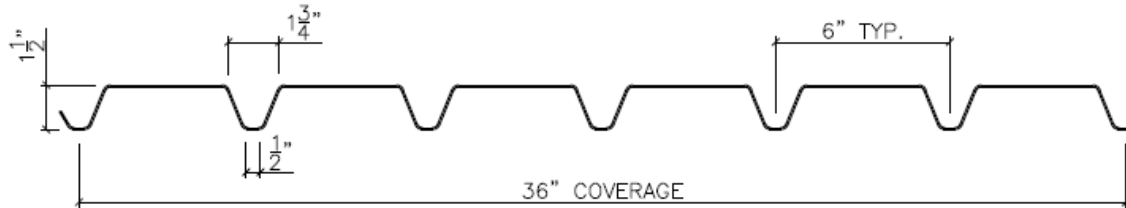
TABLE 29—ALLOWABLE SUPERIMPOSED LOAD (psf) FOR 3VLI DECK WITH PHOSPHATIZED / PAINTED FINISH WITH LIGHT WEIGHT (110 pcf) CONCRETE (f'c=3000 psi)^{1,2,3}

Total Slab Depth ⁴	Deck Gauge	Maximum Unshored Span ⁵			Span (feet-inch)															
		1 Span	2 Span	3 Span	8'-0"	8'-6"	9'-0"	9'-6"	10'-0"	10'-6"	11'-0"	11'-6"	12'-0"	12'-6"	13'-0"	13'-6"	14'-0"	14'-6"	15'-0"	
5"	22	9'-9"	12'-0"	12'-5"	143	101	91	81	73	66	60	54								
	20	11'-6"	13'-11"	14'-4"	167	153	140	129	90	82	74	68	62	56	51					
	19	13'-1"	15'-5"	15'-7"	190	173	159	146	136	126	88	80	73	67	62	57	52			
	18	13'-8"	16'-10"	16'-0"	210	192	176	163	150	140	130	122	84	78	71	66	61	56	52	
5 1/2"	22	9'-3"	11'-6"	11'-11"	123	110	98	88	79	71	64	58	52							
	20	10'-11"	13'-4"	13'-9"	183	167	153	108	97	88	80	72	66	60	55	50				
	19	12'-5"	14'-10"	15'-1"	206	188	173	159	148	104	94	86	79	72	66	60	55	51		
	18	13'-3"	16'-2"	15'-7"	228	209	191	177	163	152	142	98	90	83	76	70	65	59	55	
6"	22	8'-10"	10'-9"	11'-5"	134	119	106	95	85	77	69	62	56	50						
	20	10'-5"	12'-10"	13'-3"	199	182	130	117	105	95	86	78	71	65	59	53				
	19	11'-11"	14'-3"	14'-8"	225	205	186	174	123	112	102	93	85	77	71	65	59	54	50	
	18	12'-11"	15'-7"	15'-1"	249	227	208	192	178	165	116	106	97	89	82	75	69	64	59	
6 1/4"	22	8'-8"	10'-4"	11'-2"	140	124	111	99	89	80	72	65	58	52						
	20	10'-3"	12'-7"	13'-0"	208	190	135	121	109	99	90	81	74	67	61	55	50			
	19	11'-7"	14'-0"	14'-6"	235	214	197	181	128	116	106	96	88	80	74	67	62	56	52	
	18	12'-9"	15'-3"	14'-11"	259	237	217	200	185	172	121	110	101	93	85	78	72	66	61	
6 1/2"	22	8'-6"	10'-0"	11'-0"	145	129	115	103	92	83	75	67	60	54						
	20	10'-0"	12'-4"	12'-9"	217	157	140	126	114	103	93	84	77	70	63	57	52			
	19	11'-5"	13'-9"	14'-3"	244	223	205	189	133	121	110	100	91	83	76	70	64	58	53	
	18	12'-7"	15'-0"	14'-9"	270	247	226	209	193	138	126	115	105	96	88	81	75	69	63	
7 1/4"	22	13'-0"	15'-2"	15'-7"	324	296	271	250	232	215	201	188	134	123	114	105	97	90	83	
	20	8'-1"	9'-1"	10'-4"	163	145	129	116	104	93	84	75	68	61	54					
	19	9'-6"	11'-9"	12'-2"	244	176	158	142	128	115	104	95	86	78	71	64	58	53		
	18	10'-9"	13'-2"	13'-7"	275	251	231	165	150	136	123	112	102	93	85	78	71	65	60	
7 1/2"	22	11'-10"	14'-4"	14'-3"	304	277	255	235	170	154	141	128	117	108	99	91	83	77	70	
	16	12'-3"	14'-6"	14'-11"	364	332	305	281	260	242	226	163	149	138	127	117	109	100	93	

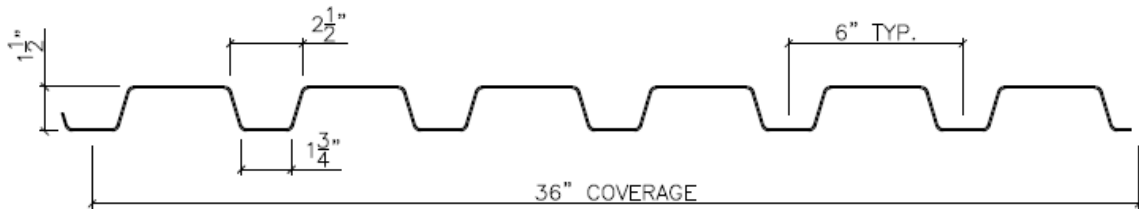
See Table 21 footnotes.



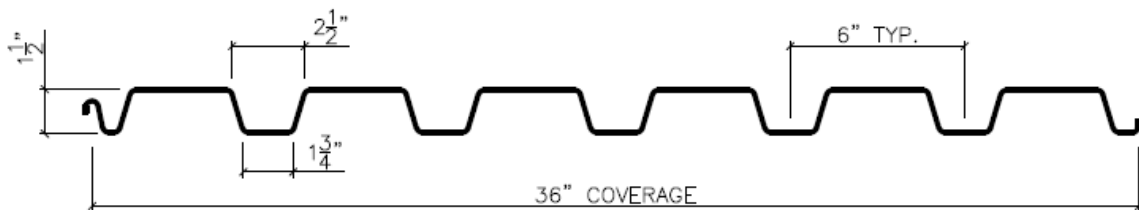
TYPE: 1.5A



TYPE: 1.5F

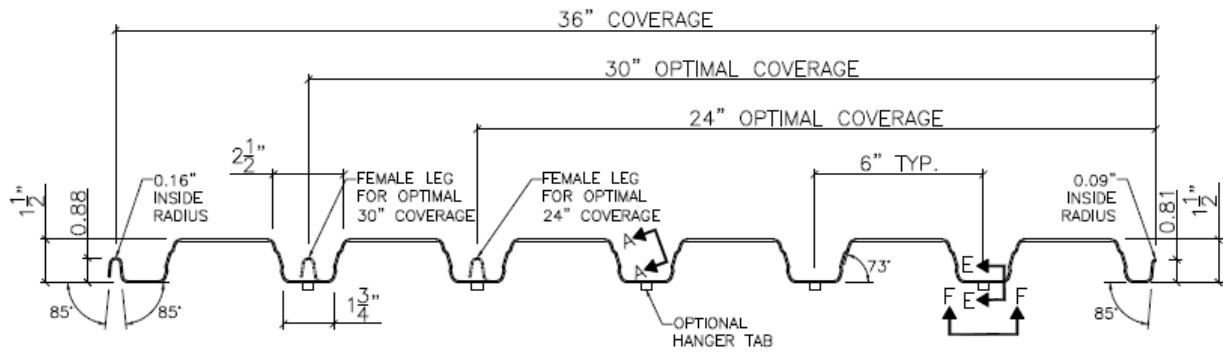


TYPE: 1.5B



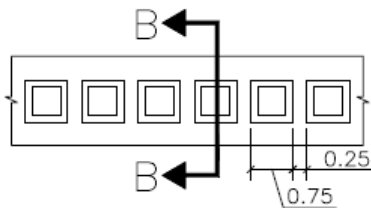
TYPE: 1.5BI

FIGURE 1—1.5A, 1.5F, 1.5B AND 1.5BI STEEL DECK PROFILES

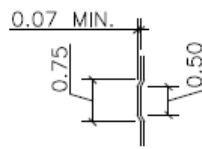


TYPE: 1.5VLI

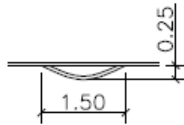
Note: The optional hanger tabs are outside the scope of this report and have not been evaluated.



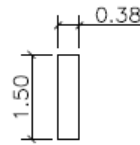
DETAIL: A



DETAIL: B



DETAIL: E

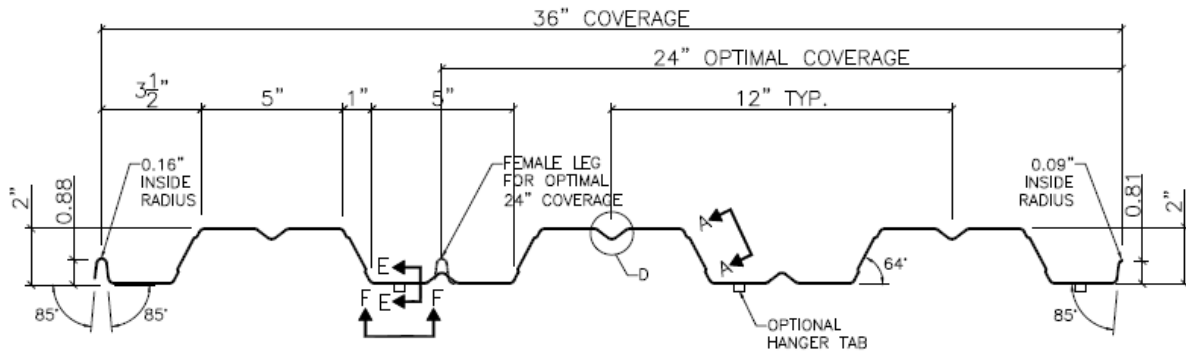


DETAIL: F

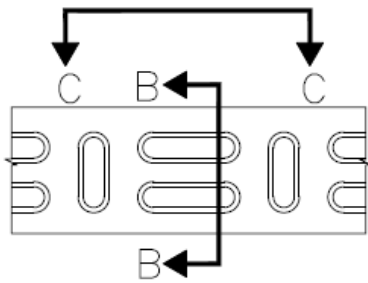
NOTES:

- 1.) INSIDE BEND RADII ARE $\frac{3}{16}$ -INCH UNLESS NOTED OTHERWISE.
- 2.) ALL DIMENSIONS SHOWN ARE MEASURED TO THE CENTERLINE OF MATERIAL.
- 3.) SEE TABLE 2 FOR GAGE THICKNESS.

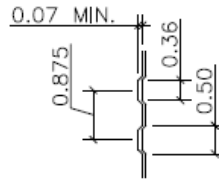
FIGURE 2—1.5VLI STEEL DECK PROFILES



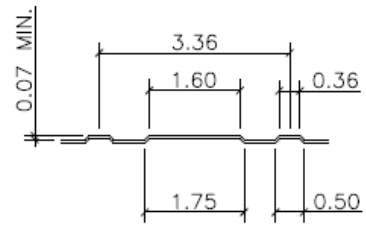
TYPE: 2VLI



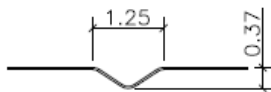
DETAIL: A



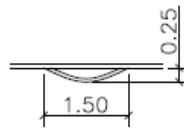
DETAIL: B



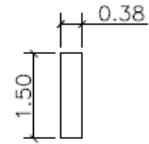
DETAIL: C



DETAIL: D



DETAIL: E

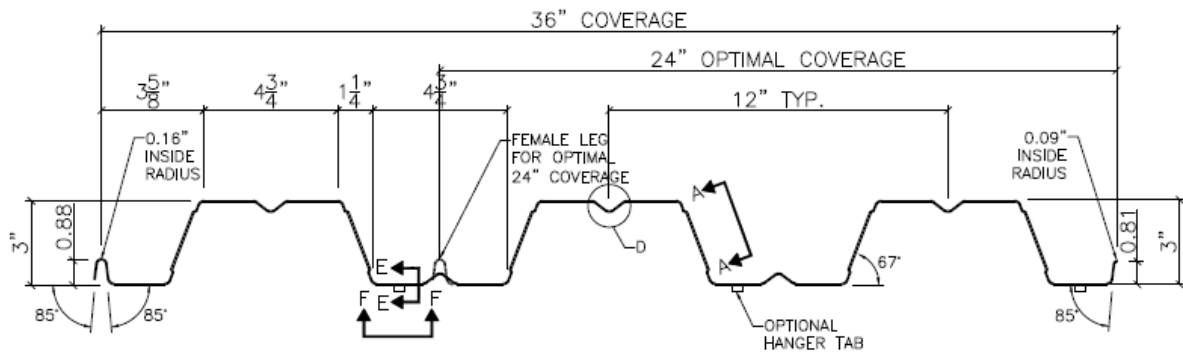


DETAIL: F

NOTES:

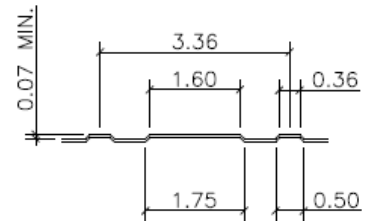
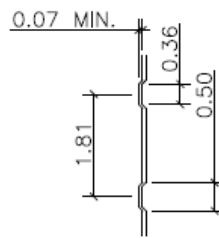
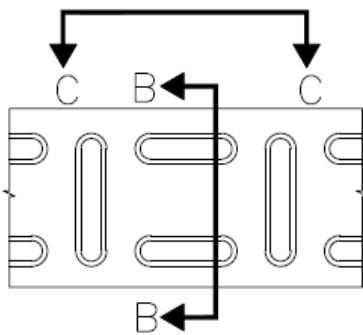
- 1.) INSIDE BEND RADII ARE $\frac{3}{16}$ -INCH UNLESS NOTED OTHERWISE.
- 2.) ALL DIMENSIONS SHOWN ARE MEASURED TO THE CENTERLINE OF MATERIAL.
- 3.) SEE TABLE 2 FOR GAGE THICKNESS.

FIGURE 3—2VLI STEEL DECK PROFILES



TYPE: 3VLI

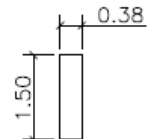
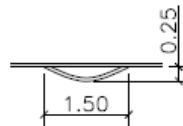
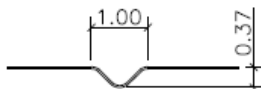
Note: The optional hanger tabs are outside the scope of this report and have not been evaluated.



DETAIL: A

DETAIL: B

DETAIL: C



DETAIL: D

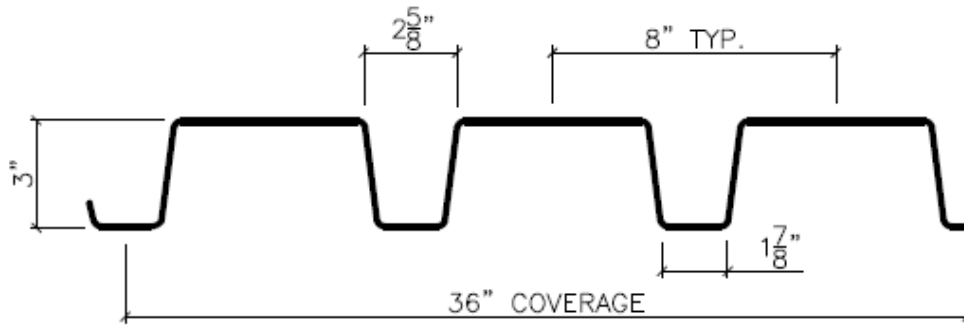
DETAIL: E

DETAIL: F

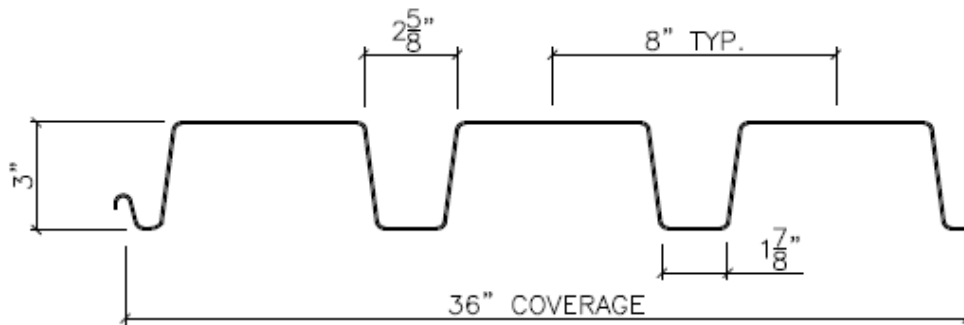
NOTES:

- 1.) INSIDE BEND RADII ARE $\frac{3}{16}$ -INCH UNLESS NOTED OTHERWISE.
- 2.) ALL DIMENSIONS SHOWN ARE MEASURED TO THE CENTERLINE OF MATERIAL.
- 3.) SEE TABLE 2 FOR GAGE THICKNESS.

FIGURE 4—3VLI STEEL DECK PROFILES



TYPE: 3N



TYPE: 3NI

FIGURE 5—3N AND 3NI STEEL DECK PROFILES