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RESEARCH REPORT: RR 23789  
(CSI #05310)

BASED UPON ICBO ES EVALUATION  
REPORT NO. 2078P

REEVALUATION DUE DATE:  
December 1, 2007

**GENERAL APPROVAL** - Reevaluation - Verco Steel Decks.

**DETAILS**

The above assemblies and/or products are approved when in compliance with the description, use, identification and findings of Report No. 2078P, December 1, 2002, of the ICBO Evaluation Service, Incorporated. The report, in its entirety, is attached and made part of this general approval.

**The approval is subject to the following conditions:**

1. Those parts of ICBO ES Report No. 2078P marked with asterisks in the attached copy are excluded or modified in this report as follows:
  - a. Tables Nos. 9, 10 and 33 are not included in this approval.
  - b. Items No. 2.4.4.2 and 2.5.2 for 1 and 2 hour fire-resistive decks with Zonolite insulating concrete are approved for use with the Vercor Type decks and with other galvanized decks with a minimum depth of 1½". See ICBO ES Evaluation Report ER-3260.
2. The deck units shall be galvanized when exposed to weather.
3. Admixtures containing calcium chloride or other corrosive materials shall not be used in the concrete mix for the slab.

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4. Continuous inspection by City of Los Angeles registered deputy building inspectors for concrete shall be provided during the mixing and placing of the concrete for the slab.
5. Prior to placement of the concrete for the slab, the steel deck units shall be cleaned and oil, grease and other materials which may adversely affect the bonding of the concrete to the deck shall be removed.
6. In structures with long term live loads (i.e., warehouses, computer rooms, file rooms, etc.), the allowable loads in the tables shall be reduced to account for creep in the concrete. Allowable loads shall be computed using a modular ratio of  $3n$ , where " $n$ " is defined as the ratio of the modulus of elasticity of the steel to the modulus of elasticity of the concrete.
7. Composite action shall not be assumed for deck construction with electrical trench headers.

## DISCUSSION

A two year reevaluation is requested by the petitioner due to pending ICBO ES report change.

The report is based on test.

Addressee to whom this Research Report is issued is responsible for providing copies of it, complete with any attachments indicated, to architects, engineers and builders using items approved herein in design or construction which must be approved by Department of Building and Safety Engineers and Inspectors.

This general approval will remain effective provided the Evaluation Report is maintained valid and unrevised with the issuing organization. Any revisions to the report must be submitted to this Department, with appropriate fee, for review in order to continue the approval of the revised report.

This general approval of an equivalent alternate to the Code is only valid where an engineer and/or inspector of this Department has determined that all conditions of this approval have been met in the project in which it is to be used.

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VC:elem  
RR23789/wp8.0  
R10/11/05  
1A1/1A2/2B1/2B2/2D1/2D2/2F4/2202.1/710

Attachment: ICBO ES Evaluation Report No. 2078P (8 Pages) & Tables (57 pages)

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**Filing Category: ROOF, WALL AND FLOOR PANELS—Steel****VERCO STEEL DECKS**

**VERCO MANUFACTURING CO.**  
**4340 NORTH 42<sup>ND</sup> AVENUE**  
**PHOENIX, ARIZONA 85019**

**1.0 SUBJECT**

Verco Steel Decks

**2.0 DESCRIPTION**

The Verco steel decks described in this report comply with the Specification for the Design of Cold-Formed Steel Structural Members, 1986 (with December 1989 Addendum), as referenced in Division VII of the 1997 *Uniform Building Code*™ (UBC), and the Specification for the Design of Cold-Formed Steel Structural Members, 1996 edition, as referenced in Section 2205 of the 2000 *International Building Code*® (IBC).

**2.1 Deck Types:**

**2.1.1 General:** The decks are cold-formed from steel sheets with galvanized, primer-painted, or mill finishes. All galvanizing shall comply with ASTM A 924. A suffix number indicates a deck cover width—for example, B-24 indicates a deck cover width of 24 inches (610 mm). The suffix “SS” indicates deck provided with extended female lip.

**2.1.2 Types PLB, HSB, HSB-CD, PLN, N, and N-24CD Roof Decks, and PLB, B, BCD, BR, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok Decks:** The decks are available as galvanized, primer-painted, or mill-finished. Galvanized steel decks shall be formed from ASTM A 653, SS Grade 33 (minimum), steel, while the primer-painted and mill-finished steel decks shall be formed from either ASTM A 611, Grade C (minimum), steel; ASTM A 1008, SS Grade 33 (minimum), steel; or ASTM A 1008 HSLAS, Class 1 or Class 2, Grade 45 (minimum), steel. All steels have a minimum yield strength of 38,000 psi (262 MPa).

**2.1.3 1<sup>5</sup>/<sub>16</sub>-inch Vercor and 1<sup>5</sup>/<sub>16</sub>-inch Vercor Ventlok Decks:** The decks are galvanized steel formed from steel complying with ASTM A 653, SS Grade 80, with a minimum 80,000 psi (551 MPa) yield strength; or primer-painted or mill-finished steel that complies with ASTM A 611, Grade E, or ASTM A 1008, SS Grade 80, with a minimum yield strength of 80,000 psi (551 MPa).

The Vercor galvanized decks are permitted to be used for diaphragm purposes when a lightweight concrete fill, having a minimum 2-inch (51 mm) depth above the top flute, is applied. The lightweight concrete must conform to the following specifications:

1. Oven-dry weight, 25 to 30 pounds per cubic foot (400 to 480 kg/m<sup>3</sup>).
2. One-to-six mix by volume of cement to aggregate.
3. Aggregate shall comply as a Group I aggregate per ASTM C 332.
4. The lightweight concrete must be tested in accordance with “Tests of Compressive Strength of Lightweight Insulating Concrete,” ASTM C 495, and must have a 3-inch-diameter-by-6-inch-high (76 mm by 152 mm) cylinder compressive strength of at least 140 pounds per square inch (965 kPa).

Vercor deck, when formed from galvanized steel, primer-painted or mill-finished, is permitted as a diaphragm without concrete fill as described in Table 29.

**2.1.4 PunchLok™ System:** The PunchLok™ system consists of PLB and PLN roof decks and PLB, PLN, PLW2, and PLW3 Formlok decks connected at sidelaps with the Verco Manufacturing Co. proprietary connection. The Verco sidelap connection, referred to as the VSC, is an interlocking connection between the male and female lips of the decks listed above. The VSC connection is permitted to be made in either direction relative to the female lip. An acceptable VSC connection has been made when the sidelap material has been sheared and offset so the sheared surface of the steel deck male leg is visible. This punched portion measures <sup>5</sup>/<sub>8</sub> inch (15.9 mm) nominal width by <sup>3</sup>/<sub>8</sub> inch (9.5 mm) nominal height. The PunchLok™ systems must be installed in accordance with Verco instructions. The resulting VSC connection is illustrated in Figure 11.

Allowable diaphragm shears and flexibility factors for PLW2 and PLW3 Formlok deck without concrete and with sidelaps connected with the VSC connections are shown in Tables 15 and 17.

Allowable diaphragm shears and flexibility factors for PLB and PLN roof or Formlok deck without structural concrete fill, using sidelaps connected with the VSC connections, are shown in Tables 19 and 24. The ends of the PLB and PLN deck shall be lapped a minimum of 2 inches (51 mm).

**2.1.5 PLB™-36 Deck with the PunchLok™ System Fastened with Hilti Pins:** This system consists of PLB-36 deck fastened to the structural supports with Hilti X-EDN19-THQ12 or X-EDNK22-THQ12 power-actuated fasteners. Deck sidelaps shall be connected with the VSC connections described in Section 2.1.4. The ends of the PLB-36 deck shall be lapped a minimum of 2 inches (51 mm).

Fasteners connecting the deck to structural steel supports shall be centered not less than 1 inch (25 mm)

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from the ends of the sheets. The Hilti fasteners have a dome-style head and a  $1\frac{5}{32}$ -inch-diameter (11.8 mm) steel flat washer and a steel top-hat washer. The X-EDN19-THQ12 fastener has a brass-colored top-hat washer, and the X-EDNK22-THQ12 fastener has a silver-colored top-hat washer. All fasteners have an electroplated zinc coating. ICBO ES evaluation report ER-4373 has additional information on the Hilti fasteners.

Allowable diaphragm shears and flexibility factors for PLB-36 roof deck fastened to supports with Hilti X-EDN19-THQ12 or X-EDNK22-THQ12 fasteners, with sidelaps connected with the VSC connections, are shown in Table 27. The appropriate Hilti fastener is selected based on the actual substrate thickness, with the tabulated values adjusted as noted in the table footnotes. Allowable tension loads for the Hilti fasteners are shown in Table 2. Proper penetration of the Hilti fasteners into structural supports is shown in Figure 7.

**2.1.6 PLB™-36 Deck with the PunchLok™ System Fastened with Pneutek® Pins:** This system consists of PLB-36 deck fastened to the structural supports with Pneutek SDK61075, SDK63075, K64062, K66062, or K66075 fasteners. Deck sidelaps are connected with the VSC connections described in Section 2.1.4. The ends of the PLB-36 deck shall be lapped a minimum of 2 inches (51 mm).

Fasteners connecting the deck to structural steel supports shall be centered not less than 1 inch (25 mm) from the ends of the sheets. The Pneutek fasteners have  $\frac{1}{2}$ -inch-diameter (12.7 mm) heads. All fasteners are mechanical zinc or zinc electro-chromate plated. See ICBO ES evaluation report ER-3829 for additional information on the Pneutek fasteners.

Allowable diaphragm shears and flexibility factors for PLB-36 roof deck fastened to supports with Pneutek SDK61075, SDK63075, K64062, K66062, or K66075 fasteners, with sidelaps connected with the VSC connections, are shown in Table 28. The appropriate Pneutek fastener is selected based on the actual substrate thickness as noted in the table headings. Allowable shear values for Pneutek fasteners installed parallel to deck flutes and allowable tension loads are shown in Table 3. Fasteners must be driven such that there is tight contact between the fastener head and the attached panels. See Figure 8.

**2.1.7 SHEARTRANZ® II:** The system consists of No. 14 gage [0.070 inch (1.78 mm)] ShearTranz II-42 or No. 16 gage [0.0598 inch (1.52 mm)] ShearTranz II restraining elements, which are formed from steels, described in Section 2.1.2, with a minimum yield strength of 33,000 psi (228 MPa). The No. 14 gage ShearTranz II-42 units are used with PLB-36 decks, and the No. 16 gage ShearTranz II units are used with HSB-36 decks at shear collecting support elements perpendicular to the deck corrugations. No skewing of deck to collector supports is permitted. In addition to the standard details, the conditions described below may require the SHEARTRANZ II-42 or SHEARTRANZ II elements.

The first condition occurs with decks cantilevered over deck supports. In this condition, the SHEARTRANZ II-42 or SHEARTRANZ II element is installed as shown in Figure 5.

The second condition occurs when the deck ends abut at interior supports. In this condition, the top flanges of SHEARTRANZ II-42 or SHEARTRANZ II elements are

centered over the butt joints. Allowable diaphragm shears and flexibility factors for ShearTranz II-42 and PLB-36 deck, with sidelaps connected with the VSC connection, are shown in Table 21. Allowable diaphragm shears and flexibility factors for ShearTranz II and HSB-36 deck with button punched or top seam welded sidelaps are shown in Table 22. Installation details are shown in Figure 5.

**2.1.8 SHEARTRANZ®:** This system consists of a special end support connection weld with No. 16 gage [0.0598 inch (1.52 mm)] Z- or channel-shaped sections for use with N-24, HSB-30 or HSB-36 decks. The sections shall be formed from steels described in Section 2.1.2 of this report, with a minimum yield strength of 33,000 psi (228 MPa). The SHEARTRANZ® element is used only at shear collecting members perpendicular to the corrugations. All end laps at supports must be at least 2 inches (51 mm) and fastened to supports with arc spot puddle welds, as required by design. Details are shown in Tables 23 and 26 and in Figure 6.

**2.1.9 System 80:** This system consists of galvanized HSB-30 or HSB-36 steel decks, SHEARTRANZ element and one of the lightweight concrete systems in Item 1 or Item 2 below. Where required, positive venting of the HSB-30 and HSB-36 deck is accomplished through use of either Ventlok-type deck or vent tabs in the interior bottom flanges of the deck, spaced 6 inches (152 mm) on center. The lightweight concrete systems are:

1. Zonolite insulating concrete with or without Insulperm board, constructed according to ICBO ES evaluation report ER-3260.
2. Lightweight insulating concrete complying with specifications in Section 2.1.3 of this report.

Allowable diaphragm shear values are presented in Table 30.

**2.1.10 Acoustical Deck:** PLB, HSB, PLN, and N types are available as acoustical deck. See Figure 2 for perforation patterns. Data in Tables 19 thru 28 also apply to the acoustical versions. Acoustical uses are limited to nonfire-resistive assemblies.

**2.1.11 Acoustical Cellular Deck:** HSB-CD and N-24CD roof decks and BCD, NCD, W2CD, and W3CD Formlok decks are available with acoustical perforations in the flat bottom plate. Perforations are  $\frac{5}{32}$  inch (4mm) in diameter on  $\frac{7}{16}$ -inch (11.1 mm) staggered centers. The nominal widths of the perforated bands, which are centered under the top flanges of the fluted top sections, are: HSB-CD/BCD—3.6 inches (91 mm); N-24CD/NCD—5.5 inches (140 mm); W2CD and W3CD—6.7 inches (170 mm).

## 2.2 Design:

**2.2.1 General:** Section properties and minimum design base-metal thicknesses are shown in Tables 4 and 6, and deck profiles are shown in Figures 1 and 3.

The tables accompanying this report describe allowable diaphragm shear values for each roof and composite deck type and superimposed loads for each composite deck type. The General Notes on the tables provide additional information.

Allowable tension for arc spot welds is determined by Equation E2.2-8 or Equation E2.2.2-1 of the AISI Specification for the Design of Cold-Formed Steel Structural Members (AISI), referenced in the applicable code.

Allowable tension loads for Hilti X-EDN19-THQ12 or X-EDNK22-THQ12 fasteners are shown in Table 2. Allowable tension loads for Pneutek SDK61075, SDK63075, K64062, K66062, and K66075 fasteners are shown in Table 3.

Allowable tension loads for the ITW/Buildex TRAXX 3, 4 and 5 and TEKS 3, 4 and 5 self-drilling screws with 0.415-inch-diameter (10.5 mm) washer heads, using  $1\frac{5}{16}$ -inch (33 mm) Vercor deck, are as noted in Footnote 7 of Table 29.

**2.2.2 Concrete Diaphragms with Shear Connectors:** Concrete diaphragms with shear connector studs may be used with Types PLB, B, BR, BCD, PLW2, W2, W2CD, PLW3, W3, W3CD, PLN, N, NCD and  $1\frac{5}{16}$ -inch Vercor deck types. Details are shown in Table 14. Deck flutes are perpendicular to steel supports. Shear connector studs may replace required arc spot welds.

**2.2.3 Composite Decks for Floors and Roofs:** These decks are of the same material and finish as described above, but with various depths of concrete as set forth in the accompanying tables, and with web and flange embossments designated as Formlok.

Concrete is made with normal-weight rock or expanded shale aggregates and must have a minimum 28-day compressive strength of 3,000 psi (20.7 MPa). The minimum concrete fill thickness is 2 inches (51 mm) above the top of the steel deck.

The deck types used with concrete fill are as follows:

1. Types PLB-36 and B-36, BCD, and BR-24, -30, and -36 Formlok.
2. Types PLN-24 and N-24 and NCD Formlok.
3. Types PLW2-36, W2-36, W2CD, PLW3-36, W3-36, and W3CD Formlok.

Where bearing lengths at reaction points of decks do not comply with minimum values in Table 5, separate analysis for web crippling is required in accordance with Section 2230-C3.4 of the applicable AISI. Requirements in Table 5 apply to bare decks and to composite decks during the construction phase only, prior to the concrete's acquiring minimum compressive strength.

### 2.3 Installation:

Arc seam or arc spot (puddle) welds for field assembly of steel decking must have an effective fusion area of at least  $\frac{3}{8}$  inch by 1 inch (9.5 mm by 25 mm) or  $\frac{1}{2}$  inch (12.7 mm) in diameter, respectively. Seam welds are a minimum of  $1\frac{1}{2}$  inches (38 mm) long. Minimum E60XX filler metal is used. Other weld requirements must comply with AWS D 1.3-98. Connections using the PunchLok™ system are described in Sections 2.1.4 to 2.1.7.

### 2.4 Restrained Fire-resistive Ratings:

**2.4.1 Conditions of Restraint:** Interior spans of continuous composite slabs may be considered thermally restrained. For other conditions, evidence substantiating adequate thermal restraint, consistent with Section 703.2 of the UBC or Section 703.2.3 of the IBC, whichever is applicable, must be submitted to and approved by the building official.

**2.4.2 Vercor, Vercor Ventlok, PLB, B, PLN, N, PLW2, and W2:** Types Vercor, Vercor Ventlok, PLB, B, PLN, N, PLW2, and W2 decks are permitted to be used for a two-hour fire-resistive roof deck with exposed soffit, subject to the following conditions:

1. The fill type, thickness and construction are as set forth in Table 7-C of the UBC or Table 719.1(3) of the IBC, whichever is applicable.
2. The maximum clear span for No. 26 gage decks shall be limited to 6 feet, 8 inches (2032 mm), and for heavier gage decks to 8 feet, 6 inches (2590 mm).
3. The decks are attached to support structural elements as set forth in the tables accompanying this report.

**2.4.3 PLB, B, BCD, BR, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok:** Types PLB, B, BCD, BR, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok, when used with a structural concrete fill, shall have a two-hour fire-resistive rating with exposed underside when used as either a roof or floor, provided:

1. The maximum clear spans for PLB, B, BCD, and BR Formlok are limited to 12 feet (3658 mm), while the spans for PLW2, W2, W2CD, PLW3, W3, W3CD, PLN, N, and NCD Formlok are limited to 13 feet, 2 inches (4013 mm).
2. The minimum steel gage shall be No. 22 for fluted units and No. 20/20 for cellular units. Unit finishes may be galvanized, phosphatized/painted, or mill-finished.
3. No electrical raceways are placed in the concrete fill.
4. The minimum attachments are as follows:
  - a. All welds at each support shall be  $\frac{1}{2}$ -inch (12.7 mm) effective diameter arc spot (puddle) welds as required for diaphragm shears, but there shall be at least four welds for 30- and 36-inch-wide (762 and 914 mm) PLB, B, and BCD decks; three welds for 24-inch-wide (610 mm) decks; and one in each valley for PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok decks.

Where arc spot welds and shear studs coincide, the arc spot weld may be eliminated.

- b. Attachment to chords or struts shall be welds as required for diaphragm shear with concrete fill.
  - c. Sidelaps (seams) shall be button punched or welded at 3 feet (914 mm) on center, maximum. Sidelaps of PLB, PLN, PLW2, and PLW3 decks are permitted to be connected with the VSC connections described in Section 2.1.4 at 3 feet (914 mm) on center, maximum. For BR decks, use a  $1\frac{1}{2}$ -inch (38 mm) seam weld at 3 feet (914 mm) on center.
5. The concrete fill thickness above the deck top flange must be either  $3\frac{1}{4}$  inches (82 mm) for structural lightweight concrete having a unit weight of  $110 \pm 3$  pounds per cubic foot ( $1762 \pm 48$  kg/m<sup>3</sup>) and a 28-day compressive strength of 3,000 psi (20.7 MPa); or  $4\frac{1}{2}$  inches (114 mm) for normal-weight concrete having a unit weight of  $150 \pm 3$  pounds per cubic foot ( $2403 \pm 48$  kg/m<sup>3</sup>) and a 28-day compressive strength of 3,500 psi (24.1 MPa).
  6. The concrete fill is reinforced with minimum 6-by-6, W1.4-by-W1.4 welded-wire fabric, placed near the center of the concrete fill.

### 2.4.4 Additional Fire-resistive Ratings:

1. The following are additional restrained fire-resistive ratings for Types PLB, B, BCD, BR, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok decks:

- a. One-hour rating with  $2\frac{1}{2}$  inches (63.5 mm) of 3,000 psi (20.7 MPa) lightweight [110 pcf (1762 kg/mm<sup>3</sup>)] structural concrete, or  $3\frac{1}{2}$  inches (89 mm) of 3,500 psi (24.1 MPa) normal-weight [150 pcf (2403 kg/mm<sup>3</sup>)] concrete over top flute of deck.
  - b. Three-hour rating with  $4\frac{1}{4}$  inches (108 mm) of 3,000 psi (20.7 MPa) structural lightweight [110 pcf (1762 kg/mm<sup>3</sup>)] concrete over top flute of deck.
2. One- and two-hour restrained fire-resistive ratings for steel decking with Zonolite insulating concrete, with or without Insulperm insulation board, are described in current ICBO ES evaluation report ER-3260.

## 2.5 Unrestrained Fire-resistive Ratings:

**2.5.1 PLB, B, BCD, BR, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok:** Types PLB, B, BCD, BR, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok, when used with a structural concrete fill, have a fire-resistive rating with exposed underside as a floor or roof deck, provided:

1. The minimum steel gage shall be No. 22 for fluted units and No. 20/20 for cellular units.
2. Decks are attached as follows:
  - a. All welds at supports shall be  $\frac{1}{2}$ -inch (12.7 mm) effective diameter arc spot (puddle) welds as required for diaphragm shears, but there shall be at least four welds for 30- and 36-inch-wide (762 and 914 mm) PLB, B, and BCD; three welds for 24-inch-wide (610 mm) decks; and one in each valley for PLW2, W2, W2CD, PLW3, W3, and W3CD Formlok decks.
  - b. Attachment to chords or struts must be welds as required for decks with concrete fill to resist the diaphragm shear.
  - c. Sidelaps (seams) shall be button punched or welded at 3 feet (914 mm) on center, maximum. Sidelaps of PLB, PLN, PLW2, and PLW3 decks shall be connected with the VSC connections described in Section 2.1.4 at 3 feet (914 mm) on center, maximum. For BR decks,  $1\frac{1}{2}$ -inch (38 mm) seam welds at 3 feet (914 mm) on center shall be used.
3. The concrete fill must be structural lightweight concrete with expanded shale or slate aggregate and 4 to 7 percent entrained air. The unit weight of the concrete must be 110 pounds per cubic foot (1,762 kg/m<sup>3</sup>), with a minimum 28-day compressive strength,  $f'_c$ , of 3,000 psi (20.7 MPa). The thickness above the top flange of the deck is  $3\frac{1}{4}$  inches (82 mm).
4. The unrestrained assembly is assigned the same fire-resistive rating as the fire-resistive rating of the supporting steel beams, or a lesser rating.

**2.5.2 Steel Decking with Zonolite:** One-hour and two-hour unrestrained fire-resistive ratings for steel decking with Zonolite insulating concrete, with or without Insulperm insulation board, are described in current ICBO ES evaluation report ER-3260.

**2.5.3 Fireproofing Spray-applied to Deck:** Fire-resistive ratings with fireproofing material spray-applied to galvanized deck underside are described in current ICBO ES evaluation reports ER-1244, ER-4607 and ER-4818. In

addition, prime-painted Types PLB, B, BR, PLN, N, PLW2, W2, PLW3, and W3 decks can be sprayed with MK-6 (ICBO ES evaluation ER-4607), DC/F (ICBO ES evaluation report ER-1244) or CAFCO 300 (ICBO ES evaluation report ER-4818) fireproofing materials.

**2.5.4 Steel Deck, Spray-applied Fireproofing and Concrete Fill:** Fire-resistive ratings with Verco steel deck, spray-applied fireproofing and concrete fill are achieved with Fibermesh fibers substituted for welded-wire fabric in accordance with ICBO ES evaluation report ER-4811.

## 2.6 Special Inspection:

**2.6.1 Concrete:** Special inspection for concrete and concrete reinforcement is in accordance with Sections 1701.1 and 1701.4 of the UBC or Section 1704.4 of the IBC, whichever is applicable. The inspector's duties include sampling and testing, and verification of concrete mixes, reinforcement types and placement, and concrete placement.

**2.6.2 Welding:** Special inspection for welding is in accordance with Section 1701.5 of the UBC or Section 1704.3 of the IBC, whichever is applicable. Before proceeding, the welder must demonstrate his ability to produce the prescribed weld to the special inspector's satisfaction. The inspector's other duties include verification of materials, weld preparation, welding procedures and welding processes.

## 2.6.3 Additional Requirements for Installations under the IBC:

**2.6.3.1 Periodic Special Inspections:** 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 screws, power actuated fasteners, Verco sidelap connections and button punches. Periodic special inspections also apply where noted in Tables 1704.3 and 1704.4 of the IBC.

**2.6.3.2 Continous Special Inspections:** Continuous special inspections apply where noted in Tables 1704.3 and 1704.4 of the IBC.

**2.6.3.3 Quality Assurance Plan:** A quality assurance plan must be submitted to the building official as set forth in Sections 1705 and 1706 of the IBC. The plan must include the special inspection duties noted in Section 2.6.1 and 2.6.2.

## 2.7 Identification:

Each bundle of decking is marked with the Verco Manufacturing Co. name, the deck type, the gage, and the evaluation report number (ICBO ES ER-2078P). SHEARTRANZ<sup>®</sup> pieces are stamped with "SHEARTRANZ<sup>®</sup>," SHEARTRANZ<sup>®</sup> II-42 pieces are stamped "SHEARTRANZ II-42", and SHEARTRANZ<sup>®</sup> II pieces are stamped "SHEARTRANZ II." All Sheartranz pieces also are labeled with the Verco Manufacturing Co. name and the evaluation report number (ER-2078P). Hilti, Pneutek, and ITW fasteners are identified in accordance with ER-4373, ER-3829 and ER-3056, respectively.

## 3.0 EVIDENCE SUBMITTED

Data in accordance with the ICBO ES Acceptance Criteria for Steel Decks (AC43), dated January 2002.

#### 4.0 FINDINGS

That the Verco Steel Decks described in this report comply with the 1997 *Uniform Building Code*<sup>™</sup> and the 2000 *International Building Code*<sup>®</sup> for use as wall, floor and/or roof systems to resist vertical and horizontal forces, subject to the following conditions:

4.1 Composite sections are not used for loads that are predominantly vibratory.

4.2 Where used as diaphragms:

4.2.1 The one-third stress increase (or 0.75 reduction of the resulting forces) permitted for Allowable Stress Design in the building code for load combinations containing wind or seismic forces shall not be used for shear values in the diaphragm tables.

4.2.2 Allowable shear values are as set forth in the tables accompanying this report for the type of deck involved.

4.2.3 Diaphragm deflections shall not exceed the permitted relative deflections of walls between the diaphragm level and the floor below. The flexibility limitations shown in Table 7 may be used as a guide in lieu of a rational analysis of the anticipated deflections.

4.2.4 Diaphragms may be zoned by varying deck gage and/or connections across a diaphragm to meet varying shear and flexibility demands.

4.3 Vertical load design without a concrete fill is based on the section properties in Tables 4 and 6 of this report. Allowable reaction based on web crippling is based on Table 5 of this report.

4.4 Special inspection is provided in accordance with Section 2.6.

4.5 Fire-resistive assemblies are assumed to be unrestrained unless evidence substantiating adequate thermal restraint is submitted to and approved by the building official. See Section 2.4.1.

4.6 The decks are manufactured and installed in accordance with this report.

4.7 Allowable loads and deflections are as set forth in this report. Calculations demonstrating that the applied loads comply with this report shall be submitted to the building official for approval.

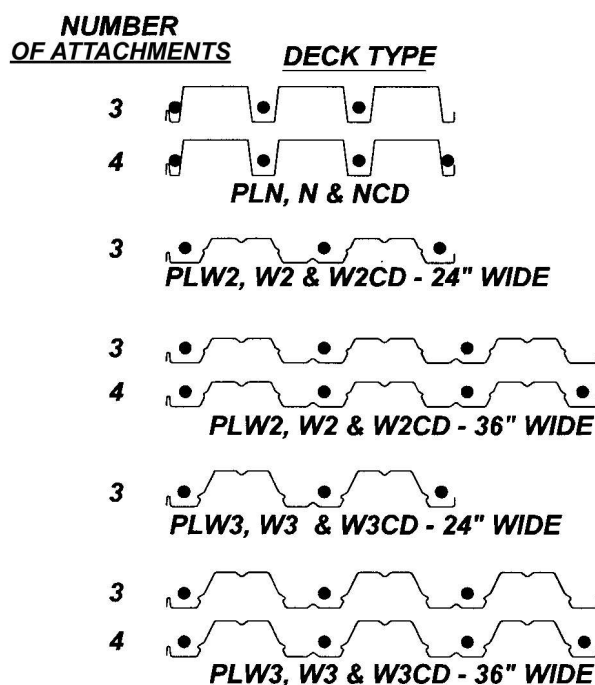
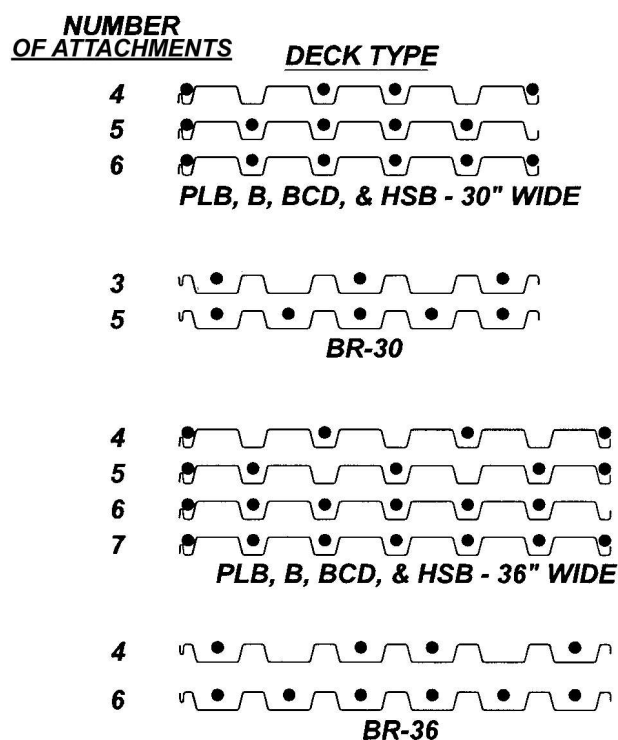
This report is subject to re-examination in two years.

**General Notes:** The following notes apply to all of the accompanying tables dated December 1, 2002, unless otherwise noted:

1. The allowable values for composite decks shown in the tables are applicable to either phosphatized/painted or galvanized decks, and the allowable values shown for roof decks are applicable to either painted, mill-finished, or galvanized decks unless specifically noted.
2. The allowable diaphragm shears listed in the tables are in pounds per linear foot.
3. The base-metal thickness for all decks is indicated in Tables 4 and 6. Thickness tolerances for all decks and Sheartranz elements shall comply with Section A3.4 of the AISI.
4. Deck panel sidelaps (seams) may be connected with the PunchLok™ VSC connections, welds, or button punches, as indicated in the evaluation report. The length of seam welds shall be a minimum of  $1\frac{1}{2}$  inches (38 mm). The standing seam joint, where required, shall be fastened at 3 feet (914 mm) on center, maximum.

Deck panel sidelaps (seams) may be fastened with self-tapping, self-drilling steel screws in place of button punches without affecting the shear and flexibility factors, under the following conditions:

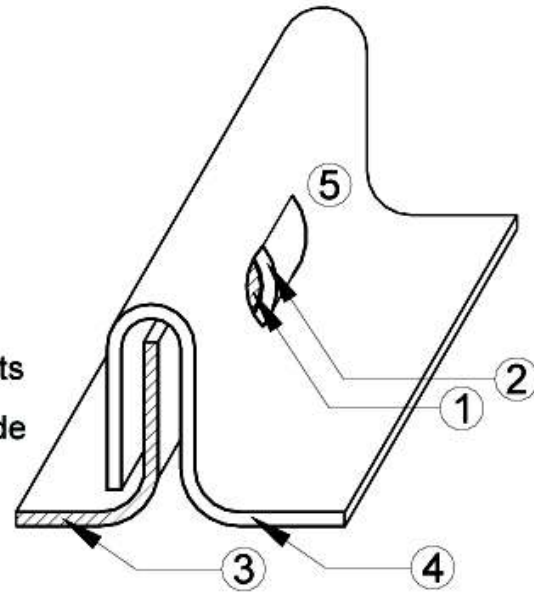
- a. The screw size is minimum No. 10, with a minimum  $\frac{3}{4}$ -inch (19.1 mm) length.
  - b. The screw spacing is identical to the tabulated button-punch spacing.
  - c. The deck material thickness is at least No. 22 gage (0.0276 inch base-metal thickness).
5. Arc seam or arc spot (puddle) welds shall have an effective fusion area to supporting members at least equivalent to  $\frac{3}{8}$  inch (9.5 mm) wide by 1 inch (25 mm) long, or  $\frac{1}{2}$  inch (12.7 mm) in diameter.
  6. End attachment patterns for the Types PLB, B, BCD, BR, HSB, PLN, N, NCD, PLW2, W2, W2CD, PLW3, W3, and W3CD are shown below. See Tables 31 and 32 for  $1\frac{5}{16}$ -inch Vercor and  $1\frac{5}{16}$ -inch Vercor Ventlok deck end welds. See Figure 5 for SHEARTRANZ II-42 and SHEARTRANZ II, Figure 6 for SHEARTRANZ and System 80, and Figure 9 for  $1\frac{5}{16}$ -inch Vercor fastened with screws.





7. Spacing of attachments to collector elements parallel to flutes:
- Arc spot puddle welds to members such as chords and to collector elements such as struts or ties shall have a spacing in feet (mm) equal to  $35,000(t) \div v$  [For **SI**:  $6,130(t) \div v$ ],  
where:  
 $t$  = Uncoated steel thickness of fluted deck, in inches (mm).  
 $v$  = Actual diaphragm shear at boundary supports or actual shear transferred to collector (at struts or ties), in pounds per foot (N/mm). Allowable diaphragm shear values in pounds per foot are set forth in Table 1.
  - Fillet welds are permitted to be used to attach the diaphragm to parallel members such as diaphragm chords, struts, ties, or other collector elements. Allowable capacity of fillet welds is determined in accordance with Section 2.2.2 of AWS D1.3-98. Spacing of the welds shall be based on the actual shear to be transferred.
  - The spacing of Hilti fasteners at collectors parallel to deck flutes shall be the same as the spacing of the sidelap connections. If the required shear transfer between the deck and an interior collector element parallel to the deck flutes exceeds the shear strength of the diaphragm, two Hilti fasteners shall be spaced the same as the sidelap fasteners.
  - Pneutek fasteners are permitted to be used to attach the diaphragm to parallel members such as diaphragm chords, struts, ties or other collector elements, with spacing based on the allowable shear strength of the specific fastener, substrate thickness, and deck gage combination used.
  - The attachment spacing is 3 feet (914 mm), maximum.
8. For attachments at interior lines of shear transfer perpendicular to deck corrugations: The shear transfer from a diaphragm to interior tie or strut lines perpendicular to deck corrugations shall not exceed the shear values indicated in the tables. Two lines of connections of the type appropriate to the table (welds, pins, ShearTranz II-42, ShearTranz II, or ShearTranz) may be used to develop the actual shear transfer to these collector elements.
9. Where individual panels are cut, the partial panel shall be fastened in a manner to fully transfer the shears at the point of the diaphragm to the adjacent full panels for the values specified in the tables.
10. The minimum 28-day compressive strength for structural concrete shall be 3,000 psi (20.7 MPa), and unit weight shall be as indicated in the tables. The minimum depth of concrete shall be 2 inches (51 mm) over the top flange, and it is reinforced with a minimum 6-by-6, W1.4-by-W1.4 welded-wire fabric. The reinforcement shall be placed near the center of the fill over the top flange. Where concrete fill depth exceeds  $3\frac{1}{4}$  inches (82 mm), welded-wire fabric with an area equal to 0.00083 times the area of concrete fill over the metal deck, is required.
11. All decks with structural concrete fill may be considered rigid diaphragms ( $F \leq 1$ ). Table 7 describes flexibility categories.
12. For decks with structural concrete fill, the diaphragm shear values and flexibility factors apply to deck sections with or without embossments.
13. For decks with structural concrete fill, the diaphragm shear values and flexibility factors apply whether or not the sidelaps are attached.
14. For **SI** dimensions, the following conversions apply:  
 1 inch = 25.4 mm; 1 lbf/ft = 14.6 N/m = 0.0146 N/mm; 1 in<sup>2</sup> = 645.16 mm<sup>2</sup>; 1 in<sup>3</sup> = 16 387.06 mm<sup>3</sup>; 1 in<sup>4</sup> = 4 162 314 mm<sup>4</sup>;  
 1 psi = 6.89 kPa; 1 ft = 3048 mm; 1 pcf = 16,018 kg/m<sup>3</sup>; 1 psf = 0.0479 kN/m<sup>2</sup>; 1 lbf = 4.45 N.

- ① Sheared surface of male leg.
- ② Sheared surface of female leg.
- ③ Male leg / sheet.
- ④ Female leg / sheet.
- ⑤ PunchLok™ system connection - as shown, deformation of male & female sheets projects towards female sheet, but VSC may be made in either direction.



## **Verco Sidelap Connection (VSC)**

### **Verco™ PunchLok™ System**

FIGURE 11

December 1, 2002

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**TABLE 1—ALLOWABLE DIAPHRAGM SHEAR VALUES (plf) FOR ARC SPOT OR ARC SEAM WELDS  
PARALLEL TO DECK FLUTES FOR ALL DECKS EXCEPT VERCOR<sup>1,2,3,4,5</sup>**

| GAGE | PROFILE                      | BASE METAL<br>THICKNESS<br>(in.) | PUDDLE WELD SPACING (in.) |      |      |      |
|------|------------------------------|----------------------------------|---------------------------|------|------|------|
|      |                              |                                  | 6                         | 9    | 12   | 18   |
| 22   | PLW3 & W3 FORMLOK            | 0.029                            | 2030                      | 1353 | 1015 | 677  |
|      | B & N                        | 0.0299                           | 2093                      | 1395 | 1047 | 698  |
|      | PLW2 & W2 FORMLOK            | 0.03                             | 2100                      | 1400 | 1050 | 700  |
| 21   | PLW2, W2, PLW3, & W3 FORMLOK | 0.033                            | 2310                      | 1540 | 1155 | 770  |
|      | PLW3 & W3 FORMLOK            | 0.035                            | 2450                      | 1633 | 1225 | 817  |
| 20   | B & N                        | 0.0359                           | 2513                      | 1675 | 1257 | 838  |
|      | PLW2 & W2 FORMLOK            | 0.036                            | 2520                      | 1680 | 1260 | 840  |
|      | PLW2, W2, PLW3, & W3 FORMLOK | 0.042                            | 2940                      | 1960 | 1470 | 980  |
| 18   | PLW2, W2, PLW3, & W3 FORMLOK | 0.047                            | 3290                      | 2193 | 1645 | 1097 |
|      | B & N                        | 0.0478                           | 3346                      | 2231 | 1673 | 1115 |
|      | PLW2, W2, PLW3, & W3 FORMLOK | 0.059                            | 4130                      | 2753 | 2065 | 1377 |
| 16   | B & N                        | 0.0598                           | 4186                      | 2791 | 2093 | 1395 |

<sup>1</sup> "B" - PLB, HSB, PLB & HSB Acoustical, and PLB & B Formlok

"N" - PLN, N, PLN & N Acoustical, and PLN & N-Formlok

<sup>2</sup> See General Note No. 7.a to determine shear values for other weld spacings.

<sup>3</sup> The minimum arc spot weld effective fusion diameter,  $d_o$ , is 1/2 inch. The minimum arc seam weld effective fusion width,  $d_o$ , is 3/8 inch. The minimum arc seam weld length is 1 inch excluding circular ends. See AWS D 1.3-98 for details.

<sup>4</sup> Details, workmanship technique and qualification of welds must comply with AWS D 1.3-98.

<sup>5</sup> Allowable values may not be increased one-third for wind or earthquake loading.

**TABLE 2—ALLOWABLE TENSION LOADS (lb) FOR HILTI FASTENERS  
SUBJECT TO WIND UPLIFT FORCES FOR B AND N DECK<sup>1,2</sup>**

| SUBSTRATE<br>THICKNESS (in.) | HILTI FASTENER<br>DESIGNATION | ALLOWABLE TENSION LOADS (lb) |              |              |              |
|------------------------------|-------------------------------|------------------------------|--------------|--------------|--------------|
|                              |                               | DECK GAGE & THICKNESS (in.)  |              |              |              |
|                              |                               | 22<br>0.0299                 | 20<br>0.0359 | 18<br>0.0478 | 16<br>0.0598 |
| 0.313 to 3/8                 | X-EDN19-THQ12                 | 382                          | 459          | 519          | 519          |
| 0.250 to 0.313               | X-EDN19-THQ12                 | 382                          | 426          | 426          | 426          |
| 0.188 to 0.250               | X-EDNK22-THQ12                | 382                          | 459          | 502          | 502          |
| 1/8 to 0.188                 | X-EDNK22-THQ12                | 382                          | 396          | 396          | 396          |

<sup>1</sup> "B" - PLB, HSB, PLB & HSB Acoustical, and PLB & B Formlok

"N" - PLN, N, PLN & N Acoustical, and PLN & N-Formlok

<sup>2</sup> Allowable tension loads are the lesser value of the allowable pullover or pullout loads for the deck gage, fastener, and substrate thickness combination.

**TABLE 3—ALLOWABLE SHEAR VALUES (lb) FOR PNEUTEK FASTENERS  
PARALLEL TO DECK FLUTES AND TENSION LOADS (lb) FOR PNEUTEK FASTENERS  
SUBJECT TO WIND UPLIFT FORCES FOR B AND N DECK<sup>1,2,3,4</sup>**

| SUBSTRATE<br>THICKNESS (in.) | PNEUTEK<br>FASTENER<br>DESIGNATION | ALLOWABLE SHEAR VALUES (lb) |              |              |              | ALLOWABLE TENSION LOADS (lb) |              |              |              |
|------------------------------|------------------------------------|-----------------------------|--------------|--------------|--------------|------------------------------|--------------|--------------|--------------|
|                              |                                    | DECK GAGE & THICKNESS (in.) |              |              |              | DECK GAGE & THICKNESS (in.)  |              |              |              |
|                              |                                    | 22<br>0.0299                | 20<br>0.0359 | 18<br>0.0478 | 16<br>0.0598 | 22<br>0.0299                 | 20<br>0.0359 | 18<br>0.0478 | 16<br>0.0598 |
| 0.281 and thicker            | K66062 or K66075                   | 733                         | 880          | 1171         | 1465         | 411                          | 494          | 657          | 818          |
| 0.187 to 0.312               | K64062                             |                             |              |              |              | 411                          | 494          | 657          | 671          |
| 0.155 to 0.250               | SDK63075                           |                             |              |              |              | 411                          | 470          | 470          | 470          |
| 0.113 to 0.155               | SDK61075                           | 477                         | 573          | 763          | 954          | 373                          | 373          | 373          | 373          |

<sup>1</sup> "B" - PLB, HSB, PLB & HSB Acoustical, and PLB & B Formlok

"N" - PLN, N, PLN & N Acoustical, and PLN & N-Formlok

<sup>2</sup> Allowable shear strength per SDK61075 fastener for substrate thicknesses between 0.113 and 0.155 may be determined by the formula: Allowable Shear Value (in lb) =  $(8500 + 66,000 \times t_{\text{SUBSTRATE}}) \times t_{\text{DECK}}$  where thicknesses ( $t_{\text{SUBSTRATE}}$  and  $t_{\text{DECK}}$ ) are expressed in inches.

<sup>3</sup> Allowable shear values may not be increased one-third for wind or earthquake loading.

<sup>4</sup> Allowable tension loads are the lesser value of the allowable pullover or pullout loads for the deck gage, fastener, and substrate thickness combination.

TABLE 4-SECTION PROPERTIES (Per Foot of Width)

| DECK TYPE                                                    | GAGE | BASE METAL THICKNESS (in.) | I, FOR DEFLECTION <sup>1</sup> (in. <sup>4</sup> per foot) | SECTION MODULUS <sup>2</sup> (in. <sup>3</sup> per foot) |                 |
|--------------------------------------------------------------|------|----------------------------|------------------------------------------------------------|----------------------------------------------------------|-----------------|
|                                                              |      |                            |                                                            | POSITIVE MOMENT                                          | NEGATIVE MOMENT |
| 1 5/16" VERCOR <sup>3</sup>                                  | 26   | 0.0195                     | 0.073                                                      | 0.099                                                    | 0.103           |
|                                                              | 24   | 0.0254                     | 0.098                                                      | 0.138                                                    | 0.140           |
|                                                              | 22   | 0.0314                     | 0.123                                                      | 0.175                                                    | 0.174           |
|                                                              | 20   | 0.0374                     | 0.143                                                      | 0.207                                                    | 0.206           |
| PLB, HSB, PLB & B FORMLOK, PLB & HSB ACOUSTICAL <sup>4</sup> | 22   | 0.0299                     | 0.175                                                      | 0.187                                                    | 0.198           |
|                                                              | 20   | 0.0359                     | 0.216                                                      | 0.235                                                    | 0.248           |
|                                                              | 18   | 0.0478                     | 0.302                                                      | 0.322                                                    | 0.335           |
|                                                              | 16   | 0.0598                     | 0.377                                                      | 0.411                                                    | 0.417           |
| PLN, N, and PLN & N ACOUSTICAL <sup>5</sup>                  | 22   | 0.0299                     | 0.655                                                      | 0.394                                                    | 0.454           |
|                                                              | 20   | 0.0359                     | 0.837                                                      | 0.508                                                    | 0.562           |
|                                                              | 18   | 0.0478                     | 1.223                                                      | 0.731                                                    | 0.776           |
|                                                              | 16   | 0.0598                     | 1.647                                                      | 0.950                                                    | 1.005           |
| PLN & N FORMLOK <sup>4</sup>                                 | 22   | 0.0299                     | 0.613                                                      | 0.361                                                    | 0.446           |
|                                                              | 20   | 0.0359                     | 0.780                                                      | 0.466                                                    | 0.548           |
|                                                              | 18   | 0.0478                     | 1.146                                                      | 0.664                                                    | 0.737           |
|                                                              | 16   | 0.0598                     | 1.542                                                      | 0.851                                                    | 0.914           |
| PLW2 & W2 FORMLOK <sup>4</sup>                               | 22   | 0.030                      | 0.340                                                      | 0.283                                                    | 0.287           |
|                                                              | 21   | 0.033                      | 0.382                                                      | 0.321                                                    | 0.328           |
|                                                              | 20   | 0.036                      | 0.423                                                      | 0.361                                                    | 0.370           |
|                                                              | 19   | 0.042                      | 0.508                                                      | 0.442                                                    | 0.453           |
|                                                              | 18   | 0.047                      | 0.555                                                      | 0.510                                                    | 0.511           |
|                                                              | 16   | 0.059                      | 0.694                                                      | 0.639                                                    | 0.639           |
| PLW3 & W3 FORMLOK <sup>4</sup>                               | 22   | 0.029                      | 0.718                                                      | 0.418                                                    | 0.444           |
|                                                              | 21   | 0.033                      | 0.837                                                      | 0.495                                                    | 0.531           |
|                                                              | 20   | 0.035                      | 0.896                                                      | 0.534                                                    | 0.564           |
|                                                              | 19   | 0.042                      | 1.075                                                      | 0.674                                                    | 0.683           |
|                                                              | 18   | 0.047                      | 1.203                                                      | 0.767                                                    | 0.767           |
|                                                              | 16   | 0.059                      | 1.509                                                      | 0.960                                                    | 0.960           |

<sup>1</sup> Value based on average of net I from normal position and inverted position analysis.

<sup>2</sup> Values apply to deck in normal position.

<sup>3</sup> Values based on a yield strength of 80,000 psi.

<sup>4</sup> Values based on a yield strength of 38,000 psi.

<sup>5</sup> Values based on a yield strength of 33,000 psi.

TABLE 5-ALLOWABLE REACTIONS BASED ON WEB CRIPPLING (Pounds Per Foot of Deck Width)<sup>1,2,5,6,7</sup>

| GAGE | B-DECK                    |      |      |                                |      | N-DECK                    |      |      |                                |      |
|------|---------------------------|------|------|--------------------------------|------|---------------------------|------|------|--------------------------------|------|
|      | END REACTION <sup>3</sup> |      |      | INTERIOR REACTION <sup>4</sup> |      | END REACTION <sup>3</sup> |      |      | INTERIOR REACTION <sup>4</sup> |      |
|      | LENGTH OF BEARING         |      |      |                                |      | LENGTH OF BEARING         |      |      |                                |      |
|      | 2"                        | 3"   | 4"   | 3"                             | 4"   | 2"                        | 3"   | 4"   | 4"                             | 5"   |
| 22   | 487                       | 585  | 683  | 1250                           | 1498 | 349                       | 419  | 489  | 1104                           | 1287 |
| 20   | 665                       | 784  | 903  | 1790                           | 2118 | 486                       | 572  | 659  | 1582                           | 1828 |
| 18   | 1226                      | 1407 | 1588 | 3062                           | 3551 | 916                       | 1051 | 1186 | 2695                           | 3066 |
| 16   | 2208                      | 2484 | 2761 | 4789                           | 5268 | 1670                      | 1879 | 2088 | 4033                           | 4532 |
| GAGE | W2-FORMLOK                |      |      |                                |      | W3-FORMLOK                |      |      |                                |      |
|      | END REACTION <sup>3</sup> |      |      | INTERIOR REACTION <sup>4</sup> |      | END REACTION <sup>3</sup> |      |      | INTERIOR REACTION <sup>4</sup> |      |
|      | LENGTH OF BEARING         |      |      |                                |      | LENGTH OF BEARING         |      |      |                                |      |
|      | 2"                        | 3"   | 4"   | 4"                             | 5"   | 2"                        | 3"   | 4"   | 4"                             | 5"   |
| 22   | 219                       | 263  | 306  | 684                            | 797  | 190                       | 228  | 267  | 601                            | 701  |
| 21   | 259                       | 307  | 356  | 824                            | 956  | 240                       | 286  | 331  | 781                            | 906  |
| 20   | 301                       | 355  | 409  | 972                            | 1123 | 268                       | 316  | 365  | 877                            | 1014 |
| 19   | 396                       | 460  | 523  | 1294                           | 1482 | 374                       | 434  | 495  | 1241                           | 1421 |
| 18   | 533                       | 613  | 693  | 1587                           | 1807 | 507                       | 583  | 659  | 1528                           | 1740 |
| 16   | 981                       | 1105 | 1229 | 2380                           | 2677 | 942                       | 1062 | 1181 | 2309                           | 2597 |

<sup>1</sup> "B"- PLB, HSB, PLB & HSB Acoustical, and PLB & B Formlok;

"N" - PLN, N, PLN & N Acoustical, and PLN & N Formlok;

"W2" - PLW2 & W2 Formlok; W3" - PLW3 & W3 Formlok

<sup>2</sup> Values based on a steel yield point of 38,000 psi.

<sup>3</sup> Bearing length for reactions at panel end supports.

<sup>4</sup> Bearing length for reactions at interior supports.

<sup>5</sup> Values are ASD allowable reactions complying with Section C3.4 of the A.I.S.I.

<sup>6</sup> The allowable values are reactions (or concentrated loads) applied to bare deck and to composite decks during the construction phase only, prior to the concrete achieving minimum specified compressive strength.

<sup>7</sup> Reactions for cellular deck shall be compared to allowable reactions based on the fluted top section. The allowable reactions for 20 gage W3-FORMLOK may be multiplied by 1.05 for W3CD-FORMLOK with a 20 gage fluted top section.

FIGURE 1-DECK PROFILES

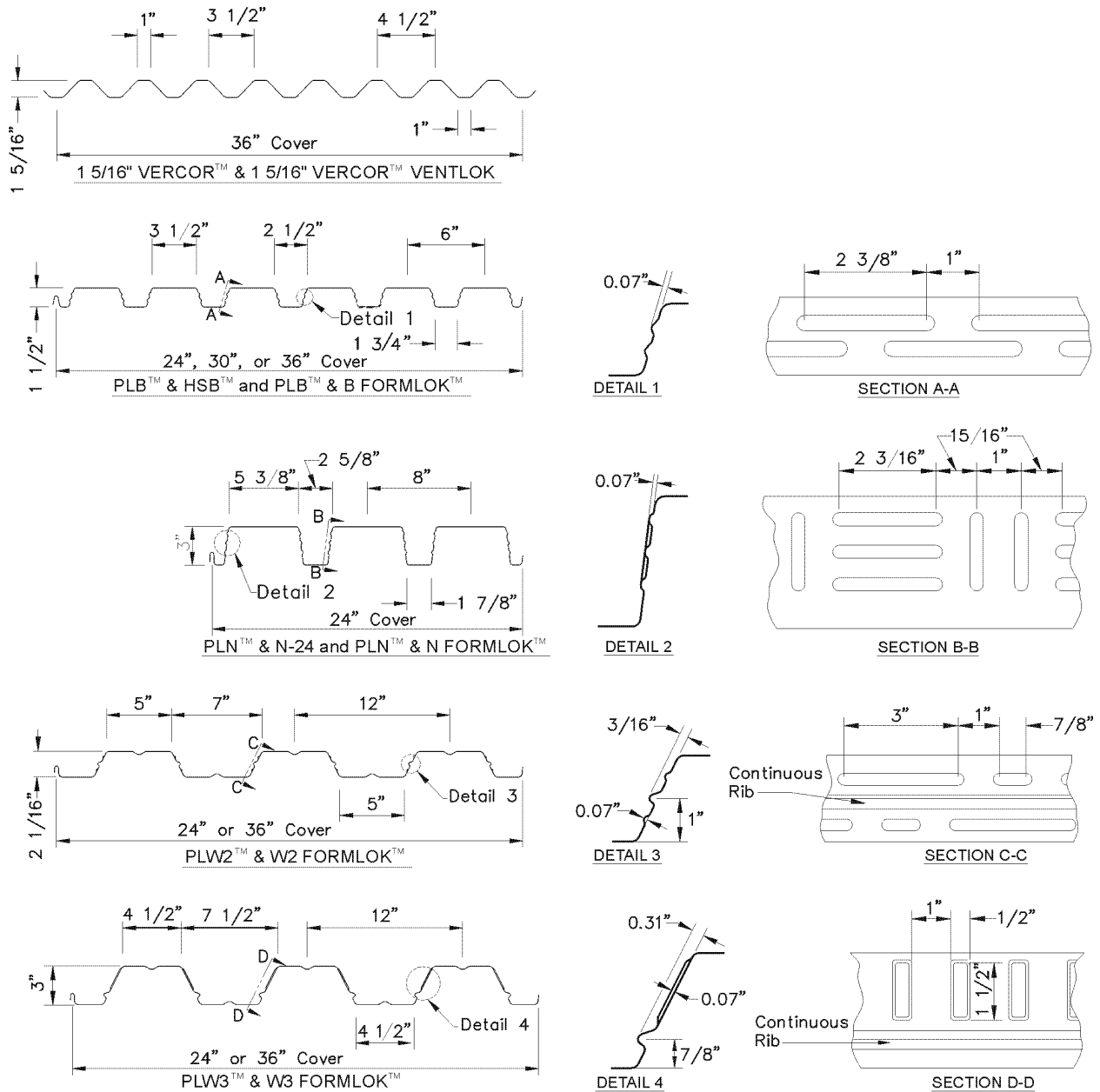
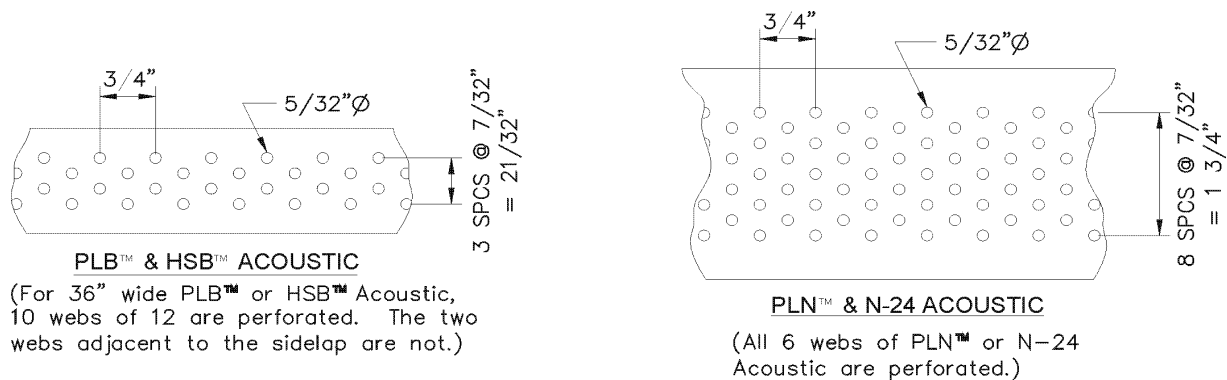


FIGURE 2-Acoustical Deck



**TABLE 6—CELLULAR DECK SECTION PROPERTIES, MOMENT CAPACITIES,  
AND SHEAR STRENGTHS<sup>5,6,7</sup>**

| DECK TYPE <sup>1</sup>                 | GAGE <sup>2</sup> | BASE METAL THICKNESS <sup>3</sup><br>(in.) | $I_d$ FOR DEFLECTIONS                 |                                         | POSITIVE MOMENT <sup>3</sup> |                     | NEGATIVE MOMENT <sup>3</sup> |                     | VERTICAL SHEAR <sup>4</sup> |                    |
|----------------------------------------|-------------------|--------------------------------------------|---------------------------------------|-----------------------------------------|------------------------------|---------------------|------------------------------|---------------------|-----------------------------|--------------------|
|                                        |                   |                                            | SIMPLE SPAN<br>(in. <sup>4</sup> /ft) | MULTIPLE SPAN<br>(in. <sup>4</sup> /ft) | +S<br>(in. <sup>3</sup> /ft) | +M<br>(in.-kips/ft) | -S<br>(in. <sup>3</sup> /ft) | -M<br>(in.-kips/ft) | END V (lb/ft)               | INTERIOR V (lb/ft) |
| HSB-CD <sup>1</sup><br>BCD-<br>FORMLOK | 20/20             | 0.0359/0.0359                              | 0.392                                 | 0.392                                   | 0.284                        | 6.5                 | 0.393                        | 8.9                 | 355                         | 538                |
|                                        | 20/18             | 0.0359/0.0478                              | 0.428                                 | 0.430                                   | 0.292                        | 6.6                 | 0.413                        | 9.4                 | 333                         | 410                |
|                                        | 20/16             | 0.0359/0.0598                              | 0.458                                 | 0.477                                   | 0.298                        | 6.8                 | 0.431                        | 9.8                 | 320                         | 352                |
|                                        | 18/20             | 0.0478/0.0359                              | 0.510                                 | 0.510                                   | 0.430                        | 9.8                 | 0.472                        | 10.7                | 389                         | 637                |
|                                        | 18/18             | 0.0478/0.0478                              | 0.559                                 | 0.559                                   | 0.441                        | 10.0                | 0.539                        | 12.3                | 459                         | 609                |
|                                        | 18/16             | 0.0478/0.0598                              | 0.600                                 | 0.600                                   | 0.450                        | 10.3                | 0.562                        | 12.8                | 436                         | 504                |
|                                        | 16/18             | 0.0598/0.0478                              | 0.677                                 | 0.677                                   | 0.610                        | 13.9                | 0.665                        | 15.1                | 493                         | 697                |
| N-24CD <sup>1</sup><br>NCD-<br>FORMLOK | 16/16             | 0.0598/0.0598                              | 0.729                                 | 0.729                                   | 0.622                        | 14.2                | 0.693                        | 15.8                | 657                         | 794                |
|                                        | 20/20             | 0.0359/0.0359                              | 1.694                                 | 1.694                                   | 0.565                        | 12.9                | 0.801                        | 18.2                | 606                         | 959                |
|                                        | 20/18             | 0.0359/0.0478                              | 1.855                                 | 1.912                                   | 0.562                        | 12.8                | 0.985                        | 22.4                | 564                         | 757                |
|                                        | 20/16             | 0.0359/0.0598                              | 1.967                                 | 2.159                                   | 0.597                        | 13.6                | 1.027                        | 23.4                | 540                         | 642                |
|                                        | 18/20             | 0.0478/0.0359                              | 2.209                                 | 2.209                                   | 0.847                        | 19.3                | 0.969                        | 22.1                | 664                         | 1155               |
|                                        | 18/18             | 0.0478/0.0478                              | 2.421                                 | 2.421                                   | 0.868                        | 19.8                | 1.183                        | 26.9                | 780                         | 1130               |
|                                        | 18/16             | 0.0478/0.0598                              | 2.599                                 | 2.626                                   | 0.885                        | 20.1                | 1.335                        | 30.4                | 738                         | 938                |
| W2CD-<br>FORMLOK                       | 16/18             | 0.0598/0.0478                              | 2.965                                 | 2.965                                   | 1.194                        | 27.2                | 1.345                        | 30.6                | 838                         | 1279               |
|                                        | 16/16             | 0.0598/0.0598                              | 3.193                                 | 3.193                                   | 1.218                        | 27.6                | 1.606                        | 36.5                | 1111                        | 1492               |
|                                        | 20/20             | 0.036/0.0359                               | 0.673                                 | 0.673                                   | 0.406                        | 9.2                 | 0.430                        | 9.9                 | 437                         | 634                |
|                                        | 20/18             | 0.036/0.0478                               | 0.722                                 | 0.722                                   | 0.414                        | 9.4                 | 0.446                        | 10.2                | 405                         | 493                |
|                                        | 20/16             | 0.036/0.0598                               | 0.762                                 | 0.762                                   | 0.420                        | 9.6                 | 0.460                        | 10.5                | 385                         | 427                |
|                                        | 18/20             | 0.047/0.0359                               | 0.843                                 | 0.843                                   | 0.571                        | 13.0                | 0.555                        | 12.6                | 480                         | 759                |
|                                        | 18/18             | 0.047/0.0478                               | 0.906                                 | 0.906                                   | 0.582                        | 13.3                | 0.574                        | 13.1                | 552                         | 717                |
| W3CD-<br>FORMLOK                       | 18/16             | 0.047/0.0598                               | 0.958                                 | 0.958                                   | 0.592                        | 13.5                | 0.592                        | 13.5                | 518                         | 599                |
|                                        | 16/18             | 0.059/0.0478                               | 1.093                                 | 1.093                                   | 0.744                        | 16.9                | 0.713                        | 16.2                | 603                         | 832                |
|                                        | 16/16             | 0.059/0.0598                               | 1.158                                 | 1.158                                   | 0.756                        | 17.2                | 0.735                        | 16.7                | 776                         | 938                |
|                                        | 20/20             | 0.036/0.0359                               | 1.460                                 | 1.460                                   | 0.632                        | 14.4                | 0.626                        | 14.3                | 621                         | 923                |
|                                        | 20/18             | 0.036/0.0478                               | 1.548                                 | 1.548                                   | 0.643                        | 14.6                | 0.651                        | 14.8                | 579                         | 712                |
|                                        | 20/16             | 0.036/0.0598                               | 1.620                                 | 1.620                                   | 0.689                        | 15.7                | 0.671                        | 15.3                | 546                         | 611                |
|                                        | 18/20             | 0.047/0.0359                               | 1.793                                 | 1.793                                   | 0.863                        | 19.6                | 0.810                        | 18.4                | 697                         | 1060               |
| W3CD-<br>FORMLOK                       | 18/18             | 0.047/0.0478                               | 1.920                                 | 1.920                                   | 0.880                        | 20.0                | 0.836                        | 19.0                | 795                         | 1042               |
|                                        | 18/16             | 0.047/0.0598                               | 2.027                                 | 2.027                                   | 0.894                        | 20.4                | 0.863                        | 19.6                | 741                         | 1096               |
|                                        | 16/18             | 0.059/0.0478                               | 2.310                                 | 2.310                                   | 1.091                        | 24.8                | 1.038                        | 23.6                | 875                         | 1216               |
|                                        | 16/16             | 0.059/0.0598                               | 2.440                                 | 2.440                                   | 1.109                        | 25.2                | 1.070                        | 24.4                | 1117                        | 1362               |

<sup>1</sup> HSB-CD and N-24 CD are roof decks. BCD, NCD, W2CD and W3CD FORMLOK are composite decks.

<sup>2</sup> Gage "xx/yy" shall be defined as: First Number (xx) is the gage (or t) of fluted top section. Second Number (yy) is the gage (or thickness) of the flat bottom section.

<sup>3</sup> S(+ or -) is the effective section modulus. M (+ or -) is the ASD allowable moment where  $M = M_n / \Omega_b$ , with  $\Omega_b = 1.67$ .

<sup>4</sup> Vertical Shear is the ASD allowable vertical shear strength based on horizontal shear strength of the resistance welds, where  $V = V_n / \Omega$ , with  $\Omega = 2.5$ . "END" shear strength values are applicable adjacent to supports where deck is not continuous.

"INTERIOR" shear strength values are applicable adjacent to supports where deck is continuous.

<sup>5</sup> Reactions shall be compared to the allowable reactions due to web crippling as shown in Table 5, based on the gage of the fluted top section of the cellular deck.

<sup>6</sup> Superimposed load and diaphragm capacities shown in Tables 8 and 11-13 for a given concrete type and thickness may be applied to composite cellular sections with a fluted top section of the same profile and gage, with or without acoustical perforations in the flat bottom section of the cellular deck.

<sup>7</sup> Cellular deck resistance weld locations are illustrated in Figure 3.

**FIGURE 3—CELLULAR DECK RESISTANCE WELD LOCATIONS**

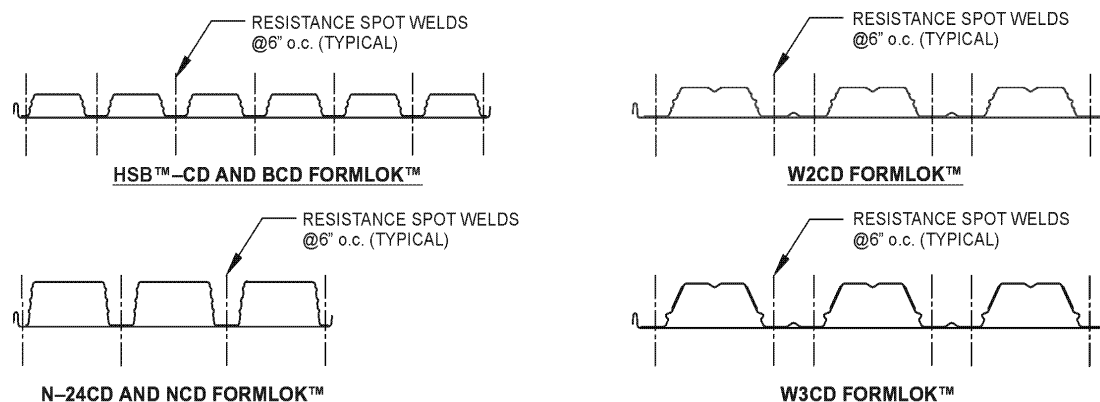


TABLE 7—DIAPHRAGM FLEXIBILITY LIMITATION<sup>1,2,3,4</sup>

| FLEXIBILITY CATEGORY | F      | MAXIMUM SPAN FOR MASONRY OR CONCRETE WALLS (in feet) | SPAN-DEPTH LIMITATION                |                             |                                  |                             |
|----------------------|--------|------------------------------------------------------|--------------------------------------|-----------------------------|----------------------------------|-----------------------------|
|                      |        |                                                      | ROTATION NOT CONSIDERED IN DIAPHRAGM |                             | ROTATION CONSIDERED IN DIAPHRAGM |                             |
|                      |        |                                                      | MASONRY OR CONCRETE WALLS            | FLEXIBLE WALLS <sup>3</sup> | MASONRY OR CONCRETE WALLS        | FLEXIBLE WALLS <sup>3</sup> |
| Very flexible        | >150   | Not used                                             | Not used                             | 2:1                         | Not used                         | 1½:1                        |
| Flexible             | 70-150 | 200                                                  | 2:1 or as required for deflection    | 3:1                         | Not used                         | 2:1                         |
| Semi-flexible        | 10-70  | 400                                                  | 2½:1 or as required for deflection   | 4:1                         | As required for deflection       | 2½:1                        |
| Semi-rigid           | 1-10   | No limitation                                        | 3:1 or as required for deflection    | 5:1                         | As required for deflection       | 3:1                         |
| Rigid                | <1     | No Limitation                                        | As required for deflection           | No limitation               | As required for deflection       | 3½:1                        |

<sup>1</sup> Roof diaphragms are to be investigated regarding their flexibility and recommended span-depth limitations. The limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections. Refer to diaphragm tables below for determination of value of F.

<sup>2</sup> Roof diaphragms supporting masonry or concrete walls are to have deflections limited to the following amount:  $\Delta_{wall} = \frac{H^2 f_c}{0.01 E t}$

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<sub>c</sub> = Allowable compressive strength of wall material flexure in pounds per square inch.

For concrete, f<sub>c</sub> = 0.45 f'<sub>c</sub>; for masonry, f<sub>c</sub> = F<sub>c</sub> = 0.33 f'<sub>m</sub>.

<sup>3</sup> When applying these limitations to cantilevered diaphragms, the allowable span-depth ratio will be half that shown.

<sup>4</sup> The total deflection of the diaphragm, in inches, may be computed from the equation:  $\Delta = \Delta_f + \Delta_w$ .

Where:  $\Delta_f$  = Flexural deflection of the diaphragm determined in the same manner as the deflection of beams (see equations below).

$\Delta_w$  = The web (shear) deflection as defined in the equations below.

## DIAPHRAGM DEFLECTIONS (inches)

| TYPE OF DIAPHRAGM                | LOADING CONDITION                    | FLEXURAL DEFLECTION $\Delta_f$                            | WEB DEFLECTION $\Delta_w$         |
|----------------------------------|--------------------------------------|-----------------------------------------------------------|-----------------------------------|
| Simple Beam (at center)          | Uniform Load                         | $\frac{5 w L^4 (12)^3}{384 E I}$                          | $\frac{w L^2 F}{8 \times 10^6 d}$ |
| Simple Beam (at L <sub>1</sub> ) | Uniform Load                         | $\frac{w L_1 (12)^3}{24 E I} (L^3 - 2 L (L_1^2) + L_1^3)$ | $\frac{q_{ave} L_1 F}{10^6}$      |
| Simple Beam (at center)          | Load P applied at center             | $\frac{P L^3 (12)^3}{48 E I}$                             | $\frac{P L F}{4 \times 10^6 d}$   |
| Simple Beam (at center)          | Load P applied at 1/3 points of span | $\frac{23 P L^3 (12)^3}{684 E I}$                         | $\frac{P L F}{3 \times 10^6 d}$   |
| Cantilever Beam (at free end)    | Uniform Load                         | $\frac{w a^4 (12)^3}{8 E I}$                              | $\frac{w a^2 F}{2 \times 10^6 d}$ |
| Cantilever Beam (at free end)    | Load P applied at free end           | $\frac{P a^3 (12)^3}{3 E I}$                              | $\frac{P a F}{10^6 d}$            |

Where:

E = Modulus of elasticity of steel, 29,500,000 psi.

I = Moment of inertia of flange perimeter members about the centroidal axis of the diaphragm (in.<sup>4</sup>).

F = Flexibility factor: the average microinches a diaphragm web will deflect in a span of 1 foot under a shear of 1 lb.

L = Span length of simple beam diaphragm (ft)

L<sub>1</sub> = Distance between vertical resisting element (such as shear wall) and the point to which the deflection is to be determined (ft).

a = Span length of cantilever diaphragm (ft)

d = Depth of diaphragm (ft).

P = Concentrated load (lb).

w = Uniform diaphragm load (lb/ft).

q<sub>ave</sub> = Average shear in diaphragm over length L<sub>1</sub> (lb/ft).



**TABLE 8—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLB™-36 & B-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1,2,3,4,5,6,7</sup>

| TOTAL SLAB DEPTH AND CONCRETE TYPE | DECK GAGE | NO. OF DECK SPANS | SPAN (ft.-in.) |       |       |       |       |       |       |       |        |        |        |
|------------------------------------|-----------|-------------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|                                    |           |                   | 6'-0"          | 6'-6" | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" |
| 3½" Normal Weight (145 pcf)        | 22        | 1                 | 232            | 199   | 173   | 151   | 132   | 117   | 104   | 92    | 82     | 74     | 66     |
|                                    |           | 2                 | 261            | 228   | 202   | 151   | 132   | 117   | 104   | 92    | 82     | 74     | 66     |
|                                    |           | 3                 | 261            | 228   | 202   | 151   | 132   | 117   | 104   | 92    | 82     | 74     | 66     |
|                                    |           | q4                | 1825           | 1785  | 1755  | 1725  | 1700  | 1680  | 1660  | 1640  | 1625   | 1610   | 1600   |
|                                    |           | F4                | 0.45           | 0.46  | 0.47  | 0.48  | 0.48  | 0.49  | 0.50  | 0.50  | 0.51   | 0.51   | 0.52   |
|                                    |           | q7                | 2035           | 1980  | 1935  | 1895  | 1855  | 1825  | 1800  | 1775  | 1750   | 1730   | 1715   |
|                                    |           | F7                | 0.40           | 0.42  | 0.43  | 0.44  | 0.44  | 0.45  | 0.46  | 0.46  | 0.47   | 0.48   | 0.48   |
|                                    |           | 1                 | 275            | 240   | 183   | 160   | 141   | 124   | 110   | 98    | 88     | 79     | 71     |
|                                    | 20        | 2                 | 275            | 240   | 212   | 189   | 170   | 124   | 110   | 98    | 88     | 79     | 71     |
|                                    |           | 3                 | 275            | 240   | 212   | 189   | 170   | 124   | 110   | 98    | 88     | 79     | 71     |
|                                    |           | q4                | 1890           | 1845  | 1805  | 1775  | 1745  | 1715  | 1695  | 1670  | 1655   | 1635   | 1620   |
|                                    |           | F4                | 0.40           | 0.41  | 0.42  | 0.42  | 0.43  | 0.44  | 0.44  | 0.45  | 0.45   | 0.46   | 0.46   |
|                                    |           | q7                | 2145           | 2080  | 2020  | 1975  | 1930  | 1895  | 1860  | 1830  | 1805   | 1780   | 1760   |
|                                    |           | F7                | 0.35           | 0.36  | 0.37  | 0.38  | 0.39  | 0.40  | 0.40  | 0.41  | 0.42   | 0.42   | 0.43   |
|                                    |           | 1                 | 298            | 261   | 230   | 205   | 184   | 137   | 122   | 108   | 97     | 87     | 78     |
|                                    | 18        | 2                 | 298            | 261   | 230   | 205   | 184   | 167   | 152   | 108   | 97     | 87     | 78     |
|                                    |           | 3                 | 298            | 261   | 230   | 205   | 184   | 167   | 152   | 138   | 127    | 87     | 78     |
|                                    |           | q4                | 2045           | 1985  | 1930  | 1885  | 1845  | 1810  | 1780  | 1750  | 1725   | 1705   | 1685   |
|                                    |           | F4                | 0.32           | 0.33  | 0.34  | 0.35  | 0.35  | 0.36  | 0.37  | 0.37  | 0.38   | 0.38   | 0.39   |
|                                    |           | q7                | 2380           | 2295  | 2220  | 2155  | 2095  | 2050  | 2005  | 1965  | 1930   | 1895   | 1865   |
|                                    |           | F7                | 0.27           | 0.28  | 0.29  | 0.30  | 0.31  | 0.32  | 0.33  | 0.33  | 0.34   | 0.34   | 0.35   |
|                                    |           | 1                 | 298            | 260   | 230   | 205   | 184   | 166   | 151   | 108   | 96     | 86     | 78     |
|                                    | 16        | 2                 | 298            | 260   | 230   | 205   | 184   | 166   | 151   | 138   | 127    | 86     | 78     |
|                                    |           | 3                 | 298            | 260   | 230   | 205   | 184   | 166   | 151   | 138   | 127    | 117    | 108    |
|                                    |           | q4                | 2215           | 2140  | 2070  | 2015  | 1965  | 1920  | 1880  | 1845  | 1815   | 1785   | 1760   |
|                                    |           | F4                | 0.26           | 0.27  | 0.28  | 0.29  | 0.30  | 0.30  | 0.31  | 0.32  | 0.32   | 0.33   | 0.33   |
|                                    |           | q7                | 2635           | 2525  | 2430  | 2350  | 2280  | 2215  | 2160  | 2110  | 2065   | 2025   | 1990   |
|                                    |           | F7                | 0.22           | 0.23  | 0.24  | 0.25  | 0.26  | 0.26  | 0.27  | 0.28  | 0.28   | 0.29   | 0.29   |
| 4" Normal Weight (145 pcf)         | 22        | 1                 | 269            | 231   | 200   | 175   | 153   | 135   | 120   | 107   | 95     | 85     | 76     |
|                                    |           | 2                 | 300            | 266   | 200   | 175   | 153   | 135   | 120   | 107   | 95     | 85     | 76     |
|                                    |           | 3                 | 300            | 266   | 200   | 175   | 153   | 135   | 120   | 107   | 95     | 85     | 76     |
|                                    |           | q4                | 2065           | 2025  | 1995  | 1965  | 1940  | 1915  | 1900  | 1880  | 1865   | 1850   | 1835   |
|                                    |           | F4                | 0.40           | 0.41  | 0.41  | 0.42  | 0.42  | 0.43  | 0.43  | 0.44  | 0.44   | 0.45   | 0.45   |
|                                    |           | q7                | 2275           | 2220  | 2170  | 2130  | 2095  | 2065  | 2035  | 2015  | 1990   | 1970   | 1950   |
|                                    |           | F7                | 0.36           | 0.37  | 0.38  | 0.39  | 0.39  | 0.40  | 0.40  | 0.41  | 0.41   | 0.42   | 0.42   |
|                                    | 20        | 1                 | 300            | 244   | 212   | 185   | 163   | 144   | 127   | 113   | 101    | 91     | 81     |
|                                    |           | 2                 | 300            | 279   | 247   | 220   | 163   | 144   | 127   | 113   | 101    | 91     | 81     |
|                                    |           | 3                 | 300            | 279   | 247   | 220   | 163   | 144   | 127   | 113   | 101    | 91     | 81     |
|                                    |           | q4                | 2130           | 2085  | 2045  | 2010  | 1980  | 1955  | 1930  | 1910  | 1890   | 1875   | 1860   |
|                                    |           | F4                | 0.35           | 0.36  | 0.37  | 0.37  | 0.38  | 0.38  | 0.39  | 0.39  | 0.40   | 0.40   | 0.40   |
|                                    |           | q7                | 2385           | 2315  | 2260  | 2215  | 2170  | 2135  | 2100  | 2070  | 2045   | 2020   | 1995   |
|                                    |           | F7                | 0.32           | 0.32  | 0.33  | 0.34  | 0.35  | 0.35  | 0.36  | 0.36  | 0.37   | 0.37   | 0.38   |

See Page 12 for footnotes

(continued)

**TABLE 8—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLB™-36 & B-36 FORMLOK™ DECK WITH CONCRETE FILL<sup>1,2,3,4,5,6,7</sup> – Continued**

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |       |       |        |        |        |
|---------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|                                             |              |                         | 6'-0"          | 6'-6" | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" |
| 4"<br>Normal<br>Weight<br>(145 pcf)         | 18           | 1                       | 300            | 300   | 266   | 237   | 178   | 157   | 140   | 125   | 112    | 100    | 90     |
|                                             |              | 2                       | 300            | 300   | 266   | 237   | 213   | 193   | 140   | 125   | 112    | 100    | 90     |
|                                             |              | 3                       | 300            | 300   | 266   | 237   | 213   | 193   | 175   | 160   | 112    | 100    | 90     |
|                                             |              | q4                      | 2285           | 2225  | 2170  | 2125  | 2085  | 2050  | 2020  | 1990  | 1965   | 1945   | 1925   |
|                                             |              | F4                      | 0.29           | 0.29  | 0.30  | 0.31  | 0.31  | 0.32  | 0.32  | 0.33  | 0.33   | 0.34   | 0.34   |
|                                             |              | q7                      | 2620           | 2530  | 2460  | 2395  | 2335  | 2285  | 2240  | 2205  | 2165   | 2135   | 2105   |
|                                             |              | F7                      | 0.25           | 0.26  | 0.27  | 0.27  | 0.28  | 0.28  | 0.29  | 0.30  | 0.30   | 0.31   | 0.31   |
|                                             | 16           | 1                       | 300            | 300   | 265   | 236   | 212   | 192   | 138   | 123   | 110    | 99     | 89     |
|                                             |              | 2                       | 300            | 300   | 265   | 236   | 212   | 192   | 174   | 159   | 110    | 99     | 89     |
|                                             |              | 3                       | 300            | 300   | 265   | 236   | 212   | 192   | 174   | 159   | 146    | 135    | 89     |
|                                             |              | q4                      | 2455           | 2375  | 2310  | 2255  | 2205  | 2160  | 2120  | 2085  | 2055   | 2025   | 2000   |
|                                             |              | F4                      | 0.24           | 0.25  | 0.25  | 0.26  | 0.26  | 0.27  | 0.27  | 0.28  | 0.28   | 0.29   | 0.29   |
|                                             |              | q7                      | 2870           | 2765  | 2670  | 2590  | 2520  | 2455  | 2400  | 2350  | 2305   | 2265   | 2230   |
|                                             |              | F7                      | 0.20           | 0.21  | 0.22  | 0.22  | 0.23  | 0.24  | 0.24  | 0.25  | 0.25   | 0.26   | 0.26   |
| 4½"<br>Normal<br>Weight<br>(145 pcf)        | 22           | 1                       | 300            | 265   | 229   | 200   | 175   | 155   | 137   | 122   | 109    | 97     | 87     |
|                                             |              | 2                       | 300            | 300   | 229   | 200   | 175   | 155   | 137   | 122   | 109    | 97     | 87     |
|                                             |              | 3                       | 300            | 265   | 229   | 200   | 175   | 155   | 137   | 122   | 109    | 97     | 87     |
|                                             |              | q4                      | 2305           | 2265  | 2230  | 2205  | 2180  | 2155  | 2135  | 2120  | 2105   | 2090   | 2075   |
|                                             |              | F4                      | 0.36           | 0.36  | 0.37  | 0.37  | 0.38  | 0.38  | 0.39  | 0.39  | 0.39   | 0.39   | 0.40   |
|                                             |              | q7                      | 2510           | 2460  | 2410  | 2370  | 2335  | 2305  | 2275  | 2250  | 2230   | 2210   | 2190   |
|                                             |              | F7                      | 0.33           | 0.34  | 0.34  | 0.35  | 0.35  | 0.36  | 0.36  | 0.37  | 0.37   | 0.37   | 0.38   |
|                                             | 20           | 1                       | 300            | 279   | 242   | 211   | 186   | 164   | 146   | 129   | 116    | 103    | 93     |
|                                             |              | 2                       | 300            | 300   | 282   | 211   | 186   | 164   | 146   | 129   | 116    | 103    | 93     |
|                                             |              | 3                       | 300            | 300   | 282   | 252   | 186   | 164   | 146   | 129   | 116    | 103    | 93     |
|                                             |              | q4                      | 2370           | 2325  | 2285  | 2250  | 2220  | 2195  | 2170  | 2150  | 2130   | 2115   | 2100   |
|                                             |              | F4                      | 0.32           | 0.32  | 0.33  | 0.33  | 0.34  | 0.34  | 0.35  | 0.35  | 0.35   | 0.36   | 0.36   |
|                                             |              | q7                      | 2620           | 2555  | 2500  | 2450  | 2410  | 2370  | 2340  | 2310  | 2280   | 2260   | 2235   |
|                                             |              | F7                      | 0.29           | 0.29  | 0.30  | 0.31  | 0.31  | 0.32  | 0.32  | 0.33  | 0.33   | 0.33   | 0.34   |
|                                             | 18           | 1                       | 300            | 300   | 300   | 231   | 203   | 180   | 159   | 142   | 127    | 114    | 103    |
|                                             |              | 2                       | 300            | 300   | 300   | 272   | 244   | 220   | 159   | 142   | 127    | 114    | 103    |
|                                             |              | 3                       | 300            | 300   | 300   | 272   | 244   | 220   | 200   | 142   | 127    | 114    | 103    |
|                                             |              | q4                      | 2525           | 2460  | 2410  | 2365  | 2325  | 2290  | 2260  | 2230  | 2205   | 2180   | 2160   |
|                                             |              | F4                      | 0.26           | 0.26  | 0.27  | 0.28  | 0.28  | 0.28  | 0.29  | 0.29  | 0.30   | 0.30   | 0.30   |
|                                             |              | q7                      | 2860           | 2770  | 2695  | 2630  | 2575  | 2525  | 2480  | 2440  | 2405   | 2375   | 2345   |
|                                             |              | F7                      | 0.23           | 0.24  | 0.24  | 0.25  | 0.25  | 0.26  | 0.26  | 0.27  | 0.27   | 0.27   | 0.28   |
|                                             | 16           | 1                       | 300            | 300   | 300   | 270   | 242   | 177   | 158   | 140   | 126    | 112    | 101    |
|                                             |              | 2                       | 300            | 300   | 300   | 270   | 242   | 219   | 199   | 140   | 126    | 112    | 101    |
|                                             |              | 3                       | 300            | 300   | 300   | 270   | 242   | 219   | 199   | 182   | 167    | 112    | 101    |
|                                             |              | q4                      | 2695           | 2615  | 2550  | 2495  | 2445  | 2400  | 2360  | 2325  | 2295   | 2265   | 2240   |
|                                             |              | F4                      | 0.22           | 0.22  | 0.23  | 0.23  | 0.24  | 0.24  | 0.25  | 0.25  | 0.25   | 0.26   | 0.26   |
|                                             |              | q7                      | 3110           | 3000  | 2910  | 2830  | 2760  | 2695  | 2640  | 2590  | 2545   | 2505   | 2470   |
|                                             |              | F7                      | 0.19           | 0.19  | 0.20  | 0.21  | 0.21  | 0.22  | 0.22  | 0.22  | 0.23   | 0.23   | 0.24   |

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(continued)

**TABLE 8—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLB™-36 & B-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1,2,3,4,5,6,7</sup> – Continued

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |       |       |        |        |        |
|---------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|                                             |              |                         | 6'-0"          | 6'-6" | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" |
| 5"<br>Normal<br>Weight<br>(145 pcf)         | 22           | 1                       | 300            | 299   | 259   | 226   | 198   | 175   | 155   | 138   | 123    | 109    | 98     |
|                                             |              | 2                       | 300            | 299   | 259   | 226   | 198   | 175   | 155   | 138   | 123    | 109    | 98     |
|                                             |              | 3                       | 300            | 299   | 259   | 226   | 198   | 175   | 155   | 138   | 123    | 109    | 98     |
|                                             |              | q4                      | 2540           | 2505  | 2470  | 2440  | 2415  | 2395  | 2375  | 2360  | 2345   | 2330   | 2315   |
|                                             |              | F4                      | 0.32           | 0.33  | 0.33  | 0.34  | 0.34  | 0.34  | 0.35  | 0.35  | 0.35   | 0.35   | 0.36   |
|                                             |              | q7                      | 2750           | 2695  | 2650  | 2610  | 2575  | 2545  | 2515  | 2490  | 2470   | 2450   | 2430   |
|                                             |              | F7                      | 0.30           | 0.31  | 0.31  | 0.32  | 0.32  | 0.32  | 0.33  | 0.33  | 0.33   | 0.34   | 0.34   |
|                                             |              | 1                       | 300            | 300   | 274   | 239   | 210   | 185   | 164   | 146   | 131    | 117    | 105    |
|                                             | 20           | 2                       | 300            | 300   | 300   | 239   | 210   | 185   | 164   | 146   | 131    | 117    | 105    |
|                                             |              | 3                       | 300            | 300   | 300   | 239   | 210   | 185   | 164   | 146   | 131    | 117    | 105    |
|                                             |              | q4                      | 2610           | 2565  | 2525  | 2490  | 2460  | 2435  | 2410  | 2390  | 2370   | 2355   | 2340   |
|                                             |              | F4                      | 0.29           | 0.29  | 0.30  | 0.30  | 0.31  | 0.31  | 0.31  | 0.31  | 0.32   | 0.32   | 0.32   |
|                                             |              | q7                      | 2860           | 2795  | 2740  | 2690  | 2650  | 2610  | 2580  | 2550  | 2520   | 2495   | 2475   |
|                                             |              | F7                      | 0.26           | 0.27  | 0.27  | 0.28  | 0.28  | 0.29  | 0.29  | 0.30  | 0.30   | 0.30   | 0.30   |
|                                             |              | 1                       | 300            | 300   | 300   | 260   | 229   | 203   | 180   | 161   | 144    | 129    | 116    |
|                                             | 18           | 2                       | 300            | 300   | 300   | 300   | 275   | 203   | 180   | 161   | 144    | 129    | 116    |
|                                             |              | 3                       | 300            | 300   | 300   | 300   | 275   | 249   | 180   | 161   | 144    | 129    | 116    |
|                                             |              | q4                      | 2765           | 2700  | 2650  | 2605  | 2565  | 2530  | 2495  | 2470  | 2445   | 2420   | 2400   |
|                                             |              | F4                      | 0.24           | 0.24  | 0.25  | 0.25  | 0.25  | 0.26  | 0.26  | 0.26  | 0.27   | 0.27   | 0.27   |
|                                             |              | q7                      | 3095           | 3010  | 2935  | 2870  | 2815  | 2765  | 2720  | 2680  | 2645   | 2615   | 2585   |
|                                             |              | F7                      | 0.21           | 0.22  | 0.22  | 0.23  | 0.23  | 0.24  | 0.24  | 0.24  | 0.25   | 0.25   | 0.25   |
|                                             | 16           | 1                       | 300            | 300   | 300   | 300   | 273   | 200   | 178   | 158   | 142    | 127    | 114    |
|                                             |              | 2                       | 300            | 300   | 300   | 300   | 273   | 247   | 225   | 158   | 142    | 127    | 114    |
|                                             |              | 3                       | 300            | 300   | 300   | 300   | 273   | 247   | 225   | 205   | 142    | 127    | 114    |
|                                             |              | q4                      | 2930           | 2855  | 2790  | 2730  | 2685  | 2640  | 2600  | 2565  | 2535   | 2505   | 2480   |
|                                             |              | F4                      | 0.20           | 0.20  | 0.21  | 0.21  | 0.22  | 0.22  | 0.22  | 0.23  | 0.23   | 0.23   | 0.23   |
|                                             |              | q7                      | 3350           | 3240  | 3150  | 3065  | 2995  | 2935  | 2880  | 2830  | 2785   | 2745   | 2705   |
|                                             |              | F7                      | 0.17           | 0.18  | 0.19  | 0.19  | 0.19  | 0.20  | 0.20  | 0.21  | 0.21   | 0.21   | 0.22   |
| 6"<br>Normal<br>Weight<br>(145 pcf)         | 22           | 1                       | 300            | 300   | 300   | 280   | 245   | 216   | 192   | 170   | 152    | 135    | 121    |
|                                             |              | 2                       | 300            | 300   | 300   | 280   | 245   | 216   | 192   | 170   | 152    | 135    | 121    |
|                                             |              | 3                       | 300            | 300   | 300   | 280   | 245   | 216   | 192   | 170   | 152    | 135    | 121    |
|                                             |              | q4                      | 3020           | 2980  | 2950  | 2920  | 2895  | 2875  | 2855  | 2835  | 2820   | 2805   | 2795   |
|                                             |              | F4                      | 0.27           | 0.28  | 0.28  | 0.28  | 0.28  | 0.29  | 0.29  | 0.29  | 0.29   | 0.29   | 0.29   |
|                                             |              | q7                      | 3230           | 3175  | 3130  | 3080  | 3055  | 3020  | 2995  | 2970  | 2945   | 2925   | 2910   |
|                                             |              | F7                      | 0.26           | 0.26  | 0.26  | 0.27  | 0.27  | 0.27  | 0.28  | 0.28  | 0.28   | 0.28   | 0.28   |
|                                             | 20           | 1                       | 300            | 300   | 300   | 296   | 260   | 229   | 203   | 181   | 162    | 144    | 129    |
|                                             |              | 2                       | 300            | 300   | 300   | 296   | 260   | 229   | 203   | 181   | 162    | 144    | 129    |
|                                             |              | 3                       | 300            | 300   | 300   | 296   | 260   | 229   | 203   | 181   | 162    | 144    | 129    |
|                                             |              | q4                      | 3090           | 3040  | 3000  | 2970  | 2940  | 2910  | 2890  | 2865  | 2850   | 2830   | 2815   |
|                                             |              | F4                      | 0.24           | 0.25  | 0.25  | 0.25  | 0.26  | 0.26  | 0.26  | 0.26  | 0.26   | 0.27   | 0.27   |
|                                             |              | q7                      | 3340           | 3275  | 3220  | 3170  | 3125  | 3090  | 3055  | 3025  | 3000   | 2975   | 2955   |
|                                             |              | F7                      | 0.23           | 0.23  | 0.23  | 0.24  | 0.24  | 0.24  | 0.25  | 0.25  | 0.25   | 0.25   | 0.25   |

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(continued)

**TABLE 8—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLB™-36 & B-36 FORMLOK™ DECK WITH CONCRETE FILL<sup>1,2,3,4,5,6,7</sup> – Continued**

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE       | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |       |       |        |        |        |
|---------------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|                                                   |              |                         | 6'-0"          | 6'-6" | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" |
| 6"<br>Normal<br>Weight<br>(145 pcf)               | 18           | 1                       | 300            | 300   | 300   | 300   | 283   | 251   | 223   | 199   | 178    | 159    | 143    |
|                                                   |              | 2                       | 300            | 300   | 300   | 300   | 283   | 251   | 223   | 199   | 178    | 159    | 143    |
|                                                   |              | 3                       | 300            | 300   | 300   | 300   | 300   | 251   | 223   | 199   | 178    | 159    | 143    |
|                                                   |              | q4                      | 3240           | 3180  | 3125  | 3080  | 3040  | 3005  | 2975  | 2950  | 2920   | 2900   | 2880   |
|                                                   |              | F4                      | 0.20           | 0.20  | 0.21  | 0.21  | 0.21  | 0.22  | 0.22  | 0.22  | 0.22   | 0.22   | 0.23   |
|                                                   |              | q7                      | 3575           | 3490  | 3415  | 3350  | 3295  | 3245  | 3200  | 3160  | 3125   | 3090   | 3060   |
|                                                   |              | F7                      | 0.18           | 0.19  | 0.19  | 0.19  | 0.20  | 0.20  | 0.20  | 0.21  | 0.21   | 0.21   | 0.21   |
|                                                   | 16           | 1                       | 300            | 300   | 300   | 300   | 280   | 247   | 220   | 196   | 175    | 157    | 141    |
|                                                   |              | 2                       | 300            | 300   | 300   | 300   | 300   | 247   | 220   | 196   | 175    | 157    | 141    |
|                                                   |              | 3                       | 300            | 300   | 300   | 300   | 300   | 300   | 278   | 196   | 175    | 157    | 141    |
|                                                   |              | q4                      | 3410           | 3335  | 3265  | 3210  | 3160  | 3115  | 3080  | 3045  | 3010   | 2985   | 2955   |
|                                                   |              | F4                      | 0.17           | 0.17  | 0.18  | 0.18  | 0.18  | 0.19  | 0.19  | 0.19  | 0.19   | 0.20   | 0.20   |
|                                                   |              | q7                      | 3830           | 3720  | 3625  | 3545  | 3475  | 3410  | 3355  | 3305  | 3260   | 3220   | 3185   |
|                                                   |              | F7                      | 0.15           | 0.16  | 0.16  | 0.16  | 0.17  | 0.17  | 0.17  | 0.18  | 0.18   | 0.18   | 0.18   |
| 3½"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 261            | 206   | 179   | 157   | 139   | 124   | 110   | 99    | 89     | —      | —      |
|                                                   |              | 2                       | 261            | 228   | 202   | 180   | 139   | 124   | 110   | 99    | 89     | —      | —      |
|                                                   |              | 3                       | 261            | 228   | 202   | 180   | 139   | 124   | 110   | 99    | 89     | —      | —      |
|                                                   |              | q4                      | 1500           | 1460  | 1430  | 1400  | 1375  | 1355  | 1335  | 1315  | 1300   | —      | —      |
|                                                   |              | F4                      | 0.55           | 0.56  | 0.58  | 0.59  | 0.60  | 0.61  | 0.62  | 0.63  | 0.63   | —      | —      |
|                                                   |              | q7                      | 1710           | 1655  | 1610  | 1570  | 1555  | 1500  | 1475  | 1450  | 1425   | —      | —      |
|                                                   |              | F7                      | 0.48           | 0.50  | 0.51  | 0.53  | 0.54  | 0.55  | 0.56  | 0.57  | 0.58   | —      | —      |
|                                                   | 20           | 1                       | 275            | 240   | 212   | 167   | 147   | 131   | 117   | 105   | 94     | 85     | 77     |
|                                                   |              | 2                       | 275            | 240   | 212   | 189   | 170   | 154   | 117   | 105   | 94     | 85     | 77     |
|                                                   |              | 3                       | 275            | 240   | 212   | 189   | 170   | 154   | 117   | 105   | 94     | 85     | 77     |
|                                                   |              | q4                      | 1570           | 1520  | 1480  | 1450  | 1420  | 1390  | 1370  | 1350  | 1330   | 1310   | 1295   |
|                                                   |              | F4                      | 0.48           | 0.49  | 0.51  | 0.52  | 0.53  | 0.54  | 0.55  | 0.56  | 0.57   | 0.57   | 0.58   |
|                                                   |              | q7                      | 1820           | 1755  | 1700  | 1650  | 1605  | 1570  | 1535  | 1505  | 1480   | 1455   | 1435   |
|                                                   |              | F7                      | 0.41           | 0.43  | 0.44  | 0.46  | 0.47  | 0.48  | 0.49  | 0.50  | 0.51   | 0.52   | 0.52   |
|                                                   | 18           | 1                       | 298            | 261   | 230   | 205   | 184   | 167   | 128   | 115   | 104    | 94     | 85     |
|                                                   |              | 2                       | 298            | 261   | 230   | 205   | 184   | 167   | 152   | 136   | 116    | 94     | 85     |
|                                                   |              | 3                       | 298            | 261   | 230   | 205   | 184   | 167   | 152   | 136   | 116    | 100    | 85     |
|                                                   |              | q4                      | 1720           | 1660  | 1605  | 1560  | 1520  | 1485  | 1455  | 1430  | 1400   | 1380   | 1360   |
|                                                   |              | F4                      | 0.38           | 0.39  | 0.41  | 0.42  | 0.43  | 0.44  | 0.45  | 0.46  | 0.46   | 0.47   | 0.48   |
|                                                   |              | q7                      | 2055           | 1970  | 1895  | 1830  | 1775  | 1725  | 1680  | 1640  | 1605   | 1570   | 1540   |
|                                                   |              | F7                      | 0.32           | 0.33  | 0.34  | 0.36  | 0.37  | 0.38  | 0.39  | 0.40  | 0.41   | 0.41   | 0.42   |
|                                                   | 16           | 1                       | 298            | 260   | 230   | 205   | 184   | 166   | 151   | 138   | 127    | 93     | 84     |
|                                                   |              | 2                       | 298            | 260   | 230   | 205   | 184   | 166   | 151   | 138   | 127    | 112    | 97     |
|                                                   |              | 3                       | 298            | 260   | 230   | 205   | 184   | 166   | 151   | 138   | 127    | 112    | 97     |
|                                                   |              | q4                      | 1890           | 1815  | 1750  | 1690  | 1640  | 1595  | 1560  | 1525  | 1490   | 1465   | 1435   |
|                                                   |              | F4                      | 0.31           | 0.32  | 0.33  | 0.34  | 0.35  | 0.36  | 0.37  | 0.38  | 0.39   | 0.40   | 0.41   |
|                                                   |              | q7                      | 2310           | 2200  | 2105  | 2025  | 1955  | 1890  | 1835  | 1785  | 1745   | 1700   | 1665   |
|                                                   |              | F7                      | 0.25           | 0.26  | 0.28  | 0.29  | 0.30  | 0.31  | 0.32  | 0.33  | 0.33   | 0.34   | 0.35   |

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(continued)

**TABLE 8—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLB™-36 & B-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1,2,3,4,5,6,7</sup> – Continued

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE       | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |       |       |        |        |        |
|---------------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|                                                   |              |                         | 6'-0"          | 6'-6" | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" |
| 4"<br>Structural<br>Light<br>Weight<br>(110 pcf)  | 22           | 1                       | 277            | 239   | 208   | 183   | 161   | 143   | 128   | 115   | 103    | 93     | 84     |
|                                                   |              | 2                       | 300            | 266   | 235   | 209   | 161   | 143   | 128   | 115   | 103    | 93     | 84     |
|                                                   |              | 3                       | 300            | 266   | 235   | 183   | 161   | 143   | 128   | 115   | 103    | 93     | 84     |
|                                                   |              | q4                      | 1660           | 1620  | 1585  | 1560  | 1535  | 1510  | 1490  | 1475  | 1460   | 1445   | 1430   |
|                                                   |              | F4                      | 0.50           | 0.51  | 0.52  | 0.53  | 0.54  | 0.54  | 0.55  | 0.56  | 0.56   | 0.57   | 0.58   |
|                                                   |              | q7                      | 1870           | 1815  | 1765  | 1725  | 1690  | 1660  | 1630  | 1605  | 1585   | 1565   | 1545   |
|                                                   |              | F7                      | 0.44           | 0.45  | 0.47  | 0.48  | 0.49  | 0.50  | 0.50  | 0.51  | 0.52   | 0.53   | 0.53   |
|                                                   |              | 1                       | 300            | 279   | 220   | 193   | 171   | 152   | 135   | 121   | 109    | 99     | 89     |
|                                                   | 20           | 2                       | 300            | 279   | 247   | 220   | 197   | 152   | 135   | 121   | 109    | 99     | 89     |
|                                                   |              | 3                       | 300            | 279   | 247   | 220   | 197   | 178   | 135   | 121   | 109    | 99     | 89     |
|                                                   |              | q4                      | 1725           | 1680  | 1640  | 1605  | 1575  | 1550  | 1525  | 1505  | 1485   | 1470   | 1455   |
|                                                   |              | F4                      | 0.44           | 0.45  | 0.46  | 0.47  | 0.48  | 0.48  | 0.49  | 0.50  | 0.51   | 0.51   | 0.52   |
|                                                   |              | q7                      | 1975           | 1910  | 1855  | 1805  | 1765  | 1725  | 1695  | 1665  | 1635   | 1615   | 1590   |
|                                                   |              | F7                      | 0.38           | 0.39  | 0.41  | 0.42  | 0.43  | 0.44  | 0.44  | 0.45  | 0.46   | 0.47   | 0.47   |
|                                                   |              | 1                       | 300            | 300   | 266   | 237   | 213   | 165   | 148   | 133   | 120    | 108    | 98     |
|                                                   | 18           | 2                       | 300            | 300   | 266   | 237   | 213   | 193   | 175   | 160   | 120    | 108    | 98     |
|                                                   |              | 3                       | 300            | 300   | 266   | 237   | 213   | 193   | 175   | 160   | 147    | 108    | 98     |
|                                                   |              | q4                      | 1880           | 1820  | 1765  | 1720  | 1680  | 1645  | 1615  | 1585  | 1560   | 1540   | 1515   |
|                                                   |              | F4                      | 0.35           | 0.36  | 0.37  | 0.38  | 0.39  | 0.40  | 0.40  | 0.41  | 0.42   | 0.42   | 0.43   |
|                                                   |              | q7                      | 2215           | 2125  | 2050  | 1985  | 1930  | 1880  | 1835  | 1795  | 1760   | 1730   | 1700   |
|                                                   |              | F7                      | 0.29           | 0.31  | 0.32  | 0.33  | 0.34  | 0.35  | 0.35  | 0.36  | 0.37   | 0.38   | 0.38   |
|                                                   |              | 1                       | 300            | 300   | 265   | 236   | 212   | 192   | 174   | 159   | 118    | 107    | 97     |
|                                                   | 16           | 2                       | 300            | 300   | 265   | 236   | 212   | 192   | 174   | 159   | 146    | 135    | 97     |
|                                                   |              | 3                       | 300            | 300   | 265   | 236   | 212   | 192   | 174   | 159   | 146    | 135    | 125    |
|                                                   |              | q4                      | 2050           | 1970  | 1905  | 1850  | 1800  | 1755  | 1715  | 1680  | 1650   | 1620   | 1595   |
|                                                   |              | F4                      | 0.28           | 0.30  | 0.31  | 0.32  | 0.32  | 0.33  | 0.34  | 0.35  | 0.35   | 0.36   | 0.37   |
|                                                   |              | q7                      | 2465           | 2360  | 2265  | 2185  | 2115  | 2050  | 1995  | 1945  | 1900   | 1860   | 1825   |
|                                                   |              | F7                      | 0.24           | 0.25  | 0.26  | 0.27  | 0.28  | 0.28  | 0.29  | 0.30  | 0.31   | 0.31   | 0.32   |
| 4¾"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 300            | 292   | 254   | 223   | 197   | 175   | 156   | 140   | 125    | 113    | 102    |
|                                                   |              | 2                       | 300            | 300   | 287   | 223   | 197   | 175   | 156   | 140   | 125    | 113    | 102    |
|                                                   |              | 3                       | 300            | 300   | 254   | 223   | 197   | 175   | 156   | 140   | 125    | 113    | 102    |
|                                                   |              | q4                      | 1895           | 1855  | 1825  | 1795  | 1770  | 1750  | 1730  | 1710  | 1695   | 1680   | 1670   |
|                                                   |              | F4                      | 0.43           | 0.44  | 0.45  | 0.46  | 0.47  | 0.47  | 0.48  | 0.48  | 0.49   | 0.49   | 0.49   |
|                                                   |              | q7                      | 2105           | 2050  | 2005  | 1965  | 1930  | 1895  | 1870  | 1845  | 1820   | 1800   | 1785   |
|                                                   |              | F7                      | 0.39           | 0.40  | 0.41  | 0.42  | 0.43  | 0.43  | 0.44  | 0.45  | 0.45   | 0.46   | 0.46   |
|                                                   | 20           | 1                       | 300            | 300   | 268   | 235   | 208   | 185   | 165   | 148   | 133    | 120    | 109    |
|                                                   |              | 2                       | 300            | 300   | 300   | 268   | 208   | 185   | 165   | 148   | 133    | 120    | 109    |
|                                                   |              | 3                       | 300            | 300   | 300   | 268   | 241   | 185   | 165   | 148   | 133    | 120    | 109    |
|                                                   |              | q4                      | 1965           | 1915  | 1875  | 1840  | 1810  | 1785  | 1760  | 1740  | 1725   | 1705   | 1690   |
|                                                   |              | F4                      | 0.38           | 0.39  | 0.40  | 0.41  | 0.41  | 0.42  | 0.43  | 0.43  | 0.44   | 0.44   | 0.44   |
|                                                   |              | q7                      | 2215           | 2150  | 2095  | 2045  | 2000  | 1965  | 1930  | 1900  | 1875   | 1850   | 1830   |
|                                                   |              | F7                      | 0.34           | 0.35  | 0.36  | 0.37  | 0.38  | 0.38  | 0.39  | 0.40  | 0.40   | 0.41   | 0.41   |

See Page 12 for footnotes

(continued)

**TABLE 8—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLB™-36 & B-36 FORMLOK™ DECK WITH CONCRETE FILL<sup>1,2,3,4,5,6,7</sup> – Continued**

| TOTAL SLAB DEPTH AND CONCRETE TYPE    | DECK GAGE | NO. OF DECK SPANS | SPAN (ft.-in.) |       |       |       |       |       |       |       |        |        |        |
|---------------------------------------|-----------|-------------------|----------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|                                       |           |                   | 6'-0"          | 6'-6" | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" |
| 4¾" Structural Light Weight (110 pcf) | 18        | 1                 | 300            | 300   | 300   | 289   | 226   | 201   | 180   | 161   | 145    | 131    | 119    |
|                                       |           | 2                 | 300            | 300   | 300   | 289   | 260   | 235   | 213   | 161   | 145    | 131    | 119    |
|                                       |           | 3                 | 300            | 300   | 300   | 289   | 260   | 235   | 213   | 195   | 145    | 131    | 119    |
|                                       |           | q4                | 2115           | 2055  | 2000  | 1955  | 1915  | 1880  | 1850  | 1825  | 1795   | 1775   | 1755   |
|                                       |           | F4                | 0.31           | 0.32  | 0.33  | 0.33  | 0.34  | 0.35  | 0.35  | 0.36  | 0.36   | 0.37   | 0.37   |
|                                       |           | q7                | 2450           | 2365  | 2290  | 2225  | 2170  | 2120  | 2075  | 2035  | 2000   | 1965   | 1935   |
|                                       |           | F7                | 0.27           | 0.28  | 0.28  | 0.29  | 0.30  | 0.31  | 0.31  | 0.32  | 0.33   | 0.33   | 0.34   |
|                                       | 16        | 1                 | 300            | 300   | 300   | 287   | 258   | 233   | 212   | 159   | 143    | 130    | 117    |
|                                       |           | 2                 | 300            | 300   | 300   | 287   | 258   | 233   | 212   | 194   | 178    | 130    | 117    |
|                                       |           | 3                 | 300            | 300   | 300   | 287   | 258   | 233   | 212   | 194   | 178    | 164    | 152    |
|                                       |           | q4                | 2285           | 2210  | 2145  | 2085  | 2035  | 1990  | 1955  | 1920  | 1885   | 1860   | 1830   |
|                                       |           | F4                | 0.25           | 0.26  | 0.27  | 0.28  | 0.29  | 0.29  | 0.30  | 0.30  | 0.31   | 0.31   | 0.32   |
|                                       |           | q7                | 2705           | 2595  | 2500  | 2420  | 2350  | 2285  | 2230  | 2180  | 2140   | 2095   | 2060   |
|                                       |           | F7                | 0.22           | 0.22  | 0.23  | 0.24  | 0.25  | 0.25  | 0.26  | 0.27  | 0.27   | 0.28   | 0.28   |
| 5¾" Structural Light Weight (110 pcf) | 22        | 1                 | 300            | 300   | 300   | 279   | 246   | 219   | 195   | 175   | 157    | 141    | 128    |
|                                       |           | 2                 | 300            | 300   | 300   | 279   | 246   | 219   | 195   | 175   | 157    | 141    | 128    |
|                                       |           | 3                 | 300            | 300   | 300   | 279   | 246   | 219   | 195   | 175   | 157    | 141    | 128    |
|                                       |           | q4                | 2210           | 2175  | 2140  | 2110  | 2085  | 2065  | 2045  | 2030  | 2010   | 2000   | 1985   |
|                                       |           | F4                | 0.37           | 0.38  | 0.38  | 0.39  | 0.39  | 0.40  | 0.40  | 0.41  | 0.41   | 0.41   | 0.41   |
|                                       |           | q7                | 2420           | 2365  | 2320  | 2280  | 2245  | 2210  | 2185  | 2160  | 2140   | 2115   | 2100   |
|                                       |           | F7                | 0.34           | 0.35  | 0.36  | 0.36  | 0.37  | 0.37  | 0.38  | 0.38  | 0.39   | 0.39   | 0.39   |
|                                       | 20        | 1                 | 300            | 300   | 300   | 294   | 260   | 231   | 206   | 185   | 166    | 150    | 136    |
|                                       |           | 2                 | 300            | 300   | 300   | 294   | 260   | 231   | 206   | 185   | 166    | 150    | 136    |
|                                       |           | 3                 | 300            | 300   | 300   | 294   | 260   | 231   | 206   | 185   | 166    | 150    | 136    |
|                                       |           | q4                | 2280           | 2235  | 2195  | 2160  | 2130  | 2105  | 2080  | 2060  | 2040   | 2020   | 2005   |
|                                       |           | F4                | 0.33           | 0.34  | 0.34  | 0.35  | 0.35  | 0.36  | 0.36  | 0.37  | 0.37   | 0.37   | 0.37   |
|                                       |           | q7                | 2530           | 2465  | 2410  | 2360  | 2320  | 2280  | 2250  | 2215  | 2190   | 2165   | 2145   |
|                                       |           | F7                | 0.30           | 0.30  | 0.31  | 0.31  | 0.32  | 0.32  | 0.33  | 0.33  | 0.34   | 0.35   | 0.35   |
|                                       | 18        | 1                 | 300            | 300   | 300   | 300   | 282   | 251   | 224   | 201   | 182    | 164    | 149    |
|                                       |           | 2                 | 300            | 300   | 300   | 300   | 300   | 251   | 224   | 201   | 182    | 164    | 149    |
|                                       |           | 3                 | 300            | 300   | 300   | 300   | 300   | 293   | 266   | 201   | 182    | 164    | 149    |
|                                       |           | q4                | 2430           | 2370  | 2320  | 2275  | 2230  | 2200  | 2165  | 2140  | 2110   | 2090   | 2070   |
|                                       |           | F4                | 0.27           | 0.27  | 0.28  | 0.29  | 0.29  | 0.30  | 0.30  | 0.30  | 0.31   | 0.31   | 0.31   |
|                                       |           | q7                | 2765           | 2680  | 2605  | 2540  | 2485  | 2435  | 2390  | 2350  | 2315   | 2280   | 2255   |
|                                       |           | F7                | 0.24           | 0.24  | 0.25  | 0.26  | 0.26  | 0.27  | 0.27  | 0.28  | 0.28   | 0.29   | 0.29   |
|                                       | 16        | 1                 | 300            | 300   | 300   | 300   | 300   | 248   | 222   | 199   | 179    | 162    | 147    |
|                                       |           | 2                 | 300            | 300   | 300   | 300   | 300   | 291   | 264   | 199   | 179    | 162    | 147    |
|                                       |           | 3                 | 300            | 300   | 300   | 300   | 300   | 291   | 264   | 241   | 222    | 162    | 147    |
|                                       |           | q4                | 2600           | 2525  | 2460  | 2400  | 2350  | 2310  | 2270  | 2235  | 2200   | 2175   | 2150   |
|                                       |           | F4                | 0.22           | 0.23  | 0.24  | 0.24  | 0.25  | 0.25  | 0.26  | 0.26  | 0.26   | 0.27   | 0.27   |
|                                       |           | q7                | 3020           | 2910  | 2815  | 2735  | 2665  | 2605  | 2550  | 2500  | 2455   | 2415   | 2375   |
|                                       |           | F7                | 0.19           | 0.20  | 0.21  | 0.21  | 0.22  | 0.22  | 0.23  | 0.23  | 0.24   | 0.24   | 0.25   |

<sup>1</sup> Shoring calculations based on deck supporting dead load of concrete plus either 20 psf uniform construction live load or 150 lb concentrated live load for flexure. Dead load deflection limited to L/180 of span length, but not to exceed ¾ inch.

<sup>2</sup> Shoring is required at midspan for superimposed load values in the shaded area to the right of the heavy line.

<sup>3</sup> Steel for deck to have a minimum yield strength of 38,000 psi.

<sup>4</sup> Total slab depth is nominal depth from top of concrete to bottom of steel deck.

<sup>5</sup> Concrete fill to have a minimum compressive strength  $f'_c = 3000$  psi.

<sup>6</sup> The number after the letter q or F indicates the number of puddle welds per panel and at interior supports.

<sup>7</sup> Support reactions for unshored spans due to dead loads and uniform construction live loads shall not exceed values set forth in Table 5.

**TABLE 9—ALLOWABLE SUPERIMPOSED LOADS (psf) FOR TYPE BR-24, BR-30, AND BR-36  
FORMLOK™ DECK WITH CONCRETE FILL** <sup>1,2,3,4,5,6</sup>

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE    |    | DECK<br>GAGE | SPAN (ft-in.) |       |       |       |       |       |       |       |        |        |        |        |        |
|------------------------------------------------|----|--------------|---------------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
|                                                |    |              | 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" |
| 4"<br>Normal<br>Weight<br>(145 pcf)            | 22 | 290          | 268           | 221   | 204   | 189   | 177   | 165   | 155   |       |        |        |        |        |        |
|                                                | 20 | 288          | 266           | 247   | 230   | 187   | 175   | 164   | 154   | 145   |        |        |        |        |        |
|                                                | 18 | 286          | 264           | 245   | 229   | 214   | 202   | 191   | 152   | 143   | 135    | 127    | 120    | 114    |        |
|                                                | 16 | 285          | 263           | 244   | 228   | 214   | 201   | 190   | 180   | 171   | 133    | 126    | 119    | 113    |        |
| 4½"<br>Normal<br>Weight<br>(145 pcf)           | 22 | 330          | 272           | 250   | 232   | 215   | 200   | 188   | 176   | 166   |        |        |        |        |        |
|                                                | 20 | 328          | 303           | 281   | 230   | 213   | 199   | 186   | 174   | 164   | 155    |        |        |        |        |
|                                                | 18 | 324          | 300           | 278   | 260   | 243   | 229   | 183   | 172   | 162   | 153    | 144    | 136    | 129    |        |
|                                                | 16 | 323          | 298           | 277   | 258   | 242   | 228   | 215   | 204   | 160   | 151    | 142    | 135    | 128    |        |
| 5"<br>Normal<br>Weight<br>(145 pcf)            | 22 | 371          | 306           | 282   | 260   | 242   | 225   | 211   |       |       |        |        |        |        |        |
|                                                | 20 | 369          | 340           | 279   | 258   | 240   | 223   | 209   | 196   | 184   |        |        |        |        |        |
|                                                | 18 | 364          | 336           | 312   | 291   | 273   | 220   | 205   | 193   | 181   | 170    | 161    | 153    | 145    |        |
|                                                | 16 | 362          | 334           | 310   | 290   | 271   | 235   | 241   | 190   | 179   | 169    | 159    | 151    | 143    |        |
| 4"<br>Structural<br>Light Weight<br>(110 pcf)  | 22 | 213          | 197           | 183   | 149   | 138   | 129   | 120   |       |       |        |        |        |        |        |
|                                                | 20 | 212          | 196           | 182   | 170   | 153   | 128   | 120   | 112   | 105   |        |        |        |        |        |
|                                                | 18 | 210          | 194           | 180   | 168   | 157   | 148   | 140   | 132   | 104   | 98     | 93     | 87     | 83     |        |
|                                                | 16 | 210          | 194           | 180   | 168   | 157   | 148   | 140   | 132   | 125   | 119    | 92     | 87     | 82     |        |
| 4½"<br>Structural<br>Light Weight<br>(110 pcf) | 22 | 242          | 224           | 183   | 169   | 157   | 146   |       |       |       |        |        |        |        |        |
|                                                | 20 | 240          | 222           | 206   | 192   | 155   | 145   | 135   | 127   |       |        |        |        |        |        |
|                                                | 18 | 238          | 220           | 203   | 190   | 178   | 167   | 158   | 125   | 117   | 111    | 104    |        |        |        |
|                                                | 16 | 236          | 218           | 203   | 189   | 178   | 167   | 158   | 150   | 142   | 135    | 103    | 98     | 93     |        |
| 4¾"<br>Structural<br>Light Weight<br>(110 pcf) | 22 | 257          | 237           | 194   | 180   | 166   | 154   | 145   |       |       |        |        |        |        |        |
|                                                | 20 | 255          | 236           | 219   | 204   | 165   | 153   | 143   | 134   |       |        |        |        |        |        |
|                                                | 18 | 252          | 233           | 216   | 202   | 189   | 178   | 168   | 132   | 124   | 117    | 110    |        |        |        |
|                                                | 16 | 251          | 231           | 215   | 200   | 188   | 177   | 167   | 158   | 150   | 116    | 109    | 103    | 98     |        |
| 5"<br>Structural<br>Light Weight<br>(110 pcf)  | 22 | 272          | 251           | 205   | 189   | 176   | 163   | 153   |       |       |        |        |        |        |        |
|                                                | 20 | 270          | 249           | 231   | 216   | 174   | 162   | 151   | 142   | 134   |        |        |        |        |        |
|                                                | 18 | 267          | 246           | 228   | 213   | 200   | 188   | 178   | 140   | 131   | 123    | 117    | 110    | 105    |        |
|                                                | 16 | 265          | 244           | 227   | 212   | 199   | 187   | 177   | 167   | 159   | 122    | 115    | 109    | 103    |        |

- <sup>1</sup> One row of shoring is required for spans in the shaded area to the right of the heavy line, based on three continuous span conditions.
- <sup>2</sup> Reinforcement in slab for temperature change and shrinkage control shall be not less than 6 x 6-W1.4 x W1.4 W.W.F.
- <sup>3</sup> Total slab depth is nominal depth from top of concrete to bottom of steel deck.
- <sup>4</sup>  $f_c = 3000$  psi
- <sup>5</sup> Embossments are not required in either flange for Type BR decks
- <sup>6</sup> Shoring calculations based on deck supporting dead load of concrete plus either 20 psf uniform construction live load or 150 lb concentrated live load for flexure. Dead load deflection limited to L/180 of span length, but not to exceed ¼ inch.

**TABLE 10—ALLOWABLE DIAPHRAGM SHEAR VALUES, q (plf), FOR BR-36 AND BR-36 FORMLOK™ DECKS WITH CONCRETE FILL <sup>1, 2</sup>**

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE | DECK<br>GAGE | WELDS<br>PER<br>SHEET TO<br>SUPPORT | SPAN (ft-in.) |       |       |       |       |        |
|---------------------------------------------|--------------|-------------------------------------|---------------|-------|-------|-------|-------|--------|
|                                             |              |                                     | 5'-0"         | 6'-0" | 7'-0" | 8'-0" | 9'-0" | 10'-0" |
| 3½"<br>Normal<br>Weight<br>(145 pcf)        | 22           | q4                                  | 1835          | 1755  | 1695  | 1655  | 1620  | 1595   |
|                                             |              | q6                                  | 2000          | 1890  | 1815  | 1760  | 1715  | 1675   |
|                                             | 20           | q4                                  | 1895          | 1800  | 1730  | 1680  | 1640  | 1610   |
|                                             |              | q6                                  | 2090          | 1965  | 1870  | 1805  | 1750  | 1705   |
|                                             | 18           | q4                                  | 2035          | 1910  | 1815  | 1750  | 1695  | 1655   |
|                                             |              | q6                                  | 2300          | 2130  | 2005  | 1915  | 1845  | 1785   |
|                                             | 16           | q4                                  | 2195          | 2035  | 1920  | 1835  | 1770  | 1715   |
|                                             |              | q6                                  | 2525          | 2310  | 2155  | 2040  | 1950  | 1880   |
|                                             | 22           | q4                                  | 2070          | 1995  | 1935  | 1895  | 1860  | 1835   |
|                                             |              | q6                                  | 2235          | 2130  | 2055  | 1995  | 1950  | 1915   |
| 4"<br>Normal<br>Weight<br>(145 pcf)         | 20           | q4                                  | 2135          | 2040  | 1970  | 1920  | 1880  | 1845   |
|                                             |              | q6                                  | 2330          | 2205  | 2110  | 2040  | 1990  | 1945   |
|                                             | 18           | q4                                  | 2275          | 2145  | 2055  | 1990  | 1935  | 1895   |
|                                             |              | q6                                  | 2540          | 2365  | 2245  | 2153  | 2080  | 2025   |
|                                             | 16           | q4                                  | 2430          | 2275  | 2160  | 2075  | 2010  | 1955   |
|                                             |              | q6                                  | 2760          | 2530  | 2395  | 2280  | 2190  | 2120   |
|                                             | 22           | q4                                  | 2550          | 2470  | 2415  | 2370  | 2340  | 2312   |
|                                             |              | q6                                  | 2715          | 2610  | 2530  | 2475  | 2430  | 2395   |
|                                             | 20           | q4                                  | 2610          | 2515  | 2450  | 2395  | 2355  | 2325   |
|                                             |              | q6                                  | 2810          | 2680  | 2590  | 2520  | 2465  | 2425   |
| 5"<br>Normal<br>Weight<br>(145 pcf)         | 18           | q4                                  | 2750          | 2625  | 2535  | 2465  | 2415  | 2370   |
|                                             |              | q6                                  | 3015          | 2845  | 2725  | 2630  | 2560  | 2505   |
|                                             | 16           | q4                                  | 2910          | 2750  | 2640  | 2550  | 2485  | 2435   |
|                                             |              | q6                                  | 3240          | 3025  | 2875  | 2760  | 2670  | 2600   |
|                                             | 22           | q4                                  | 3030          | 2950  | 2895  | 2850  | 2815  | 2790   |
|                                             |              | q6                                  | 3195          | 3085  | 3010  | 2955  | 2910  | 2875   |
|                                             | 20           | q4                                  | 3090          | 2995  | 2925  | 2875  | 2835  | 2805   |
|                                             |              | q6                                  | 3290          | 3160  | 3065  | 3000  | 2945  | 2900   |
|                                             | 18           | q4                                  | 3230          | 3105  | 3015  | 2945  | 2890  | 2850   |
|                                             |              | q6                                  | 3495          | 3325  | 3200  | 3110  | 3040  | 2980   |
| 6"<br>Normal<br>Weight<br>(145 pcf)         | 16           | q4                                  | 3390          | 3230  | 3115  | 3030  | 2965  | 2910   |
|                                             |              | q6                                  | 3720          | 3505  | 3350  | 3235  | 3150  | 3075   |

See Page 15 for footnotes.

(continued)



**TABLE 10—ALLOWABLE DIAPHRAGM SHEAR VALUES, q (plf), FOR BR-36 and BR-36 FORMLOK™ DECKS WITH CONCRETE FILL <sup>1, 2</sup> – Continued**

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE       | DECK<br>GAGE | WELDS<br>PER<br>SHEET TO<br>SUPPORT | SPAN (ft-in.) |       |       |       |       |        |
|---------------------------------------------------|--------------|-------------------------------------|---------------|-------|-------|-------|-------|--------|
|                                                   |              |                                     | 5'-0"         | 6'-0" | 7'-0" | 8'-0" | 9'-0" | 10'-0" |
| 3 1/2"<br>Structural<br>Light Weight<br>(110 pcf) | 22           | q4                                  | 1510          | 1430  | 1373  | 1330  | 1295  | 1270   |
|                                                   |              | q6                                  | 1675          | 1565  | 1490  | 1435  | 1390  | 1355   |
|                                                   | 20           | q4                                  | 1570          | 1475  | 1405  | 1355  | 1315  | 1285   |
|                                                   |              | q6                                  | 1770          | 1640  | 1550  | 1480  | 1425  | 1380   |
|                                                   | 18           | q4                                  | 1710          | 1585  | 1495  | 1425  | 1370  | 1330   |
|                                                   |              | q6                                  | 1975          | 1805  | 1680  | 1590  | 1520  | 1460   |
|                                                   | 16           | q4                                  | 1870          | 1710  | 1595  | 1510  | 1445  | 1390   |
|                                                   |              | q6                                  | 2200          | 1985  | 1830  | 1715  | 1630  | 1555   |
|                                                   | 22           | q4                                  | 1665          | 1585  | 1530  | 1490  | 1455  | 1430   |
|                                                   |              | q6                                  | 1830          | 1725  | 1650  | 1590  | 1545  | 1510   |
| 4"<br>Structural<br>Light Weight<br>(110 pcf)     | 20           | q4                                  | 1730          | 1630  | 1565  | 1515  | 1475  | 1440   |
|                                                   |              | q6                                  | 1925          | 1795  | 1705  | 1635  | 1585  | 1540   |
|                                                   | 18           | q4                                  | 1870          | 1740  | 1650  | 1585  | 1530  | 1485   |
|                                                   |              | q6                                  | 2130          | 1960  | 1840  | 1750  | 1675  | 1620   |
|                                                   | 16           | q4                                  | 2025          | 1865  | 1755  | 1670  | 1600  | 1550   |
|                                                   |              | q6                                  | 2355          | 2140  | 1990  | 1875  | 1785  | 1715   |
|                                                   | 22           | q4                                  | 1905          | 1825  | 1770  | 1725  | 1690  | 1665   |
|                                                   |              | q6                                  | 2070          | 1960  | 1885  | 1830  | 1785  | 1750   |
|                                                   | 20           | q4                                  | 1965          | 1870  | 1800  | 1750  | 1710  | 1680   |
|                                                   |              | q6                                  | 2165          | 2035  | 1940  | 1875  | 1820  | 1775   |
| 4 3/4"<br>Structural<br>Light Weight<br>(110 pcf) | 18           | q4                                  | 2105          | 1980  | 1890  | 1820  | 1765  | 1725   |
|                                                   |              | q6                                  | 2370          | 2200  | 2075  | 1985  | 1915  | 1855   |
|                                                   | 16           | q4                                  | 2265          | 2105  | 1990  | 1905  | 1840  | 1785   |
|                                                   |              | q6                                  | 2595          | 2400  | 2225  | 2110  | 2025  | 1950   |
|                                                   | 22           | q4                                  | 2220          | 2140  | 2085  | 2040  | 2010  | 1980   |
|                                                   |              | q6                                  | 2385          | 2280  | 2200  | 2145  | 2100  | 2065   |
|                                                   | 20           | q4                                  | 2280          | 2185  | 2115  | 2065  | 2025  | 1995   |
|                                                   |              | q6                                  | 2480          | 2350  | 2260  | 2190  | 2135  | 2095   |
|                                                   | 18           | q4                                  | 2420          | 2295  | 2205  | 2135  | 2085  | 2040   |
|                                                   |              | q6                                  | 2685          | 2515  | 2390  | 2300  | 2230  | 2170   |
| 5 3/4"<br>Structural<br>Light Weight<br>(110 pcf) | 16           | q4                                  | 2580          | 2420  | 2305  | 2220  | 2155  | 2100   |
|                                                   |              | q6                                  | 2910          | 2695  | 2545  | 2430  | 2340  | 2265   |

<sup>1</sup> Total slab depth, in inches, from bottom of deck to top of concrete.

<sup>2</sup> Concrete fill to have a minimum compressive strength  $f'_c = 3000$  psi.

**TABLE 11—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW2™-36 & W2-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1,2,3,4,5,6,7,8</sup>

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE |                         |       | SPAN (ft.-in.) |       |       |       |       |        |        |        |        |        |      |  |
|---------------------------------------------|-------------------------|-------|----------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|------|--|
| DECK<br>GAGE                                | NO. OF<br>DECK<br>SPANS |       |                |       |       |       |       |        |        |        |        |        |      |  |
|                                             |                         | 7'-0" | 7'-6"          | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" | 11'-6" | 12'-0" |      |  |
| 4"<br>Normal<br>Weight<br>(145 pcf)         | 22                      | 1     | 255            | 190   | 167   | 148   | 131   | 116    | 104    | 93     | 83     | 75     | 67   |  |
|                                             |                         | 2     | 255            | 227   | 204   | 148   | 131   | 116    | 104    | 93     | 83     | 75     | 67   |  |
|                                             |                         | 3     | 255            | 227   | 204   | 185   | 131   | 116    | 104    | 93     | 83     | 75     | 67   |  |
|                                             |                         | q3    | 1665           | 1650  | 1635  | 1620  | 1610  | 1595   | 1590   | 1580   | 1570   | 1565   | 1555 |  |
|                                             |                         | q4    | 1780           | 1750  | 1720  | 1700  | 1680  | 1660   | 1640   | 1620   | 1610   | 1600   | 1590 |  |
|                                             | 21                      | 1     | 286            | 255   | 192   | 170   | 151   | 135    | 121    | 108    | 97     | 88     | 79   |  |
|                                             |                         | 2     | 286            | 255   | 229   | 207   | 151   | 135    | 121    | 108    | 97     | 88     | 79   |  |
|                                             |                         | 3     | 286            | 255   | 229   | 207   | 188   | 135    | 121    | 108    | 97     | 88     | 79   |  |
|                                             |                         | q3    | 1670           | 1655  | 1635  | 1620  | 1610  | 1595   | 1585   | 1575   | 1565   | 1560   | 1550 |  |
|                                             |                         | q4    | 1810           | 1770  | 1740  | 1720  | 1700  | 1680   | 1660   | 1640   | 1620   | 1610   | 1600 |  |
|                                             | 20                      | 1     | 317            | 282   | 252   | 192   | 171   | 153    | 138    | 124    | 112    | 101    | 92   |  |
|                                             |                         | 2     | 317            | 282   | 254   | 229   | 208   | 153    | 138    | 124    | 112    | 101    | 92   |  |
|                                             |                         | 3     | 317            | 282   | 254   | 229   | 208   | 187    | 166    | 124    | 112    | 101    | 92   |  |
|                                             |                         | q3    | 1680           | 1660  | 1640  | 1625  | 1610  | 1595   | 1585   | 1575   | 1565   | 1555   | 1550 |  |
|                                             |                         | q4    | 1840           | 1800  | 1770  | 1740  | 1720  | 1690   | 1670   | 1650   | 1640   | 1620   | 1610 |  |
|                                             | 19                      | 1     | 380            | 339   | 305   | 259   | 214   | 191    | 173    | 156    | 142    | 129    | 118  |  |
|                                             |                         | 2     | 380            | 339   | 305   | 275   | 249   | 220    | 195    | 156    | 142    | 129    | 118  |  |
|                                             |                         | 3     | 380            | 339   | 305   | 275   | 249   | 220    | 195    | 174    | 152    | 129    | 118  |  |
|                                             |                         | q3    | 1700           | 1680  | 1655  | 1635  | 1620  | 1605   | 1590   | 1580   | 1570   | 1560   | 1550 |  |
|                                             |                         | q4    | 1900           | 1860  | 1820  | 1790  | 1760  | 1730   | 1710   | 1690   | 1670   | 1650   | 1640 |  |
|                                             | 18                      | 1     | 400            | 388   | 348   | 303   | 253   | 211    | 203    | 184    | 167    | 147    | 129  |  |
|                                             |                         | 2     | 400            | 388   | 348   | 315   | 278   | 246    | 218    | 193    | 167    | 147    | 129  |  |
|                                             |                         | 3     | 400            | 388   | 348   | 315   | 278   | 246    | 218    | 193    | 168    | 147    | 129  |  |
|                                             |                         | q3    | 1725           | 1700  | 1675  | 1655  | 1635  | 1615   | 1600   | 1590   | 1575   | 1565   | 1555 |  |
|                                             |                         | q4    | 1960           | 1910  | 1870  | 1830  | 1800  | 1770   | 1750   | 1720   | 1700   | 1680   | 1660 |  |
|                                             | 16                      | 1     | 400            | 388   | 348   | 315   | 277   | 245    | 217    | 194    | 166    | 152    | 139  |  |
|                                             |                         | 2     | 400            | 388   | 348   | 315   | 277   | 245    | 217    | 194    | 173    | 155    | 140  |  |
|                                             |                         | 3     | 400            | 388   | 348   | 315   | 277   | 245    | 217    | 194    | 173    | 155    | 140  |  |
|                                             |                         | q3    | 1790           | 1760  | 1730  | 1700  | 1675  | 1655   | 1635   | 1620   | 1605   | 1590   | 1575 |  |
|                                             |                         | q4    | 2110           | 2050  | 1990  | 1950  | 1910  | 1870   | 1840   | 1810   | 1780   | 1760   | 1740 |  |
| 4½"<br>Normal<br>Weight<br>(145 pcf)        | 22                      | 1     | 246            | 214   | 188   | 166   | 147   | 131    | 117    | 104    | 93     | 84     | 75   |  |
|                                             |                         | 2     | 288            | 257   | 188   | 166   | 147   | 131    | 117    | 104    | 93     | 84     | 75   |  |
|                                             |                         | 3     | 288            | 257   | 231   | 166   | 147   | 131    | 117    | 104    | 93     | 84     | 75   |  |
|                                             |                         | q3    | 1905           | 1890  | 1875  | 1860  | 1845  | 1835   | 1825   | 1820   | 1810   | 1805   | 1795 |  |
|                                             |                         | q4    | 2020           | 1990  | 1960  | 1940  | 1920  | 1900   | 1880   | 1860   | 1850   | 1840   | 1830 |  |
|                                             | 21                      | 1     | 322            | 245   | 216   | 191   | 170   | 151    | 135    | 122    | 109    | 98     | 89   |  |
|                                             |                         | 2     | 322            | 287   | 258   | 191   | 170   | 151    | 135    | 122    | 109    | 98     | 89   |  |
|                                             |                         | 3     | 322            | 287   | 258   | 233   | 170   | 151    | 135    | 122    | 109    | 98     | 89   |  |
|                                             |                         | q3    | 1910           | 1890  | 1875  | 1860  | 1845  | 1835   | 1825   | 1815   | 1805   | 1800   | 1790 |  |
|                                             |                         | q4    | 2040           | 2010  | 1980  | 1950  | 1930  | 1910   | 1900   | 1880   | 1860   | 1850   | 1840 |  |
|                                             | 20                      | 1     | 357            | 318   | 243   | 216   | 192   | 172    | 154    | 139    | 126    | 114    | 103  |  |
|                                             |                         | 2     | 357            | 318   | 286   | 258   | 192   | 172    | 154    | 139    | 126    | 114    | 103  |  |
|                                             |                         | 3     | 357            | 318   | 286   | 258   | 235   | 215    | 154    | 139    | 126    | 114    | 103  |  |
|                                             |                         | q3    | 1920           | 1900  | 1880  | 1865  | 1850  | 1835   | 1825   | 1815   | 1805   | 1795   | 1790 |  |
|                                             |                         | q4    | 2070           | 2040  | 2010  | 1980  | 1950  | 1930   | 1910   | 1890   | 1880   | 1860   | 1850 |  |

See Page 21 for footnotes.

(continued)

**TABLE 11—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW2™-36 & W2-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |        |        |        |        |        |
|---------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
|                                             |              |                         | 7'-0"          | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" | 11'-6" | 12'-0" |
| 4½"<br>Normal<br>Weight<br>(145 pcf)        | 19           | 1                       | 400            | 382   | 343   | 289   | 239   | 214   | 193    | 175    | 159    | 144    | 131    |
|                                             |              | 2                       | 400            | 382   | 343   | 310   | 282   | 257   | 193    | 175    | 159    | 144    | 131    |
|                                             |              | 3                       | 400            | 382   | 343   | 310   | 282   | 257   | 231    | 198    | 159    | 144    | 131    |
|                                             |              | q3                      | 1940           | 1915  | 1895  | 1875  | 1860  | 1845  | 1830   | 1820   | 1810   | 1795   | 1790   |
|                                             |              | q4                      | 2140           | 2100  | 2060  | 2030  | 2000  | 1970  | 1950   | 1930   | 1910   | 1890   | 1880   |
|                                             | 18           | 1                       | 400            | 400   | 391   | 342   | 282   | 251   | 227    | 206    | 187    | 171    | 156    |
|                                             |              | 2                       | 400            | 400   | 391   | 354   | 322   | 293   | 260    | 206    | 187    | 171    | 156    |
|                                             |              | 3                       | 400            | 400   | 391   | 354   | 322   | 293   | 260    | 232    | 201    | 172    | 156    |
|                                             |              | q3                      | 1965           | 1935  | 1915  | 1890  | 1875  | 1855  | 1840   | 1825   | 1815   | 1805   | 1795   |
|                                             |              | q4                      | 2200           | 2150  | 2110  | 2070  | 2040  | 2010  | 1990   | 1960   | 1940   | 1920   | 1900   |
|                                             | 16           | 1                       | 400            | 400   | 390   | 352   | 320   | 293   | 269    | 204    | 185    | 169    | 155    |
|                                             |              | 2                       | 400            | 400   | 390   | 352   | 320   | 293   | 269    | 248    | 229    | 213    | 155    |
|                                             |              | 3                       | 400            | 400   | 390   | 352   | 320   | 293   | 269    | 248    | 229    | 213    | 198    |
|                                             |              | q3                      | 2030           | 1995  | 1965  | 1940  | 1915  | 1895  | 1875   | 1860   | 1845   | 1830   | 1815   |
|                                             |              | q4                      | 2350           | 2290  | 2240  | 2190  | 2150  | 2110  | 2080   | 2050   | 2020   | 2000   | 1980   |
| 5"<br>Normal<br>Weight<br>(145 pcf)         | 22           | 1                       | 275            | 240   | 211   | 186   | 165   | 146   | 130    | 117    | 104    | 93     | 84     |
|                                             |              | 2                       | 323            | 288   | 211   | 186   | 165   | 146   | 130    | 117    | 104    | 93     | 84     |
|                                             |              | 3                       | 323            | 288   | 211   | 186   | 165   | 146   | 130    | 117    | 104    | 93     | 84     |
|                                             |              | q3                      | 2145           | 2125  | 2110  | 2100  | 2085  | 2075  | 2065   | 2055   | 2050   | 2040   | 2035   |
|                                             |              | q4                      | 2250           | 2220  | 2190  | 2170  | 2150  | 2130  | 2120   | 2100   | 2090   | 2070   | 2060   |
|                                             | 21           | 1                       | 313            | 274   | 241   | 213   | 190   | 169   | 151    | 136    | 122    | 110    | 99     |
|                                             |              | 2                       | 361            | 322   | 289   | 213   | 190   | 169   | 151    | 136    | 122    | 110    | 99     |
|                                             |              | 3                       | 361            | 322   | 289   | 261   | 190   | 169   | 151    | 136    | 122    | 110    | 99     |
|                                             |              | q3                      | 2150           | 2130  | 2115  | 2100  | 2085  | 2075  | 2065   | 2055   | 2045   | 2035   | 2030   |
|                                             |              | q4                      | 2280           | 2250  | 2220  | 2190  | 2170  | 2150  | 2130   | 2110   | 2100   | 2080   | 2070   |
|                                             | 20           | 1                       | 400            | 308   | 272   | 241   | 215   | 192   | 173    | 155    | 140    | 127    | 115    |
|                                             |              | 2                       | 400            | 356   | 320   | 241   | 215   | 192   | 173    | 155    | 140    | 127    | 115    |
|                                             |              | 3                       | 400            | 356   | 320   | 289   | 263   | 192   | 173    | 155    | 140    | 127    | 115    |
|                                             |              | q3                      | 2160           | 2135  | 2120  | 2105  | 2090  | 2075  | 2065   | 2055   | 2045   | 2035   | 2025   |
|                                             |              | q4                      | 2310           | 2270  | 2240  | 2210  | 2190  | 2170  | 2150   | 2130   | 2110   | 2090   | 2080   |
|                                             | 19           | 1                       | 400            | 400   | 383   | 298   | 267   | 240   | 216    | 195    | 177    | 161    | 147    |
|                                             |              | 2                       | 400            | 400   | 383   | 347   | 315   | 240   | 216    | 195    | 177    | 161    | 147    |
|                                             |              | 3                       | 400            | 400   | 383   | 347   | 315   | 288   | 257    | 195    | 177    | 161    | 147    |
|                                             |              | q3                      | 2180           | 2155  | 2135  | 2115  | 2100  | 2085  | 2070   | 2060   | 2045   | 2035   | 2025   |
|                                             |              | q4                      | 2370           | 2330  | 2290  | 2260  | 2230  | 2200  | 2180   | 2160   | 2140   | 2120   | 2110   |
|                                             | 18           | 1                       | 400            | 400   | 400   | 375   | 304   | 280   | 253    | 229    | 209    | 190    | 174    |
|                                             |              | 2                       | 400            | 400   | 400   | 395   | 359   | 328   | 301    | 229    | 209    | 190    | 174    |
|                                             |              | 3                       | 400            | 400   | 400   | 395   | 359   | 328   | 301    | 258    | 220    | 190    | 174    |
|                                             |              | q3                      | 2205           | 2175  | 2150  | 2130  | 2110  | 2095  | 2080   | 2065   | 2055   | 2040   | 2030   |
|                                             |              | q4                      | 2430           | 2380  | 2340  | 2300  | 2270  | 2240  | 2220   | 2190   | 2170   | 2150   | 2140   |
|                                             | 16           | 1                       | 400            | 400   | 400   | 393   | 357   | 326   | 250    | 227    | 206    | 188    | 172    |
|                                             |              | 2                       | 400            | 400   | 400   | 393   | 357   | 326   | 300    | 276    | 256    | 188    | 172    |
|                                             |              | 3                       | 400            | 400   | 400   | 393   | 357   | 326   | 300    | 276    | 256    | 237    | 172    |
|                                             |              | q3                      | 2270           | 2235  | 2205  | 2180  | 2155  | 2135  | 2115   | 2100   | 2080   | 2070   | 2055   |
|                                             |              | q4                      | 2570           | 2510  | 2460  | 2420  | 2380  | 2340  | 2310   | 2280   | 2250   | 2230   | 2210   |

See Page 21 for footnotes.

(continued)

**TABLE 11—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW2™-36 & W2-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |        |        |        |        |        |
|---------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
|                                             |              |                         | 7'-0"          | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" | 11'-6" | 12'-0" |
| 5½"<br>Normal<br>Weight<br>(145 pcf)        | 22           | 1                       | 306            | 267   | 234   | 207   | 183   | 163   | 145    | 130    | 116    | 104    | 93     |
|                                             |              | 2                       | 359            | 267   | 234   | 207   | 183   | 163   | 145    | 130    | 116    | 104    | 93     |
|                                             |              | 3                       | 359            | 320   | 234   | 207   | 183   | 163   | 145    | 130    | 116    | 104    | 93     |
|                                             |              | q3                      | 2385           | 2365  | 2350  | 2335  | 2325  | 2315  | 2305   | 2295   | 2290   | 2280   | 2275   |
|                                             |              | q4                      | 2490           | 2460  | 2440  | 2410  | 2390  | 2370  | 2360   | 2340   | 2330   | 2320   | 2310   |
|                                             | 21           | 1                       | 348            | 304   | 268   | 237   | 211   | 188   | 168    | 151    | 136    | 122    | 110    |
|                                             |              | 2                       | 400            | 358   | 268   | 237   | 211   | 188   | 168    | 151    | 136    | 122    | 110    |
|                                             |              | 3                       | 400            | 358   | 321   | 237   | 211   | 188   | 168    | 151    | 136    | 122    | 110    |
|                                             |              | q3                      | 2390           | 2370  | 2355  | 2340  | 2325  | 2315  | 2300   | 2295   | 2285   | 2275   | 2270   |
|                                             |              | q4                      | 2520           | 2490  | 2460  | 2430  | 2410  | 2390  | 2370   | 2350   | 2340   | 2330   | 2320   |
|                                             | 20           | 1                       | 400            | 343   | 302   | 268   | 239   | 214   | 192    | 173    | 156    | 141    | 127    |
|                                             |              | 2                       | 400            | 396   | 356   | 268   | 239   | 214   | 192    | 173    | 156    | 141    | 127    |
|                                             |              | 3                       | 400            | 396   | 356   | 321   | 239   | 214   | 192    | 173    | 156    | 141    | 127    |
|                                             |              | q3                      | 2395           | 2375  | 2360  | 2340  | 2325  | 2315  | 2305   | 2290   | 2285   | 2275   | 2265   |
|                                             |              | q4                      | 2550           | 2510  | 2480  | 2450  | 2430  | 2410  | 2390   | 2370   | 2360   | 2340   | 2330   |
|                                             | 19           | 1                       | 400            | 400   | 400   | 331   | 296   | 266   | 240    | 217    | 197    | 179    | 163    |
|                                             |              | 2                       | 400            | 400   | 400   | 385   | 350   | 266   | 240    | 217    | 197    | 179    | 163    |
|                                             |              | 3                       | 400            | 400   | 400   | 385   | 350   | 320   | 240    | 217    | 197    | 179    | 163    |
|                                             |              | q3                      | 2420           | 2395  | 2375  | 2355  | 2340  | 2325  | 2310   | 2295   | 2285   | 2275   | 2265   |
|                                             |              | q4                      | 2620           | 2580  | 2540  | 2510  | 2480  | 2450  | 2430   | 2410   | 2390   | 2370   | 2350   |
|                                             | 18           | 1                       | 400            | 400   | 400   | 400   | 345   | 311   | 281    | 255    | 232    | 211    | 193    |
|                                             |              | 2                       | 400            | 400   | 400   | 400   | 399   | 365   | 281    | 255    | 232    | 211    | 193    |
|                                             |              | 3                       | 400            | 400   | 400   | 400   | 399   | 365   | 330    | 279    | 232    | 211    | 193    |
|                                             |              | q3                      | 2445           | 2415  | 2390  | 2370  | 2350  | 2335  | 2320   | 2305   | 2295   | 2280   | 2270   |
|                                             |              | q4                      | 2680           | 2630  | 2590  | 2550  | 2520  | 2490  | 2460   | 2440   | 2420   | 2400   | 2380   |
|                                             | 16           | 1                       | 400            | 400   | 400   | 400   | 396   | 362   | 277    | 252    | 229    | 208    | 190    |
|                                             |              | 2                       | 400            | 400   | 400   | 400   | 396   | 362   | 332    | 306    | 229    | 208    | 190    |
|                                             |              | 3                       | 400            | 400   | 400   | 400   | 396   | 362   | 332    | 306    | 283    | 263    | 190    |
|                                             |              | q3                      | 2510           | 2475  | 2445  | 2420  | 2395  | 2375  | 2355   | 2335   | 2320   | 2305   | 2295   |
|                                             |              | q4                      | 2820           | 2760  | 2710  | 2670  | 2630  | 2590  | 2560   | 2530   | 2500   | 2470   | 2450   |
| 6½"<br>Normal<br>Weight<br>(145 pcf)        | 22           | 1                       | 370            | 323   | 283   | 250   | 221   | 197   | 175    | 157    | 140    | 126    | 113    |
|                                             |              | 2                       | 370            | 323   | 283   | 250   | 221   | 197   | 175    | 157    | 140    | 126    | 113    |
|                                             |              | 3                       | 400            | 323   | 283   | 250   | 221   | 197   | 175    | 157    | 140    | 126    | 113    |
|                                             |              | q3                      | 2860           | 2845  | 2830  | 2815  | 2805  | 2795  | 2785   | 2775   | 2765   | 2760   | 2750   |
|                                             |              | q4                      | 2970           | 2940  | 2920  | 2890  | 2870  | 2850  | 2840   | 2820   | 2810   | 2790   | 2780   |
|                                             | 21           | 1                       | 400            | 368   | 324   | 286   | 255   | 227   | 203    | 182    | 164    | 148    | 133    |
|                                             |              | 2                       | 400            | 368   | 324   | 286   | 255   | 227   | 203    | 182    | 164    | 148    | 133    |
|                                             |              | 3                       | 400            | 400   | 324   | 286   | 255   | 227   | 203    | 182    | 164    | 148    | 133    |
|                                             |              | q3                      | 2865           | 2850  | 2830  | 2815  | 2805  | 2790  | 2780   | 2770   | 2760   | 2755   | 2745   |
|                                             |              | q4                      | 3000           | 2970  | 2940  | 2910  | 2890  | 2870  | 2850   | 2830   | 2820   | 2800   | 2790   |
|                                             | 20           | 1                       | 400            | 400   | 365   | 324   | 288   | 258   | 232    | 208    | 188    | 170    | 154    |
|                                             |              | 2                       | 400            | 400   | 365   | 324   | 288   | 258   | 232    | 208    | 188    | 170    | 154    |
|                                             |              | 3                       | 400            | 400   | 400   | 324   | 288   | 258   | 232    | 208    | 188    | 170    | 154    |
|                                             |              | q3                      | 2875           | 2855  | 2835  | 2820  | 2805  | 2790  | 2780   | 2770   | 2760   | 2750   | 2745   |
|                                             |              | q4                      | 3030           | 2990  | 2960  | 2930  | 2910  | 2890  | 2870   | 2850   | 2830   | 2820   | 2810   |

See Page 21 for footnotes.

(continued)

**TABLE 11—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW2™-36 & W2-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE      | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |       |       |        |        |        |        |        |
|--------------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
|                                                  |              |                         | 7'-0"          | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" | 11'-6" | 12'-0" |
| 6½"<br>Normal<br>Weight<br>(145 pcf)             | 19           | 1                       | 400            | 400   | 400   | 400   | 357   | 321   | 289    | 262    | 237    | 216    | 197    |
|                                                  |              | 2                       | 400            | 400   | 400   | 400   | 357   | 321   | 289    | 262    | 237    | 216    | 197    |
|                                                  |              | 3                       | 400            | 400   | 400   | 400   | 400   | 321   | 289    | 262    | 237    | 216    | 197    |
|                                                  |              | q3                      | 2900           | 2875  | 2850  | 2835  | 2815  | 2800  | 2785   | 2775   | 2765   | 2755   | 2745   |
|                                                  |              | q4                      | 3100           | 3060  | 3020  | 2990  | 2960  | 2930  | 2910   | 2890   | 2870   | 2850   | 2830   |
|                                                  | 18           | 1                       | 400            | 400   | 400   | 400   | 400   | 375   | 339    | 307    | 279    | 255    | 233    |
|                                                  |              | 2                       | 400            | 400   | 400   | 400   | 400   | 375   | 339    | 307    | 279    | 255    | 233    |
|                                                  |              | 3                       | 400            | 400   | 400   | 400   | 400   | 400   | 374    | 307    | 279    | 255    | 233    |
|                                                  |              | q3                      | 2920           | 2895  | 2870  | 2850  | 2830  | 2810  | 2795   | 2785   | 2770   | 2760   | 2750   |
|                                                  |              | q4                      | 3150           | 3110  | 3070  | 3030  | 3000  | 2970  | 2940   | 2920   | 2900   | 2880   | 2860   |
|                                                  | 16           | 1                       | 400            | 400   | 400   | 400   | 400   | 370   | 334    | 303    | 276    | 251    | 230    |
|                                                  |              | 2                       | 400            | 400   | 400   | 400   | 400   | 400   | 400    | 303    | 276    | 251    | 230    |
|                                                  |              | 3                       | 400            | 400   | 400   | 400   | 400   | 400   | 400    | 369    | 341    | 251    | 230    |
|                                                  |              | q3                      | 2990           | 2955  | 2925  | 2895  | 2875  | 2850  | 2835   | 2815   | 2800   | 2785   | 2770   |
|                                                  |              | q4                      | 3300           | 3240  | 3190  | 3150  | 3110  | 3070  | 3040   | 3010   | 2980   | 2950   | 2930   |
| 4"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 255            | 227   | 176   | 156   | 140   | 125   | 113    | 102    | 92     | 83     | 76     |
|                                                  |              | 2                       | 255            | 227   | 204   | 185   | 140   | 125   | 113    | 102    | 92     | 83     | 76     |
|                                                  |              | 3                       | 255            | 227   | 204   | 185   | 168   | 125   | 113    | 102    | 92     | 83     | 76     |
|                                                  |              | q3                      | 1340           | 1325  | 1310  | 1295  | 1285  | 1275  | 1265   | 1255   | 1245   | 1240   | 1230   |
|                                                  |              | q4                      | 1450           | 1420  | 1400  | 1370  | 1350  | 1330  | 1320   | 1300   | 1290   | 1280   | 1270   |
|                                                  | 21           | 1                       | 286            | 255   | 229   | 178   | 160   | 143   | 129    | 117    | 106    | 97     | 87     |
|                                                  |              | 2                       | 286            | 255   | 229   | 207   | 188   | 172   | 129    | 117    | 106    | 97     | 87     |
|                                                  |              | 3                       | 286            | 255   | 229   | 207   | 188   | 172   | 151    | 117    | 106    | 97     | 87     |
|                                                  |              | q3                      | 1345           | 1330  | 1310  | 1295  | 1285  | 1270  | 1260   | 1250   | 1240   | 1235   | 1225   |
|                                                  |              | q4                      | 1480           | 1450  | 1420  | 1390  | 1370  | 1350  | 1330   | 1310   | 1300   | 1280   | 1270   |
|                                                  | 20           | 1                       | 317            | 282   | 254   | 229   | 180   | 162   | 146    | 133    | 117    | 103    | 90     |
|                                                  |              | 2                       | 317            | 282   | 254   | 229   | 208   | 182   | 156    | 133    | 117    | 103    | 90     |
|                                                  |              | 3                       | 317            | 282   | 254   | 229   | 208   | 182   | 156    | 135    | 117    | 103    | 90     |
|                                                  |              | q3                      | 1355           | 1335  | 1315  | 1300  | 1285  | 1275  | 1260   | 1250   | 1240   | 1230   | 1225   |
|                                                  |              | q4                      | 1510           | 1470  | 1440  | 1410  | 1390  | 1370  | 1350   | 1330   | 1310   | 1300   | 1290   |
|                                                  | 19           | 1                       | 380            | 339   | 305   | 272   | 229   | 195   | 167    | 144    | 125    | 110    | 97     |
|                                                  |              | 2                       | 380            | 339   | 305   | 272   | 229   | 195   | 167    | 144    | 125    | 110    | 97     |
|                                                  |              | 3                       | 380            | 339   | 305   | 272   | 229   | 195   | 167    | 144    | 125    | 110    | 97     |
|                                                  |              | q3                      | 1380           | 1355  | 1330  | 1315  | 1295  | 1280  | 1265   | 1255   | 1245   | 1235   | 1225   |
|                                                  |              | q4                      | 1580           | 1540  | 1500  | 1470  | 1440  | 1410  | 1390   | 1370   | 1350   | 1330   | 1310   |
|                                                  | 18           | 1                       | 400            | 388   | 343   | 286   | 241   | 205   | 175    | 152    | 132    | 115    | 102    |
|                                                  |              | 2                       | 400            | 388   | 343   | 286   | 241   | 205   | 175    | 152    | 132    | 115    | 102    |
|                                                  |              | 3                       | 400            | 388   | 343   | 286   | 241   | 205   | 175    | 152    | 132    | 115    | 102    |
|                                                  |              | q3                      | 1400           | 1375  | 1350  | 1330  | 1310  | 1295  | 1275   | 1265   | 1250   | 1240   | 1230   |
|                                                  |              | q4                      | 1630           | 1590  | 1550  | 1510  | 1480  | 1450  | 1420   | 1400   | 1380   | 1360   | 1340   |
|                                                  | 16           | 1                       | 400            | 388   | 348   | 308   | 267   | 227   | 195    | 168    | 146    | 128    | 113    |
|                                                  |              | 2                       | 400            | 388   | 348   | 308   | 267   | 227   | 195    | 168    | 146    | 128    | 113    |
|                                                  |              | 3                       | 400            | 388   | 348   | 308   | 267   | 227   | 195    | 168    | 146    | 128    | 113    |
|                                                  |              | q3                      | 1470           | 1435  | 1405  | 1375  | 1355  | 1330  | 1315   | 1295   | 1280   | 1265   | 1250   |
|                                                  |              | q4                      | 1780           | 1720  | 1670  | 1630  | 1590  | 1550  | 1520   | 1490   | 1460   | 1430   | 1410   |

See Page 21 for footnotes.

(continued)

**TABLE 11—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW2™-36 & W2-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL SLAB<br>DEPTH AND<br>CONCRETE<br>TYPE       |    | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |      |      |      |      |      |       |       |       |       |       |       |        |        |        |        |        |
|---------------------------------------------------|----|--------------|-------------------------|----------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|
|                                                   |    |              |                         |                |      |      |      |      |      | 7'-0" | 7'-6" | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" | 11'-6" | 12'-0" |
| 4½"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22 | 1            | 288                     | 225            | 198  | 176  | 157  | 141  | 127  | 114   | 103   | 94    | 85    |       |       |        |        |        |        |        |
|                                                   |    | 2            | 288                     | 257            | 231  | 208  | 157  | 141  | 127  | 114   | 103   | 94    | 85    |       |       |        |        |        |        |        |
|                                                   |    | 3            | 288                     | 257            | 231  | 208  | 190  | 141  | 127  | 114   | 103   | 94    | 85    |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1500                    | 1480           | 1465 | 1455 | 1440 | 1430 | 1420 | 1410  | 1405  | 1395  | 1390  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1610                    | 1580           | 1550 | 1530 | 1510 | 1490 | 1480 | 1460  | 1450  | 1430  | 1420  |       |       |        |        |        |        |        |
|                                                   | 21 | 1            | 322                     | 287            | 226  | 201  | 180  | 161  | 146  | 132   | 119   | 109   | 99    |       |       |        |        |        |        |        |
|                                                   |    | 2            | 322                     | 287            | 258  | 233  | 212  | 161  | 146  | 132   | 119   | 109   | 99    |       |       |        |        |        |        |        |
|                                                   |    | 3            | 322                     | 287            | 258  | 233  | 212  | 194  | 146  | 132   | 119   | 109   | 99    |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1505                    | 1485           | 1470 | 1455 | 1440 | 1430 | 1420 | 1410  | 1400  | 1390  | 1385  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1640                    | 1610           | 1580 | 1550 | 1530 | 1510 | 1490 | 1470  | 1460  | 1440  | 1430  |       |       |        |        |        |        |        |
|                                                   | 20 | 1            | 357                     | 318            | 286  | 258  | 202  | 182  | 165  | 149   | 136   | 124   | 113   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 357                     | 318            | 286  | 258  | 235  | 215  | 165  | 149   | 136   | 124   | 113   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 357                     | 318            | 286  | 258  | 235  | 215  | 197  | 180   | 136   | 124   | 113   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1515                    | 1495           | 1475 | 1460 | 1445 | 1430 | 1420 | 1410  | 1400  | 1390  | 1380  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1670                    | 1630           | 1600 | 1570 | 1550 | 1530 | 1510 | 1490  | 1470  | 1450  | 1440  |       |       |        |        |        |        |        |
|                                                   | 19 | 1            | 400                     | 382            | 343  | 310  | 282  | 236  | 204  | 185   | 169   | 152   | 134   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 400                     | 382            | 343  | 310  | 282  | 257  | 231  | 200   | 169   | 152   | 134   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 400                     | 382            | 343  | 310  | 282  | 257  | 231  | 200   | 174   | 152   | 134   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1535                    | 1510           | 1490 | 1470 | 1455 | 1440 | 1425 | 1415  | 1400  | 1390  | 1385  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1730                    | 1690           | 1650 | 1620 | 1590 | 1560 | 1540 | 1520  | 1500  | 1480  | 1470  |       |       |        |        |        |        |        |
|                                                   | 18 | 1            | 400                     | 400            | 391  | 354  | 322  | 279  | 235  | 210   | 182   | 160   | 141   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 400                     | 400            | 391  | 354  | 322  | 283  | 243  | 210   | 182   | 160   | 141   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 400                     | 400            | 391  | 354  | 322  | 283  | 243  | 210   | 182   | 160   | 141   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1560                    | 1530           | 1510 | 1485 | 1465 | 1450 | 1435 | 1420  | 1410  | 1400  | 1385  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1790                    | 1740           | 1700 | 1660 | 1630 | 1600 | 1580 | 1560  | 1540  | 1520  | 1500  |       |       |        |        |        |        |        |
|                                                   | 16 | 1            | 400                     | 400            | 390  | 352  | 320  | 293  | 269  | 232   | 202   | 177   | 156   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 400                     | 400            | 390  | 352  | 320  | 293  | 269  | 232   | 202   | 177   | 156   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 400                     | 400            | 390  | 352  | 320  | 293  | 269  | 232   | 202   | 177   | 156   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1625                    | 1590           | 1560 | 1535 | 1510 | 1490 | 1470 | 1455  | 1440  | 1425  | 1410  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1940                    | 1880           | 1830 | 1780 | 1740 | 1700 | 1670 | 1640  | 1620  | 1590  | 1570  |       |       |        |        |        |        |        |
| 5¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22 | 1            | 303                     | 266            | 235  | 208  | 186  | 167  | 150  | 135   | 122   | 111   | 100   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 341                     | 304            | 273  | 208  | 186  | 167  | 150  | 135   | 122   | 111   | 100   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 341                     | 304            | 273  | 247  | 186  | 167  | 150  | 135   | 122   | 111   | 100   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1735                    | 1720           | 1705 | 1690 | 1680 | 1670 | 1660 | 1650  | 1640  | 1635  | 1625  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1850                    | 1820           | 1790 | 1770 | 1750 | 1730 | 1710 | 1690  | 1680  | 1670  | 1660  |       |       |        |        |        |        |        |
|                                                   | 21 | 1            | 381                     | 340            | 267  | 237  | 212  | 191  | 172  | 155   | 141   | 128   | 117   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 381                     | 340            | 305  | 276  | 212  | 191  | 172  | 155   | 141   | 128   | 117   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 381                     | 340            | 305  | 276  | 251  | 191  | 172  | 155   | 141   | 128   | 117   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1740                    | 1725           | 1705 | 1690 | 1680 | 1665 | 1655 | 1645  | 1635  | 1630  | 1620  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1880                    | 1840           | 1810 | 1790 | 1770 | 1750 | 1730 | 1710  | 1700  | 1680  | 1670  |       |       |        |        |        |        |        |
|                                                   | 20 | 1            | 400                     | 376            | 338  | 267  | 239  | 215  | 194  | 176   | 160   | 146   | 133   |       |       |        |        |        |        |        |
|                                                   |    | 2            | 400                     | 376            | 338  | 305  | 278  | 215  | 194  | 176   | 160   | 146   | 133   |       |       |        |        |        |        |        |
|                                                   |    | 3            | 400                     | 376            | 338  | 305  | 278  | 254  | 233  | 176   | 160   | 146   | 133   |       |       |        |        |        |        |        |
|                                                   |    | q3           | 1750                    | 1730           | 1710 | 1695 | 1680 | 1670 | 1655 | 1645  | 1635  | 1625  | 1620  |       |       |        |        |        |        |        |
|                                                   |    | q4           | 1910                    | 1870           | 1840 | 1810 | 1790 | 1760 | 1740 | 1720  | 1710  | 1690  | 1680  |       |       |        |        |        |        |        |

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(continued)

**TABLE 11—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW2™-36 & W2-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL SLAB DEPTH AND CONCRETE TYPE    |                   |       | SPAN (ft.-in.) |       |       |       |       |        |        |        |        |        |      |  |
|---------------------------------------|-------------------|-------|----------------|-------|-------|-------|-------|--------|--------|--------|--------|--------|------|--|
| DECK GAGE                             | NO. OF DECK SPANS |       |                |       |       |       |       |        |        |        |        |        |      |  |
|                                       |                   | 7'-0" | 7'-6"          | 8'-0" | 8'-6" | 9'-0" | 9'-6" | 10'-0" | 10'-6" | 11'-0" | 11'-6" | 12'-0" |      |  |
| 5¼" Structural Light Weight (110 pcf) | 19                | 1     | 400            | 400   | 400   | 366   | 324   | 265    | 240    | 218    | 199    | 182    | 167  |  |
|                                       |                   | 2     | 400            | 400   | 400   | 366   | 332   | 304    | 279    | 218    | 199    | 182    | 167  |  |
|                                       |                   | 3     | 400            | 400   | 400   | 366   | 332   | 304    | 279    | 257    | 231    | 182    | 167  |  |
|                                       |                   | q3    | 1775           | 1750  | 1725  | 1710  | 1690  | 1675   | 1660   | 1650   | 1640   | 1630   | 1620 |  |
|                                       |                   | q4    | 1970           | 1930  | 1890  | 1860  | 1830  | 1800   | 1780   | 1760   | 1740   | 1720   | 1710 |  |
|                                       | 18                | 1     | 400            | 400   | 400   | 400   | 379   | 320    | 279    | 254    | 232    | 213    | 195  |  |
|                                       |                   | 2     | 400            | 400   | 400   | 400   | 379   | 346    | 318    | 293    | 232    | 213    | 195  |  |
|                                       |                   | 3     | 400            | 400   | 400   | 400   | 379   | 346    | 318    | 293    | 264    | 236    | 195  |  |
|                                       |                   | q3    | 1795           | 1770  | 1745  | 1725  | 1705  | 1690   | 1670   | 1660   | 1645   | 1635   | 1625 |  |
|                                       |                   | q4    | 2030           | 1980  | 1940  | 1900  | 1870  | 1840   | 1820   | 1790   | 1770   | 1750   | 1730 |  |
|                                       | 16                | 1     | 400            | 400   | 400   | 400   | 376   | 344    | 316    | 291    | 230    | 210    | 193  |  |
|                                       |                   | 2     | 400            | 400   | 400   | 400   | 376   | 344    | 316    | 291    | 269    | 250    | 233  |  |
|                                       |                   | 3     | 400            | 400   | 400   | 400   | 376   | 344    | 316    | 291    | 269    | 250    | 233  |  |
|                                       |                   | q3    | 1865           | 1830  | 1800  | 1770  | 1750  | 1725   | 1710   | 1690   | 1675   | 1660   | 1645 |  |
|                                       |                   | q4    | 2180           | 2120  | 2070  | 2020  | 1980  | 1940   | 1910   | 1880   | 1850   | 1830   | 1810 |  |
| 6¼" Structural Light Weight (110 pcf) | 22                | 1     | 368            | 323   | 285   | 254   | 226   | 203    | 182    | 164    | 149    | 135    | 122  |  |
|                                       |                   | 2     | 400            | 370   | 285   | 254   | 226   | 203    | 182    | 164    | 149    | 135    | 122  |  |
|                                       |                   | 3     | 400            | 370   | 332   | 254   | 226   | 203    | 182    | 164    | 149    | 135    | 122  |  |
|                                       |                   | q3    | 2055           | 2035  | 2020  | 2005  | 1995  | 1985   | 1975   | 1965   | 1955   | 1950   | 1945 |  |
|                                       |                   | q4    | 2160           | 2130  | 2110  | 2080  | 2060  | 2040   | 2030   | 2010   | 2000   | 1990   | 1980 |  |
|                                       | 21                | 1     | 400            | 366   | 324   | 289   | 258   | 232    | 209    | 189    | 171    | 156    | 142  |  |
|                                       |                   | 2     | 400            | 400   | 371   | 289   | 258   | 232    | 209    | 189    | 171    | 156    | 142  |  |
|                                       |                   | 3     | 400            | 400   | 371   | 335   | 258   | 232    | 209    | 189    | 171    | 156    | 142  |  |
|                                       |                   | q3    | 2060           | 2040  | 2020  | 2005  | 1995  | 1980   | 1970   | 1960   | 1955   | 1945   | 1940 |  |
|                                       |                   | q4    | 2190           | 2160  | 2130  | 2100  | 2080  | 2060   | 2040   | 2020   | 2010   | 1990   | 1980 |  |
|                                       | 20                | 1     | 400            | 400   | 364   | 324   | 291   | 261    | 236    | 214    | 195    | 177    | 162  |  |
|                                       |                   | 2     | 400            | 400   | 400   | 371   | 291   | 261    | 236    | 214    | 195    | 177    | 162  |  |
|                                       |                   | 3     | 400            | 400   | 400   | 371   | 337   | 261    | 236    | 214    | 195    | 177    | 162  |  |
|                                       |                   | q3    | 2065           | 2045  | 2025  | 2010  | 1995  | 1985   | 1970   | 1960   | 1950   | 1945   | 1935 |  |
|                                       |                   | q4    | 2220           | 2180  | 2150  | 2120  | 2100  | 2080   | 2060   | 2040   | 2020   | 2010   | 2000 |  |
| 19                                    | 1                 | 400   | 400            | 400   | 397   | 357   | 322   | 292    | 265    | 242    | 221    | 203    |      |  |
|                                       | 2                 | 400   | 400            | 400   | 400   | 400   | 322   | 292    | 265    | 242    | 221    | 203    |      |  |
|                                       | 3                 | 400   | 400            | 400   | 400   | 400   | 369   | 339    | 265    | 242    | 221    | 203    |      |  |
|                                       | q3                | 2090  | 2065           | 2045  | 2025  | 2005  | 1990  | 1980   | 1965   | 1955   | 1945   | 1935   |      |  |
|                                       | q4                | 2290  | 2250           | 2210  | 2180  | 2150  | 2120  | 2100   | 2080   | 2060   | 2040   | 2020   |      |  |
| 18                                    | 1                 | 400   | 400            | 400   | 400   | 400   | 373   | 339    | 308    | 282    | 258    | 237    |      |  |
|                                       | 2                 | 400   | 400            | 400   | 400   | 400   | 400   | 386    | 308    | 282    | 258    | 237    |      |  |
|                                       | 3                 | 400   | 400            | 400   | 400   | 400   | 400   | 386    | 356    | 317    | 258    | 237    |      |  |
|                                       | q3                | 2110  | 2085           | 2060  | 2040  | 2020  | 2005  | 1990   | 1975   | 1960   | 1950   | 1940   |      |  |
|                                       | q4                | 2340  | 2300           | 2260  | 2220  | 2190  | 2160  | 2130   | 2110   | 2090   | 2070   | 2050   |      |  |
| 16                                    | 1                 | 400   | 400            | 400   | 400   | 400   | 400   | 383    | 305    | 278    | 255    | 234    |      |  |
|                                       | 2                 | 400   | 400            | 400   | 400   | 400   | 400   | 383    | 353    | 326    | 255    | 234    |      |  |
|                                       | 3                 | 400   | 400            | 400   | 400   | 400   | 400   | 383    | 353    | 326    | 303    | 282    |      |  |
|                                       | q3                | 2180  | 2145           | 2115  | 2085  | 2065  | 2045  | 2025   | 2005   | 1990   | 1975   | 1965   |      |  |
|                                       | q4                | 2490  | 2430           | 2380  | 2340  | 2300  | 2260  | 2230   | 2200   | 2170   | 2140   | 2120   |      |  |

<sup>1</sup> Shoring calculations based on deck supporting dead load of concrete plus either 20 psf uniform construction live load or 150 lb concentrated live load for flexure. Dead load deflection limited to L/180 of span length, but not to exceed ¾ inch.

<sup>2</sup> Shoring is required at midspan for superimposed load values in the shaded area to the right of the heavy line.

<sup>3</sup> Steel for deck to have a minimum yield strength of 38,000 psi.

<sup>4</sup> Total slab depth is nominal depth from top of concrete to bottom of steel deck.

<sup>5</sup> Concrete fill to have a minimum compressive strength  $f'_c = 3000$  psi.

<sup>6</sup> Support reactions for unshored spans due to dead loads and uniform construction live loads shall not exceed values set forth in Table 5.

<sup>7</sup> The number after the letter q indicates the number of puddle welds per panel end and at interior supports.

<sup>8</sup> PLW2-36 and W2-36 FORMLOK decks with structural concrete fill may be considered rigid diaphragm, with  $F < 1$ .

**TABLE 12—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW3™-36 & W3-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup>

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                           |              |                         | 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"<br>Normal<br>Weight<br>(145 pcf)       | 22           | 1                       | 246           | 223   | 163   | 145   | 130    | 117    | 105    | 95     | 86     | 77     | 70     | 63     | 57     | 52     | 47     |
|                                           |              | 2                       | 246           | 223   | 202   | 185   | 130    | 117    | 105    | 95     | 86     | 77     | 70     | 63     | 57     | 52     | 47     |
|                                           |              | 3                       | 246           | 223   | 202   | 185   | 170    | 155    | 105    | 95     | 86     | 77     | 70     | 63     | 57     | 52     | 47     |
|                                           |              | q3                      | 1635          | 1620  | 1610  | 1600  | 1590   | 1580   | 1575   | 1565   | 1560   | 1555   | 1550   | 1545   | 1540   | 1535   | 1530   |
|                                           |              | q4                      | 1710          | 1690  | 1670  | 1655  | 1640   | 1625   | 1610   | 1600   | 1590   | 1580   | 1570   | 1560   | 1550   | 1545   | 1540   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 21           | 1                       | 273           | 247   | 224   | 190   | 148    | 134    | 121    | 109    | 99     | 90     | 82     | 74     | 68     | 62     | 56     |
|                                           |              | 2                       | 273           | 247   | 224   | 205   | 188    | 174    | 121    | 109    | 99     | 90     | 82     | 74     | 68     | 62     | 56     |
|                                           |              | 3                       | 273           | 247   | 224   | 205   | 188    | 174    | 161    | 140    | 99     | 90     | 82     | 74     | 68     | 62     | 56     |
|                                           |              | q3                      | 1635          | 1620  | 1610  | 1595  | 1585   | 1575   | 1565   | 1560   | 1550   | 1545   | 1540   | 1535   | 1525   | 1520   | 1520   |
|                                           |              | q4                      | 1740          | 1715  | 1690  | 1675  | 1660   | 1640   | 1620   | 1610   | 1600   | 1590   | 1580   | 1570   | 1560   | 1550   | 1540   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 20           | 1                       | 286           | 259   | 235   | 209   | 174    | 142    | 128    | 116    | 106    | 96     | 87     | 80     | 73     | 66     | 60     |
|                                           |              | 2                       | 286           | 259   | 235   | 215   | 197    | 182    | 168    | 116    | 106    | 96     | 87     | 80     | 73     | 66     | 60     |
|                                           |              | 3                       | 286           | 259   | 235   | 215   | 197    | 182    | 168    | 153    | 133    | 96     | 87     | 80     | 73     | 66     | 60     |
|                                           |              | q3                      | 1640          | 1625  | 1610  | 1595  | 1585   | 1575   | 1565   | 1555   | 1550   | 1540   | 1535   | 1530   | 1525   | 1520   | 1515   |
|                                           |              | q4                      | 1760          | 1735  | 1710  | 1690  | 1670   | 1650   | 1630   | 1620   | 1610   | 1595   | 1580   | 1570   | 1560   | 1550   | 1540   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 19           | 1                       | 331           | 299   | 272   | 249   | 228    | 197    | 166    | 141    | 128    | 117    | 107    | 98     | 90     | 83     | 76     |
|                                           |              | 2                       | 331           | 299   | 272   | 249   | 228    | 211    | 195    | 181    | 169    | 117    | 107    | 98     | 90     | 83     | 76     |
|                                           |              | 3                       | 331           | 299   | 272   | 249   | 228    | 211    | 195    | 181    | 169    | 153    | 134    | 98     | 90     | 83     | 76     |
|                                           |              | q3                      | 1655          | 1635  | 1620  | 1605  | 1590   | 1580   | 1570   | 1560   | 1550   | 1540   | 1530   | 1525   | 1520   | 1510   | 1505   |
|                                           |              | q4                      | 1820          | 1790  | 1760  | 1735  | 1710   | 1690   | 1670   | 1655   | 1640   | 1625   | 1610   | 1595   | 1580   | 1570   | 1560   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 18           | 1                       | 363           | 328   | 298   | 273   | 250    | 231    | 199    | 169    | 142    | 132    | 121    | 111    | 102    | 94     | 87     |
|                                           |              | 2                       | 363           | 328   | 298   | 273   | 250    | 231    | 213    | 198    | 185    | 173    | 121    | 111    | 102    | 94     | 87     |
|                                           |              | 3                       | 363           | 328   | 298   | 273   | 250    | 231    | 213    | 198    | 185    | 173    | 157    | 140    | 123    | 94     | 87     |
|                                           |              | q3                      | 1675          | 1655  | 1635  | 1615  | 1600   | 1590   | 1575   | 1565   | 1555   | 1545   | 1535   | 1525   | 1520   | 1510   | 1505   |
|                                           |              | q4                      | 1870          | 1835  | 1800  | 1775  | 1750   | 1725   | 1700   | 1680   | 1660   | 1645   | 1630   | 1620   | 1610   | 1595   | 1580   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 16           | 1                       | 400           | 395   | 359   | 320   | 285    | 255    | 228    | 206    | 186    | 168    | 152    | 138    | 126    | 115    | 105    |
|                                           |              | 2                       | 400           | 395   | 359   | 320   | 285    | 255    | 228    | 206    | 186    | 168    | 152    | 138    | 126    | 115    | 105    |
|                                           |              | 3                       | 400           | 395   | 359   | 320   | 285    | 255    | 228    | 206    | 186    | 168    | 152    | 138    | 126    | 115    | 105    |
|                                           |              | q3                      | 1730          | 1700  | 1675  | 1655  | 1635   | 1620   | 1605   | 1590   | 1575   | 1565   | 1555   | 1545   | 1535   | 1525   | 1515   |
|                                           |              | q4                      | 2000          | 1955  | 1910  | 1875  | 1840   | 1810   | 1780   | 1760   | 1740   | 1720   | 1700   | 1680   | 1660   | 1645   | 1630   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
| 5½"<br>Normal<br>Weight<br>(145 pcf)      | 22           | 1                       | 270           | 199   | 177   | 158   | 141    | 127    | 114    | 102    | 92     | 83     | 75     | 68     | 61     | 55     | 50     |
|                                           |              | 2                       | 270           | 244   | 222   | 203   | 141    | 127    | 114    | 102    | 92     | 83     | 75     | 68     | 61     | 55     | 50     |
|                                           |              | 3                       | 270           | 244   | 222   | 203   | 186    | 127    | 114    | 102    | 92     | 83     | 75     | 68     | 61     | 55     | 50     |
|                                           |              | q3                      | 1875          | 1860  | 1850  | 1840  | 1830   | 1820   | 1810   | 1805   | 1800   | 1795   | 1785   | 1780   | 1775   | 1775   | 1770   |
|                                           |              | q4                      | 1950          | 1930  | 1910  | 1895  | 1880   | 1865   | 1850   | 1840   | 1830   | 1820   | 1810   | 1800   | 1790   | 1785   | 1780   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 21           | 1                       | 299           | 270   | 245   | 179   | 161    | 145    | 131    | 118    | 107    | 97     | 88     | 80     | 72     | 66     | 60     |
|                                           |              | 2                       | 299           | 270   | 246   | 225   | 206    | 145    | 131    | 118    | 107    | 97     | 88     | 80     | 72     | 66     | 60     |
|                                           |              | 3                       | 299           | 270   | 246   | 225   | 206    | 190    | 175    | 118    | 107    | 97     | 88     | 80     | 72     | 66     | 60     |
|                                           |              | q3                      | 1875          | 1860  | 1845  | 1835  | 1825   | 1815   | 1805   | 1800   | 1790   | 1785   | 1780   | 1770   | 1765   | 1760   | 1755   |
|                                           |              | q4                      | 1980          | 1955  | 1930  | 1915  | 1900   | 1880   | 1860   | 1850   | 1840   | 1830   | 1820   | 1810   | 1800   | 1790   | 1780   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 20           | 1                       | 313           | 283   | 257   | 222   | 170    | 154    | 139    | 126    | 114    | 103    | 94     | 85     | 78     | 71     | 64     |
|                                           |              | 2                       | 313           | 283   | 257   | 235   | 216    | 199    | 139    | 126    | 114    | 103    | 94     | 85     | 78     | 71     | 64     |
|                                           |              | 3                       | 313           | 283   | 257   | 235   | 216    | 199    | 184    | 166    | 114    | 103    | 94     | 85     | 78     | 71     | 64     |
|                                           |              | q3                      | 1880          | 1860  | 1850  | 1835  | 1825   | 1815   | 1805   | 1795   | 1790   | 1780   | 1775   | 1770   | 1765   | 1760   | 1755   |
|                                           |              | q4                      | 2000          | 1975  | 1950  | 1930  | 1910   | 1890   | 1870   | 1855   | 1840   | 1830   | 1820   | 1810   | 1800   | 1790   | 1780   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 19           | 1                       | 362           | 327   | 297   | 272   | 249    | 208    | 167    | 152    | 138    | 126    | 115    | 105    | 97     | 88     | 81     |
|                                           |              | 2                       | 362           | 327   | 297   | 272   | 249    | 230    | 213    | 197    | 138    | 126    | 115    | 105    | 97     | 88     | 81     |
|                                           |              | 3                       | 362           | 327   | 297   | 272   | 249    | 230    | 213    | 197    | 184    | 166    | 115    | 105    | 97     | 88     | 81     |
|                                           |              | q3                      | 1895          | 1875  | 1860  | 1845  | 1830   | 1820   | 1810   | 1795   | 1790   | 1780   | 1770   | 1765   | 1755   | 1750   | 1745   |
|                                           |              | q4                      | 2060          | 2030  | 2000  | 1975  | 1950   | 1930   | 1910   | 1895   | 1880   | 1865   | 1850   | 1835   | 1820   | 1810   | 1800   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |

See Page 27 for footnotes.

(continued)



**TABLE 12—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW3™-36 & W3-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                           |              |                         | 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" |
| 5½"<br>Normal<br>Weight<br>(145 pcf)      | 18           | 1                       | 395           | 357   | 325   | 297   | 273    | 251    | 211    | 176    | 155    | 142    | 130    | 119    | 110    | 101    | 93     |
|                                           |              | 2                       | 395           | 357   | 325   | 297   | 273    | 251    | 233    | 216    | 201    | 142    | 130    | 119    | 110    | 101    | 93     |
|                                           |              | 3                       | 395           | 357   | 325   | 297   | 273    | 251    | 233    | 216    | 201    | 188    | 172    | 151    | 110    | 101    | 93     |
|                                           |              | q3                      | 1915          | 1890  | 1875  | 1855  | 1840   | 1825   | 1815   | 1805   | 1795   | 1785   | 1775   | 1765   | 1760   | 1750   | 1745   |
|                                           |              | q4                      | 2110          | 2075  | 2040  | 2015  | 1990   | 1965   | 1940   | 1920   | 1900   | 1885   | 1870   | 1855   | 1840   | 1830   | 1820   |
|                                           | 16           | 1                       | 400           | 400   | 389   | 356   | 327    | 301    | 279    | 259    | 222    | 188    | 164    | 152    | 140    | 129    | 120    |
|                                           |              | 2                       | 400           | 400   | 389   | 356   | 327    | 301    | 279    | 259    | 241    | 225    | 211    | 198    | 140    | 129    | 120    |
|                                           |              | 3                       | 400           | 400   | 389   | 356   | 327    | 301    | 279    | 259    | 241    | 225    | 211    | 198    | 186    | 166    | 120    |
|                                           |              | q3                      | 1965          | 1940  | 1915  | 1895  | 1875   | 1860   | 1845   | 1830   | 1815   | 1805   | 1795   | 1780   | 1775   | 1765   | 1755   |
|                                           |              | q4                      | 2240          | 2195  | 2150  | 2115  | 2080   | 2050   | 2020   | 2000   | 1980   | 1960   | 1940   | 1920   | 1900   | 1885   | 1870   |
| 6"<br>Normal<br>Weight<br>(145 pcf)       | 22           | 1                       | 296           | 217   | 192   | 171   | 153    | 137    | 123    | 111    | 100    | 90     | 81     | 73     | —      | —      | —      |
|                                           |              | 2                       | 296           | 267   | 243   | 171   | 153    | 137    | 123    | 111    | 100    | 90     | 81     | 73     | —      | —      | —      |
|                                           |              | 3                       | 296           | 267   | 243   | 222   | 204    | 137    | 123    | 111    | 100    | 90     | 81     | 73     | —      | —      | —      |
|                                           |              | q3                      | 2110          | 2100  | 2085  | 2075  | 2065   | 2060   | 2050   | 2045   | 2040   | 2030   | 2025   | 2020   | —      | —      | —      |
|                                           |              | q4                      | 2190          | 2170  | 2150  | 2130  | 2115   | 2100   | 2085   | 2075   | 2065   | 2055   | 2045   | 2035   | —      | —      | —      |
|                                           | 21           | 1                       | 327           | 295   | 218   | 195   | 175    | 157    | 141    | 128    | 116    | 105    | 95     | 86     | —      | —      | —      |
|                                           |              | 2                       | 327           | 295   | 269   | 245   | 175    | 157    | 141    | 128    | 116    | 105    | 95     | 86     | —      | —      | —      |
|                                           |              | 3                       | 327           | 295   | 269   | 245   | 225    | 208    | 141    | 128    | 116    | 105    | 95     | 86     | —      | —      | —      |
|                                           |              | q3                      | 2115          | 2100  | 2085  | 2075  | 2065   | 2055   | 2045   | 2035   | 2030   | 2025   | 2015   | 2010   | —      | —      | —      |
|                                           |              | q4                      | 2220          | 2195  | 2170  | 2150  | 2130   | 2115   | 2100   | 2085   | 2075   | 2065   | 2050   | 2045   | —      | —      | —      |
|                                           | 20           | 1                       | 342           | 309   | 281   | 206   | 185    | 167    | 150    | 136    | 123    | 112    | 101    | 92     | 84     | 76     | 69     |
|                                           |              | 2                       | 342           | 309   | 281   | 257   | 236    | 167    | 150    | 136    | 123    | 112    | 101    | 92     | 84     | 76     | 69     |
|                                           |              | 3                       | 342           | 309   | 281   | 257   | 236    | 217    | 201    | 136    | 123    | 112    | 101    | 92     | 84     | 76     | 69     |
|                                           |              | q3                      | 2115          | 2100  | 2085  | 2075  | 2065   | 2055   | 2045   | 2035   | 2025   | 2020   | 2015   | 2010   | 2000   | 1995   | 1990   |
|                                           |              | q4                      | 2235          | 2210  | 2185  | 2160  | 2145   | 2125   | 2110   | 2095   | 2080   | 2070   | 2060   | 2050   | 2040   | 2030   | 2020   |
|                                           | 19           | 1                       | 394           | 357   | 324   | 296   | 264    | 216    | 181    | 164    | 149    | 136    | 124    | 114    | 104    | 95     | 87     |
|                                           |              | 2                       | 394           | 357   | 324   | 296   | 272    | 251    | 232    | 164    | 149    | 136    | 124    | 114    | 104    | 95     | 87     |
|                                           |              | 3                       | 394           | 357   | 324   | 296   | 272    | 251    | 232    | 215    | 201    | 136    | 124    | 114    | 104    | 95     | 87     |
|                                           |              | q3                      | 2135          | 2115  | 2100  | 2085  | 2070   | 2060   | 2045   | 2035   | 2025   | 2020   | 2010   | 2005   | 1995   | 1990   | 1985   |
|                                           |              | q4                      | 2295          | 2265  | 2235  | 2210  | 2185   | 2165   | 2145   | 2130   | 2115   | 2100   | 2085   | 2070   | 2060   | 2050   | 2040   |
|                                           | 18           | 1                       | 400           | 390   | 354   | 324   | 297    | 266    | 219    | 184    | 168    | 153    | 140    | 129    | 118    | 108    | 100    |
|                                           |              | 2                       | 400           | 390   | 354   | 324   | 297    | 274    | 253    | 235    | 168    | 153    | 140    | 129    | 118    | 108    | 100    |
|                                           |              | 3                       | 400           | 390   | 354   | 324   | 297    | 274    | 253    | 235    | 219    | 205    | 183    | 129    | 118    | 108    | 100    |
|                                           |              | q3                      | 2150          | 2130  | 2110  | 2095  | 2080   | 2065   | 2055   | 2040   | 2030   | 2020   | 2015   | 2005   | 2000   | 1990   | 1985   |
|                                           |              | q4                      | 2345          | 2310  | 2275  | 2250  | 2220   | 2200   | 2175   | 2155   | 2140   | 2125   | 2110   | 2095   | 2080   | 2070   | 2055   |
|                                           | 16           | 1                       | 400           | 400   | 400   | 387   | 355    | 327    | 303    | 275    | 232    | 193    | 177    | 163    | 151    | 139    | 129    |
|                                           |              | 2                       | 400           | 400   | 400   | 387   | 355    | 327    | 303    | 281    | 262    | 245    | 229    | 163    | 151    | 139    | 129    |
|                                           |              | 3                       | 400           | 400   | 400   | 387   | 355    | 327    | 303    | 281    | 262    | 245    | 229    | 215    | 201    | 139    | 129    |
|                                           |              | q3                      | 2205          | 2180  | 2155  | 2135  | 2115   | 2100   | 2080   | 2070   | 2055   | 2045   | 2030   | 2020   | 2010   | 2005   | 1995   |
|                                           |              | q4                      | 2470          | 2425  | 2385  | 2345  | 2315   | 2285   | 2260   | 2235   | 2210   | 2190   | 2175   | 2155   | 2140   | 2125   | 2110   |
| 6½"<br>Normal<br>Weight<br>(145 pcf)      | 22           | 1                       | 266           | 235   | 209   | 186   | 166    | 149    | 134    | 120    | 108    | 97     | 87     | 79     | 71     | 64     | 57     |
|                                           |              | 2                       | 322           | 291   | 209   | 186   | 166    | 149    | 134    | 120    | 108    | 97     | 87     | 79     | 71     | 64     | 57     |
|                                           |              | 3                       | 322           | 291   | 265   | 242   | 166    | 149    | 134    | 120    | 108    | 97     | 87     | 79     | 71     | 64     | 57     |
|                                           |              | q3                      | 2350          | 2340  | 2325  | 2315  | 2305   | 2300   | 2290   | 2285   | 2275   | 2270   | 2265   | 2260   | 2255   | 2250   | 2245   |
|                                           |              | q4                      | 2430          | 2410  | 2390  | 2375  | 2360   | 2345   | 2330   | 2315   | 2300   | 2290   | 2280   | 2270   | 2265   | 2260   | 2250   |
|                                           | 21           | 1                       | 356           | 322   | 236   | 211   | 189    | 170    | 153    | 138    | 125    | 113    | 102    | 93     | 84     | 76     | 69     |
|                                           |              | 2                       | 356           | 322   | 293   | 267   | 189    | 170    | 153    | 138    | 125    | 113    | 102    | 93     | 84     | 76     | 69     |
|                                           |              | 3                       | 356           | 322   | 293   | 267   | 246    | 226    | 153    | 138    | 125    | 113    | 102    | 93     | 84     | 76     | 69     |
|                                           |              | q3                      | 2355          | 2340  | 2325  | 2315  | 2300   | 2295   | 2285   | 2275   | 2270   | 2260   | 2255   | 2250   | 2245   | 2240   | 2235   |
|                                           |              | q4                      | 2460          | 2435  | 2410  | 2390  | 2370   | 2355   | 2340   | 2330   | 2320   | 2305   | 2290   | 2280   | 2270   | 2265   | 2260   |

See Page 27 for footnotes.

(continued)

**TABLE 12—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW3™-36 & W3-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                           |              |                         | 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" |
| 6½"<br>Normal<br>Weight<br>(145 pcf)      | 20           | 1                       | 373           | 337   | 250   | 224   | 201    | 181    | 163    | 147    | 133    | 121    | 110    | 100    | 90     | 82     | 74     |
|                                           |              | 2                       | 373           | 337   | 306   | 280   | 201    | 181    | 163    | 147    | 133    | 121    | 110    | 100    | 90     | 82     | 74     |
|                                           |              | 3                       | 373           | 337   | 306   | 280   | 257    | 237    | 163    | 147    | 133    | 121    | 110    | 100    | 90     | 82     | 74     |
|                                           |              | q3                      | 2355          | 2340  | 2325  | 2315  | 2300   | 2290   | 2285   | 2275   | 2265   | 2260   | 2255   | 2245   | 2240   | 2235   | 2230   |
|                                           |              | q4                      | 2480          | 2455  | 2430  | 2405  | 2380   | 2365   | 2350   | 2335   | 2320   | 2310   | 2300   | 2290   | 2280   | 2270   | 2260   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 19           | 1                       | 400           | 388   | 353   | 322   | 272    | 216    | 196    | 178    | 162    | 147    | 134    | 123    | 112    | 103    | 94     |
|                                           |              | 2                       | 400           | 388   | 353   | 322   | 296    | 273    | 196    | 178    | 162    | 147    | 134    | 123    | 112    | 103    | 94     |
|                                           |              | 3                       | 400           | 388   | 353   | 322   | 296    | 273    | 252    | 234    | 162    | 147    | 134    | 123    | 112    | 103    | 94     |
|                                           |              | q3                      | 2375          | 2355  | 2340  | 2325  | 2310   | 2295   | 2285   | 2275   | 2265   | 2260   | 2250   | 2240   | 2235   | 2230   | 2225   |
|                                           |              | q4                      | 2540          | 2510  | 2480  | 2455  | 2430   | 2410   | 2390   | 2370   | 2350   | 2340   | 2330   | 2315   | 2300   | 2290   | 2280   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 18           | 1                       | 400           | 400   | 385   | 352   | 323    | 275    | 219    | 199    | 181    | 166    | 152    | 139    | 127    | 117    | 107    |
|                                           |              | 2                       | 400           | 400   | 385   | 352   | 323    | 298    | 276    | 199    | 181    | 166    | 152    | 139    | 127    | 117    | 107    |
|                                           |              | 3                       | 400           | 400   | 385   | 352   | 323    | 298    | 276    | 256    | 238    | 223    | 152    | 139    | 127    | 117    | 107    |
|                                           |              | q3                      | 2390          | 2370  | 2350  | 2335  | 2320   | 2305   | 2295   | 2280   | 2270   | 2260   | 2255   | 2245   | 2235   | 2230   | 2225   |
|                                           |              | q4                      | 2590          | 2555  | 2520  | 2490  | 2460   | 2440   | 2420   | 2400   | 2380   | 2365   | 2350   | 2335   | 2320   | 2310   | 2300   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 16           | 1                       | 400           | 400   | 400   | 400   | 385    | 355    | 329    | 286    | 227    | 208    | 191    | 176    | 162    | 150    | 139    |
|                                           |              | 2                       | 400           | 400   | 400   | 400   | 385    | 355    | 329    | 305    | 284    | 266    | 191    | 176    | 162    | 150    | 139    |
|                                           |              | 3                       | 400           | 400   | 400   | 400   | 385    | 355    | 329    | 305    | 284    | 266    | 249    | 234    | 213    | 150    | 139    |
|                                           |              | q3                      | 2445          | 2420  | 2395  | 2375  | 2355   | 2335   | 2320   | 2305   | 2295   | 2280   | 2270   | 2260   | 2250   | 2240   | 2235   |
|                                           |              | q4                      | 2710          | 2670  | 2630  | 2595  | 2560   | 2530   | 2500   | 2475   | 2450   | 2430   | 2410   | 2395   | 2380   | 2365   | 2350   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
| 7½"<br>Normal<br>Weight<br>(145 pcf)      | 22           | 1                       | 311           | 275   | 244   | 217   | 194    | 173    | 155    | 140    | 125    | 113    | 101    | 91     | 82     | 73     | 66     |
|                                           |              | 2                       | 378           | 275   | 244   | 217   | 194    | 173    | 155    | 140    | 125    | 113    | 101    | 91     | 82     | 73     | 66     |
|                                           |              | 3                       | 378           | 342   | 311   | 217   | 194    | 173    | 155    | 140    | 125    | 113    | 101    | 91     | 82     | 73     | 66     |
|                                           |              | q3                      | 2830          | 2815  | 2805  | 2795  | 2785   | 2775   | 2770   | 2760   | 2755   | 2750   | 2745   | 2740   | 2735   | 2730   | 2725   |
|                                           |              | q4                      | 2910          | 2890  | 2870  | 2850  | 2830   | 2820   | 2810   | 2795   | 2780   | 2770   | 2760   | 2755   | 2750   | 2740   | 2730   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 21           | 1                       | 350           | 310   | 276   | 246   | 221    | 198    | 178    | 161    | 145    | 131    | 119    | 107    | 97     | 88     | 79     |
|                                           |              | 2                       | 400           | 377   | 276   | 246   | 221    | 198    | 178    | 161    | 145    | 131    | 119    | 107    | 97     | 88     | 79     |
|                                           |              | 3                       | 400           | 377   | 343   | 313   | 221    | 198    | 178    | 161    | 145    | 131    | 119    | 107    | 97     | 88     | 79     |
|                                           |              | q3                      | 2830          | 2815  | 2805  | 2790  | 2780   | 2770   | 2760   | 2755   | 2745   | 2740   | 2735   | 2730   | 2725   | 2720   | 2715   |
|                                           |              | q4                      | 2940          | 2915  | 2890  | 2870  | 2850   | 2835   | 2820   | 2805   | 2790   | 2780   | 2770   | 2760   | 2750   | 2745   | 2740   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 20           | 1                       | 400           | 328   | 292   | 261   | 234    | 210    | 190    | 171    | 155    | 140    | 127    | 115    | 105    | 95     | 86     |
|                                           |              | 2                       | 400           | 395   | 359   | 261   | 234    | 210    | 190    | 171    | 155    | 140    | 127    | 115    | 105    | 95     | 86     |
|                                           |              | 3                       | 400           | 395   | 359   | 328   | 301    | 210    | 190    | 171    | 155    | 140    | 127    | 115    | 105    | 95     | 86     |
|                                           |              | q3                      | 2835          | 2820  | 2805  | 2790  | 2780   | 2770   | 2760   | 2750   | 2745   | 2740   | 2730   | 2725   | 2720   | 2715   | 2710   |
|                                           |              | q4                      | 2950          | 2925  | 2900  | 2880  | 2860   | 2845   | 2830   | 2815   | 2800   | 2790   | 2780   | 2770   | 2760   | 2750   | 2740   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 19           | 1                       | 400           | 400   | 400   | 310   | 279    | 252    | 228    | 207    | 188    | 171    | 156    | 142    | 130    | 119    | 109    |
|                                           |              | 2                       | 400           | 400   | 400   | 377   | 346    | 252    | 228    | 207    | 188    | 171    | 156    | 142    | 130    | 119    | 109    |
|                                           |              | 3                       | 400           | 400   | 400   | 377   | 346    | 319    | 295    | 207    | 188    | 171    | 156    | 142    | 130    | 119    | 109    |
|                                           |              | q3                      | 2850          | 2835  | 2815  | 2800  | 2785   | 2775   | 2765   | 2755   | 2745   | 2735   | 2730   | 2720   | 2715   | 2705   | 2700   |
|                                           |              | q4                      | 3020          | 2990  | 2960  | 2935  | 2910   | 2890   | 2870   | 2850   | 2830   | 2815   | 2800   | 2790   | 2780   | 2770   | 2760   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|                                           | 18           | 1                       | 400           | 400   | 400   | 400   | 352    | 280    | 254    | 231    | 211    | 193    | 176    | 161    | 148    | 135    | 124    |
|                                           |              | 2                       | 400           | 400   | 400   | 400   | 378    | 348    | 254    | 231    | 211    | 193    | 176    | 161    | 148    | 135    | 124    |
|                                           |              | 3                       | 400           | 400   | 400   | 400   | 378    | 348    | 322    | 299    | 211    | 193    | 176    | 161    | 148    | 135    | 124    |
|                                           |              | q3                      | 2870          | 2850  | 2830  | 2810  | 2795   | 2785   | 2770   | 2760   | 2750   | 2740   | 2730   | 2725   | 2715   | 2710   | 2700   |
|                                           |              | q4                      | 3070          | 3035  | 3000  | 2970  | 2940   | 2920   | 2900   | 2880   | 2860   | 2845   | 2830   | 2815   | 2800   | 2790   | 2780   |
|                                           |              |                         |               |       |       |       |        |        |        |        |        |        |        |        |        |        |        |

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(continued)

**TABLE 12—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW3™-36 & W3-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE         | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                                   |              |                         | 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" |
| 7½"<br>Normal<br>Weight<br>(145 pcf)              | 16           | 1                       | 400           | 400   | 400   | 400   | 400    | 400    | 363    | 288    | 263    | 242    | 222    | 204    | 188    | 174    | 160    |
|                                                   |              | 2                       | 400           | 400   | 400   | 400   | 400    | 400    | 384    | 356    | 263    | 242    | 222    | 204    | 188    | 174    | 160    |
|                                                   |              | 3                       | 400           | 400   | 400   | 400   | 400    | 400    | 384    | 356    | 332    | 310    | 290    | 204    | 188    | 174    | 160    |
|                                                   |              | q3                      | 2925          | 2895  | 2875  | 2850  | 2835   | 2815   | 2800   | 2785   | 2770   | 2760   | 2750   | 2740   | 2730   | 2720   | 2710   |
|                                                   |              | q4                      | 3190          | 3150  | 3110  | 3075  | 3040   | 3010   | 2980   | 2955   | 2930   | 2910   | 2890   | 2875   | 2860   | 2845   | 2830   |
| 5"<br>Structural<br>Light<br>Weight<br>(110 pcf)  | 22           | 1                       | 246           | 223   | 202   | 185   | 139    | 126    | 114    | 104    | 95     | 87     | 79     | 73     | 66     | 61     | 56     |
|                                                   |              | 2                       | 246           | 223   | 202   | 185   | 170    | 157    | 114    | 104    | 95     | 87     | 79     | 73     | 66     | 61     | 56     |
|                                                   |              | 3                       | 246           | 223   | 202   | 185   | 170    | 157    | 145    | 131    | 95     | 87     | 79     | 73     | 66     | 61     | 56     |
|                                                   |              | q3                      | 1310          | 1295  | 1285  | 1275  | 1265   | 1255   | 1250   | 1240   | 1235   | 1230   | 1225   | 1220   | 1215   | 1210   | 1205   |
|                                                   |              | q4                      | 1390          | 1370  | 1350  | 1330  | 1310   | 1300   | 1290   | 1275   | 1260   | 1250   | 1240   | 1235   | 1230   | 1220   | 1210   |
|                                                   | 21           | 1                       | 273           | 247   | 224   | 205   | 188    | 161    | 130    | 119    | 108    | 99     | 91     | 84     | 77     | 71     | 65     |
|                                                   |              | 2                       | 273           | 247   | 224   | 205   | 188    | 174    | 161    | 149    | 108    | 99     | 91     | 84     | 77     | 71     | 65     |
|                                                   |              | 3                       | 273           | 247   | 224   | 205   | 188    | 174    | 161    | 149    | 136    | 123    | 91     | 84     | 77     | 71     | 65     |
|                                                   |              | q3                      | 1310          | 1295  | 1285  | 1270  | 1260   | 1250   | 1240   | 1235   | 1225   | 1220   | 1215   | 1210   | 1205   | 1200   | 1195   |
|                                                   |              | q4                      | 1420          | 1395  | 1370  | 1350  | 1330   | 1315   | 1300   | 1285   | 1270   | 1260   | 1250   | 1240   | 1230   | 1225   | 1220   |
|                                                   | 20           | 1                       | 286           | 259   | 235   | 215   | 197    | 177    | 150    | 126    | 115    | 105    | 97     | 89     | 82     | 75     | 70     |
|                                                   |              | 2                       | 286           | 259   | 235   | 215   | 197    | 182    | 168    | 156    | 146    | 105    | 97     | 89     | 82     | 75     | 70     |
|                                                   |              | 3                       | 286           | 259   | 235   | 215   | 197    | 182    | 168    | 156    | 146    | 132    | 120    | 89     | 82     | 75     | 70     |
|                                                   |              | q3                      | 1315          | 1300  | 1285  | 1270  | 1260   | 1250   | 1240   | 1235   | 1225   | 1220   | 1210   | 1205   | 1200   | 1195   | 1190   |
|                                                   |              | q4                      | 1430          | 1405  | 1380  | 1360  | 1340   | 1325   | 1310   | 1295   | 1280   | 1270   | 1260   | 1250   | 1240   | 1230   | 1220   |
|                                                   | 19           | 1                       | 331           | 299   | 272   | 249   | 228    | 211    | 195    | 172    | 148    | 126    | 116    | 107    | 99     | 92     | 85     |
|                                                   |              | 2                       | 331           | 299   | 272   | 249   | 228    | 211    | 195    | 181    | 169    | 152    | 135    | 107    | 99     | 92     | 85     |
|                                                   |              | 3                       | 331           | 299   | 272   | 249   | 228    | 211    | 195    | 181    | 169    | 152    | 135    | 120    | 108    | 97     | 85     |
|                                                   |              | q3                      | 1330          | 1315  | 1295  | 1280  | 1265   | 1255   | 1245   | 1235   | 1225   | 1215   | 1210   | 1200   | 1195   | 1190   | 1180   |
|                                                   |              | q4                      | 1500          | 1470  | 1440  | 1415  | 1390   | 1370   | 1350   | 1330   | 1310   | 1295   | 1280   | 1270   | 1260   | 1250   | 1240   |
|                                                   | 18           | 1                       | 363           | 328   | 298   | 273   | 250    | 231    | 213    | 198    | 176    | 152    | 131    | 120    | 111    | 102    | 92     |
|                                                   |              | 2                       | 363           | 328   | 298   | 273   | 250    | 231    | 213    | 198    | 180    | 159    | 141    | 126    | 113    | 102    | 92     |
|                                                   |              | 3                       | 363           | 328   | 298   | 273   | 250    | 231    | 213    | 198    | 180    | 159    | 141    | 126    | 113    | 102    | 92     |
|                                                   |              | q3                      | 1350          | 1330  | 1310  | 1295  | 1275   | 1265   | 1250   | 1240   | 1230   | 1220   | 1210   | 1205   | 1195   | 1190   | 1180   |
|                                                   |              | q4                      | 1550          | 1515  | 1480  | 1450  | 1420   | 1400   | 1380   | 1360   | 1340   | 1325   | 1310   | 1295   | 1280   | 1270   | 1260   |
|                                                   | 16           | 1                       | 400           | 395   | 353   | 314   | 280    | 251    | 226    | 204    | 185    | 168    | 153    | 140    | 125    | 113    | 102    |
|                                                   |              | 2                       | 400           | 395   | 353   | 314   | 280    | 251    | 226    | 204    | 185    | 168    | 153    | 140    | 125    | 113    | 102    |
|                                                   |              | 3                       | 400           | 395   | 353   | 314   | 280    | 251    | 226    | 204    | 185    | 168    | 153    | 140    | 125    | 113    | 102    |
|                                                   |              | q3                      | 1405          | 1375  | 1355  | 1330  | 1315   | 1295   | 1280   | 1265   | 1250   | 1240   | 1230   | 1220   | 1210   | 1200   | 1190   |
|                                                   |              | q4                      | 1670          | 1630  | 1590  | 1555  | 1520   | 1490   | 1460   | 1435   | 1410   | 1390   | 1370   | 1355   | 1340   | 1325   | 1310   |
| 5½"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 270           | 244   | 222   | 168   | 152    | 137    | 124    | 113    | 103    | 94     | 86     | 78     | 72     | 66     | 60     |
|                                                   |              | 2                       | 270           | 244   | 222   | 203   | 186    | 137    | 124    | 113    | 103    | 94     | 86     | 78     | 72     | 66     | 60     |
|                                                   |              | 3                       | 270           | 244   | 222   | 203   | 186    | 172    | 159    | 113    | 103    | 94     | 86     | 78     | 72     | 66     | 60     |
|                                                   |              | q3                      | 1465          | 1455  | 1440  | 1430  | 1425   | 1415   | 1405   | 1400   | 1395   | 1385   | 1380   | 1375   | 1370   | 1365   | 1365   |
|                                                   |              | q4                      | 1550          | 1530  | 1510  | 1490  | 1470   | 1455   | 1440   | 1430   | 1420   | 1410   | 1400   | 1390   | 1380   | 1375   | 1370   |
|                                                   | 21           | 1                       | 299           | 270   | 246   | 225   | 205    | 155    | 141    | 129    | 117    | 107    | 98     | 90     | 83     | 76     | 70     |
|                                                   |              | 2                       | 299           | 270   | 246   | 225   | 206    | 190    | 176    | 129    | 117    | 107    | 98     | 90     | 83     | 76     | 70     |
|                                                   |              | 3                       | 299           | 270   | 246   | 226   | 206    | 190    | 176    | 163    | 152    | 107    | 98     | 90     | 83     | 76     | 70     |
|                                                   |              | q3                      | 1470          | 1455  | 1440  | 1430  | 1420   | 1410   | 1400   | 1390   | 1385   | 1380   | 1370   | 1365   | 1360   | 1355   | 1350   |
|                                                   |              | q4                      | 1580          | 1555  | 1530  | 1510  | 1490   | 1475   | 1460   | 1445   | 1430   | 1420   | 1410   | 1400   | 1390   | 1380   | 1370   |

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(continued)

**TABLE 12—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW3™-36 & W3-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE         | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft.-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------|--------------|-------------------------|----------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                                   |              |                         | 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" |
| 5½"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 20           | 1                       | 313            | 283   | 257   | 235   | 216    | 190    | 149    | 136    | 124    | 114    | 105    | 96     | 88     | 81     | 75     |
|                                                   |              | 2                       | 313            | 283   | 257   | 235   | 216    | 199    | 184    | 171    | 124    | 114    | 105    | 96     | 88     | 81     | 75     |
|                                                   |              | 3                       | 313            | 283   | 257   | 235   | 216    | 199    | 184    | 171    | 159    | 148    | 105    | 96     | 88     | 81     | 75     |
|                                                   |              | q3                      | 1470           | 1455  | 1440  | 1430  | 1420   | 1410   | 1400   | 1390   | 1385   | 1375   | 1370   | 1365   | 1355   | 1350   | 1345   |
|                                                   |              | q4                      | 1590           | 1565  | 1540  | 1520  | 1500   | 1485   | 1470   | 1455   | 1440   | 1430   | 1420   | 1410   | 1400   | 1390   | 1380   |
|                                                   | 19           | 1                       | 362            | 327   | 297   | 272   | 249    | 230    | 213    | 184    | 156    | 137    | 126    | 116    | 107    | 99     | 92     |
|                                                   |              | 2                       | 362            | 327   | 297   | 272   | 249    | 230    | 213    | 197    | 184    | 172    | 126    | 116    | 107    | 99     | 92     |
|                                                   |              | 3                       | 362            | 327   | 297   | 272   | 249    | 230    | 213    | 197    | 184    | 172    | 161    | 151    | 134    | 99     | 92     |
|                                                   |              | q3                      | 1490           | 1470  | 1455  | 1440  | 1425   | 1415   | 1400   | 1390   | 1385   | 1375   | 1365   | 1360   | 1350   | 1345   | 1340   |
|                                                   |              | q4                      | 1650           | 1620  | 1590  | 1565  | 1540   | 1520   | 1500   | 1485   | 1470   | 1455   | 1440   | 1430   | 1420   | 1410   | 1400   |
|                                                   | 18           | 1                       | 395            | 357   | 325   | 297   | 273    | 251    | 233    | 216    | 189    | 162    | 141    | 130    | 120    | 111    | 103    |
|                                                   |              | 2                       | 395            | 357   | 325   | 297   | 273    | 251    | 233    | 216    | 201    | 188    | 176    | 164    | 120    | 111    | 103    |
|                                                   |              | 3                       | 395            | 357   | 325   | 297   | 273    | 251    | 233    | 216    | 201    | 188    | 176    | 164    | 147    | 132    | 103    |
|                                                   |              | q3                      | 1510           | 1485  | 1465  | 1450  | 1435   | 1420   | 1410   | 1400   | 1385   | 1380   | 1370   | 1360   | 1355   | 1345   | 1340   |
|                                                   |              | q4                      | 1700           | 1665  | 1630  | 1605  | 1580   | 1560   | 1540   | 1520   | 1500   | 1485   | 1470   | 1455   | 1440   | 1430   | 1420   |
|                                                   | 16           | 1                       | 400            | 400   | 389   | 356   | 327    | 301    | 279    | 259    | 241    | 225    | 203    | 162    | 150    | 140    | 130    |
|                                                   |              | 2                       | 400            | 400   | 389   | 356   | 327    | 301    | 279    | 259    | 241    | 225    | 203    | 181    | 162    | 146    | 130    |
|                                                   |              | 3                       | 400            | 400   | 389   | 356   | 327    | 301    | 279    | 259    | 241    | 225    | 203    | 181    | 162    | 146    | 132    |
|                                                   |              | q3                      | 1560           | 1535  | 1510  | 1490  | 1470   | 1455   | 1440   | 1425   | 1410   | 1400   | 1385   | 1375   | 1365   | 1360   | 1350   |
|                                                   |              | q4                      | 1830           | 1785  | 1740  | 1705  | 1670   | 1645   | 1620   | 1595   | 1570   | 1550   | 1530   | 1515   | 1500   | 1485   | 1470   |
| 6¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 309            | 279   | 213   | 191   | 172    | 155    | 141    | 128    | 116    | 106    | 97     | 88     | 81     | 74     | 68     |
|                                                   |              | 2                       | 309            | 279   | 254   | 232   | 172    | 155    | 141    | 128    | 116    | 106    | 97     | 88     | 81     | 74     | 68     |
|                                                   |              | 3                       | 309            | 279   | 254   | 232   | 213    | 196    | 141    | 128    | 116    | 106    | 97     | 88     | 81     | 74     | 68     |
|                                                   |              | q3                      | 1705           | 1690  | 1680  | 1670  | 1660   | 1650   | 1645   | 1635   | 1630   | 1625   | 1620   | 1615   | 1610   | 1605   | 1600   |
|                                                   |              | q4                      | 1780           | 1760  | 1740  | 1725  | 1710   | 1695   | 1680   | 1670   | 1660   | 1650   | 1640   | 1630   | 1620   | 1615   | 1610   |
|                                                   | 21           | 1                       | 341            | 309   | 281   | 256   | 194    | 176    | 160    | 145    | 133    | 121    | 111    | 102    | 93     | 86     | 79     |
|                                                   |              | 2                       | 341            | 309   | 281   | 256   | 235    | 217    | 160    | 145    | 133    | 121    | 111    | 102    | 93     | 86     | 79     |
|                                                   |              | 3                       | 341            | 309   | 281   | 256   | 235    | 217    | 201    | 186    | 133    | 121    | 111    | 102    | 93     | 86     | 79     |
|                                                   |              | q3                      | 1705           | 1690  | 1680  | 1665  | 1655   | 1645   | 1635   | 1630   | 1620   | 1615   | 1610   | 1605   | 1600   | 1595   | 1590   |
|                                                   |              | q4                      | 1810           | 1790  | 1770  | 1750  | 1730   | 1715   | 1700   | 1685   | 1670   | 1660   | 1650   | 1640   | 1630   | 1620   | 1610   |
|                                                   | 20           | 1                       | 357            | 323   | 294   | 268   | 246    | 186    | 169    | 154    | 141    | 129    | 118    | 108    | 100    | 92     | 84     |
|                                                   |              | 2                       | 357            | 323   | 294   | 268   | 246    | 227    | 210    | 154    | 141    | 129    | 118    | 108    | 100    | 92     | 84     |
|                                                   |              | 3                       | 357            | 323   | 294   | 268   | 246    | 227    | 210    | 195    | 182    | 129    | 118    | 108    | 100    | 92     | 84     |
|                                                   |              | q3                      | 1710           | 1695  | 1680  | 1665  | 1655   | 1645   | 1635   | 1630   | 1620   | 1615   | 1605   | 1600   | 1595   | 1590   | 1585   |
|                                                   |              | q4                      | 1830           | 1805  | 1780  | 1760  | 1740   | 1720   | 1700   | 1690   | 1680   | 1665   | 1650   | 1640   | 1630   | 1620   | 1610   |
|                                                   | 19           | 1                       | 400            | 372   | 338   | 309   | 284    | 262    | 235    | 183    | 168    | 154    | 142    | 131    | 121    | 111    | 103    |
|                                                   |              | 2                       | 400            | 372   | 338   | 309   | 284    | 262    | 242    | 225    | 209    | 154    | 142    | 131    | 121    | 111    | 103    |
|                                                   |              | 3                       | 400            | 372   | 338   | 309   | 284    | 262    | 242    | 225    | 209    | 196    | 183    | 131    | 121    | 111    | 103    |
|                                                   |              | q3                      | 1725           | 1710  | 1690  | 1675  | 1660   | 1650   | 1640   | 1630   | 1620   | 1610   | 1605   | 1595   | 1590   | 1580   | 1575   |
|                                                   |              | q4                      | 1890           | 1860  | 1830  | 1805  | 1780   | 1760   | 1740   | 1725   | 1710   | 1695   | 1680   | 1670   | 1660   | 1645   | 1630   |
|                                                   | 18           | 1                       | 400            | 400   | 369   | 338   | 310    | 286    | 264    | 241    | 203    | 172    | 158    | 146    | 135    | 125    | 116    |
|                                                   |              | 2                       | 400            | 400   | 369   | 338   | 310    | 286    | 264    | 246    | 229    | 214    | 158    | 146    | 135    | 125    | 116    |
|                                                   |              | 3                       | 400            | 400   | 369   | 338   | 310    | 286    | 264    | 246    | 229    | 214    | 200    | 188    | 176    | 125    | 116    |
|                                                   |              | q3                      | 1745           | 1725  | 1705  | 1690  | 1670   | 1660   | 1645   | 1635   | 1625   | 1615   | 1605   | 1600   | 1590   | 1585   | 1575   |
|                                                   |              | q4                      | 1940           | 1905  | 1870  | 1845  | 1820   | 1795   | 1770   | 1750   | 1730   | 1715   | 1700   | 1690   | 1680   | 1665   | 1650   |

See Page 27 for footnotes.

(continued)

**TABLE 12—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLW3™-36 & W3-36 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7, 8</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE         | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                                   |              |                         | 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" |
| 6¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 16           | 1                       | 400           | 400   | 400   | 400   | 370    | 341    | 316    | 293    | 273    | 255    | 197    | 182    | 169    | 157    | 146    |
|                                                   |              | 2                       | 400           | 400   | 400   | 400   | 370    | 341    | 316    | 293    | 273    | 255    | 239    | 224    | 211    | 157    | 146    |
|                                                   |              | 3                       | 400           | 400   | 400   | 400   | 370    | 341    | 316    | 293    | 273    | 255    | 239    | 224    | 211    | 199    | 188    |
|                                                   |              | q3                      | 1800          | 1770  | 1750  | 1725  | 1710   | 1690   | 1675   | 1660   | 1645   | 1635   | 1625   | 1615   | 1605   | 1595   | 1585   |
|                                                   |              | q4                      | 2070          | 2025  | 1980  | 1945  | 1910   | 1880   | 1850   | 1830   | 1810   | 1790   | 1770   | 1750   | 1730   | 1715   | 1700   |
| 7¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 364           | 280   | 250   | 224   | 202    | 182    | 165    | 150    | 136    | 124    | 113    | 103    | 94     | 86     | 79     |
|                                                   |              | 2                       | 364           | 329   | 299   | 224   | 202    | 182    | 165    | 150    | 136    | 124    | 113    | 103    | 94     | 86     | 79     |
|                                                   |              | 3                       | 364           | 329   | 299   | 273   | 251    | 182    | 165    | 150    | 136    | 124    | 113    | 103    | 94     | 86     | 79     |
|                                                   |              | q3                      | 2020          | 2005  | 1995  | 1985  | 1975   | 1965   | 1960   | 1950   | 1945   | 1940   | 1935   | 1930   | 1925   | 1920   | 1915   |
|                                                   |              | q4                      | 2100          | 2080  | 2060  | 2040  | 2020   | 2010   | 2000   | 1985   | 1970   | 1960   | 1950   | 1945   | 1940   | 1930   | 1920   |
|                                                   | 21           | 1                       | 400           | 363   | 281   | 253   | 228    | 206    | 187    | 170    | 155    | 142    | 130    | 119    | 109    | 100    | 92     |
|                                                   |              | 2                       | 400           | 363   | 330   | 302   | 277    | 206    | 187    | 170    | 155    | 142    | 130    | 119    | 109    | 100    | 92     |
|                                                   |              | 3                       | 400           | 363   | 330   | 302   | 277    | 255    | 236    | 170    | 155    | 142    | 130    | 119    | 109    | 100    | 92     |
|                                                   |              | q3                      | 2020          | 2005  | 1995  | 1980  | 1970   | 1960   | 1955   | 1945   | 1940   | 1930   | 1925   | 1920   | 1915   | 1910   | 1905   |
|                                                   |              | q4                      | 2130          | 2125  | 2080  | 2060  | 2040   | 2025   | 2010   | 1995   | 1980   | 1970   | 1960   | 1950   | 1940   | 1935   | 1930   |
|                                                   | 20           | 1                       | 400           | 380   | 345   | 266   | 240    | 218    | 198    | 180    | 165    | 150    | 138    | 126    | 116    | 107    | 98     |
|                                                   |              | 2                       | 400           | 380   | 345   | 316   | 290    | 218    | 198    | 180    | 165    | 150    | 138    | 126    | 116    | 107    | 98     |
|                                                   |              | 3                       | 400           | 380   | 345   | 316   | 290    | 267    | 247    | 230    | 165    | 150    | 138    | 126    | 116    | 107    | 98     |
|                                                   |              | q3                      | 2025          | 2010  | 1995  | 1985  | 1970   | 1960   | 1950   | 1945   | 1935   | 1930   | 1920   | 1915   | 1910   | 1905   | 1900   |
|                                                   |              | q4                      | 2150          | 2120  | 2090  | 2070  | 2050   | 2035   | 2020   | 2005   | 1990   | 1980   | 1970   | 1960   | 1950   | 1940   | 1930   |
|                                                   | 19           | 1                       | 400           | 400   | 397   | 363   | 333    | 304    | 235    | 214    | 196    | 180    | 166    | 153    | 141    | 130    | 120    |
|                                                   |              | 2                       | 400           | 400   | 397   | 363   | 333    | 307    | 285    | 214    | 196    | 180    | 166    | 153    | 141    | 130    | 120    |
|                                                   |              | 3                       | 400           | 400   | 397   | 363   | 333    | 307    | 285    | 264    | 246    | 230    | 166    | 153    | 141    | 130    | 120    |
|                                                   |              | q3                      | 2045          | 2025  | 2005  | 1990  | 1980   | 1965   | 1955   | 1945   | 1935   | 1925   | 1920   | 1910   | 1905   | 1900   | 1890   |
|                                                   |              | q4                      | 2210          | 2180  | 2150  | 2125  | 2100   | 2080   | 2060   | 2040   | 2020   | 2010   | 2000   | 1985   | 1970   | 1960   | 1950   |
|                                                   | 18           | 1                       | 400           | 400   | 400   | 396   | 364    | 335    | 310    | 238    | 218    | 201    | 185    | 171    | 158    | 146    | 135    |
|                                                   |              | 2                       | 400           | 400   | 400   | 396   | 364    | 335    | 310    | 288    | 268    | 201    | 185    | 171    | 158    | 146    | 135    |
|                                                   |              | 3                       | 400           | 400   | 400   | 396   | 364    | 335    | 310    | 288    | 268    | 251    | 235    | 171    | 158    | 146    | 135    |
|                                                   |              | q3                      | 2060          | 2040  | 2020  | 2005  | 1990   | 1975   | 1960   | 1950   | 1940   | 1930   | 1920   | 1915   | 1905   | 1900   | 1890   |
|                                                   |              | q4                      | 2260          | 2225  | 2190  | 2160  | 2130   | 2110   | 2090   | 2070   | 2050   | 2035   | 2020   | 2005   | 1990   | 1980   | 1970   |
|                                                   | 16           | 1                       | 400           | 400   | 400   | 400   | 400    | 399    | 370    | 343    | 320    | 248    | 229    | 212    | 197    | 183    | 170    |
|                                                   |              | 2                       | 400           | 400   | 400   | 400   | 400    | 399    | 370    | 343    | 320    | 299    | 280    | 212    | 197    | 183    | 170    |
|                                                   |              | 3                       | 400           | 400   | 400   | 400   | 400    | 399    | 370    | 343    | 320    | 299    | 280    | 263    | 247    | 233    | 170    |
|                                                   |              | q3                      | 2115          | 2085  | 2065  | 2045  | 2025   | 2005   | 1990   | 1975   | 1965   | 1950   | 1940   | 1930   | 1920   | 1910   | 1905   |
|                                                   |              | q4                      | 2380          | 2340  | 2300  | 2265  | 2230   | 2200   | 2170   | 2145   | 2120   | 2100   | 2080   | 2065   | 2050   | 2035   | 2020   |

<sup>1</sup> Shoring calculations based on deck supporting dead load of concrete plus either 20 psf uniform construction live load or 150-pound concentrated live load for flexure. Dead load deflection limited to L/180 of span length, but not to exceed 3/4 inch.

<sup>2</sup> Shoring is required at midspan for superimposed load values to the right of the heavy line.

<sup>3</sup> Steel for deck to have a minimum yield strength of 38,000 psi.

<sup>4</sup> Total slab depth is nominal depth from top of concrete to bottom of steel deck.

<sup>5</sup> Concrete fill to have minimum compressive strength  $f'_c = 3000$  psi.

<sup>6</sup> Support reactions for unshored spans due to dead loads and uniform construction live loads may not exceed values set forth in Table 5.

<sup>7</sup> The number after the letter q indicates the number of puddle welds per panel end and at interior supports.

<sup>8</sup> PLW3-36 and W3-36 FORMLOK decks with structural concrete fill may be considered rigid diaphragm, with  $F < 1$ .

**TABLE 13—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLN™-24 & N-24 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7</sup>

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                           |              |                         | 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"<br>Normal<br>Weight<br>(145 pcf)       | 22           | 1                       | 241           | 211   | 165   | 148   | 133    | 120    | 109    | 99     | 90     | 82     | 74     | 68     | 62     | —      | —      |
|                                           |              | 2                       | 241           | 218   | 198   | 181   | 166    | 145    | 109    | 99     | 90     | 82     | 74     | 68     | 62     | —      | —      |
|                                           |              | 3                       | 241           | 218   | 198   | 181   | 166    | 145    | 109    | 99     | 90     | 82     | 74     | 68     | 62     | —      | —      |
|                                           |              | q4                      | 1700          | 1675  | 1660  | 1640  | 1625   | 1610   | 1600   | 1585   | 1575   | 1565   | 1555   | 1550   | 1540   | —      | —      |
|                                           |              | F4                      | 1.10          | 1.11  | 1.13  | 1.14  | 1.15   | 1.16   | 1.17   | 1.18   | 1.18   | 1.19   | 1.20   | 1.21   | 1.21   | —      | —      |
|                                           |              | 1                       | 255           | 230   | 209   | 191   | 142    | 129    | 117    | 106    | 96     | 88     | 80     | 73     | 67     | 61     | 56     |
|                                           | 20           | 2                       | 255           | 230   | 209   | 191   | 176    | 162    | 150    | 139    | 96     | 88     | 80     | 73     | 67     | 61     | 56     |
|                                           |              | 3                       | 255           | 230   | 209   | 191   | 176    | 162    | 150    | 139    | 122    | 88     | 80     | 73     | 67     | 61     | 56     |
|                                           |              | q4                      | 1740          | 1715  | 1690  | 1670  | 1650   | 1635   | 1620   | 1605   | 1590   | 1580   | 1570   | 1560   | 1550   | 1540   | 1535   |
|                                           |              | F4                      | 0.98          | 0.99  | 1.01  | 1.02  | 1.03   | 1.04   | 1.05   | 1.06   | 1.07   | 1.08   | 1.08   | 1.09   | 1.10   | 1.10   | 1.11   |
|                                           |              | 1                       | 257           | 232   | 211   | 193   | 177    | 163    | 151    | 140    | 128    | 88     | 80     | 73     | 67     | 61     | 56     |
|                                           |              | 2                       | 257           | 232   | 211   | 193   | 177    | 163    | 151    | 140    | 131    | 122    | 114    | 73     | 67     | 61     | 56     |
|                                           | 18           | 3                       | 257           | 232   | 211   | 193   | 177    | 163    | 151    | 140    | 131    | 122    | 114    | 107    | 101    | 95     | 56     |
|                                           |              | q4                      | 1840          | 1805  | 1775  | 1750  | 1725   | 1700   | 1680   | 1660   | 1645   | 1630   | 1615   | 1600   | 1590   | 1575   | 1565   |
|                                           |              | F4                      | 0.80          | 0.82  | 0.83  | 0.84  | 0.86   | 0.87   | 0.88   | 0.89   | 0.90   | 0.91   | 0.91   | 0.92   | 0.93   | 0.94   | 0.94   |
|                                           |              | 1                       | 259           | 234   | 213   | 194   | 178    | 165    | 152    | 141    | 132    | 123    | 115    | 108    | 67     | 61     | 56     |
|                                           |              | 2                       | 259           | 234   | 213   | 194   | 178    | 165    | 152    | 141    | 132    | 123    | 115    | 108    | 102    | 96     | 56     |
|                                           |              | 3                       | 259           | 234   | 213   | 194   | 178    | 165    | 152    | 141    | 132    | 123    | 115    | 108    | 102    | 96     | 91     |
|                                           | 16           | q4                      | 1960          | 1915  | 1875  | 1840  | 1810   | 1785   | 1760   | 1735   | 1715   | 1695   | 1675   | 1660   | 1640   | 1630   | 1615   |
|                                           |              | F4                      | 0.67          | 0.69  | 0.70  | 0.72  | 0.73   | 0.74   | 0.75   | 0.76   | 0.77   | 0.78   | 0.79   | 0.80   | 0.80   | 0.81   | 0.82   |
| 5½"<br>Normal<br>Weight<br>(145 pcf)      | 22           | 1                       | 263           | 200   | 178   | 160   | 143    | 129    | 117    | 106    | 96     | 87     | 79     | 72     | 65     | —      | —      |
|                                           |              | 2                       | 263           | 238   | 217   | 198   | 182    | 129    | 117    | 106    | 96     | 87     | 79     | 72     | 65     | —      | —      |
|                                           |              | 3                       | 263           | 238   | 217   | 198   | 182    | 129    | 117    | 106    | 96     | 87     | 79     | 72     | 65     | —      | —      |
|                                           |              | q4                      | 1940          | 1915  | 1895  | 1880  | 1865   | 1850   | 1835   | 1825   | 1815   | 1805   | 1795   | 1785   | 1780   | —      | —      |
|                                           |              | F4                      | 0.96          | 0.97  | 0.98  | 0.99  | 1.00   | 1.01   | 1.02   | 1.02   | 1.03   | 1.03   | 1.04   | 1.04   | 1.05   | —      | —      |
|                                           |              | 1                       | 278           | 251   | 229   | 170   | 153    | 138    | 125    | 113    | 103    | 94     | 85     | 78     | 71     | 65     | 59     |
|                                           | 20           | 2                       | 278           | 251   | 229   | 209   | 192    | 177    | 164    | 113    | 103    | 94     | 85     | 78     | 71     | 65     | 59     |
|                                           |              | 3                       | 278           | 251   | 229   | 209   | 192    | 177    | 164    | 152    | 103    | 94     | 85     | 78     | 71     | 65     | 59     |
|                                           |              | q4                      | 1980          | 1955  | 1930  | 1910  | 1890   | 1870   | 1860   | 1845   | 1830   | 1820   | 1810   | 1800   | 1790   | 1780   | 1770   |
|                                           |              | F4                      | 0.86          | 0.87  | 0.88  | 0.89  | 0.90   | 0.91   | 0.92   | 0.92   | 0.93   | 0.94   | 0.94   | 0.95   | 0.95   | 0.96   | 0.96   |
|                                           |              | 1                       | 278           | 252   | 229   | 209   | 192    | 177    | 164    | 152    | 102    | 93     | 85     | 77     | 70     | 64     | 58     |
|                                           |              | 2                       | 278           | 252   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 132    | 85     | 77     | 70     | 64     | 58     |
|                                           | 18           | 3                       | 278           | 252   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 132    | 124    | 116    | 110    | 64     | 58     |
|                                           |              | q4                      | 2080          | 2045  | 2015  | 1990  | 1965   | 1940   | 1920   | 1900   | 1885   | 1870   | 1855   | 1840   | 1830   | 1815   | 1805   |
|                                           |              | F4                      | 0.71          | 0.72  | 0.73  | 0.74  | 0.75   | 0.76   | 0.77   | 0.78   | 0.78   | 0.79   | 0.80   | 0.80   | 0.81   | 0.81   | 0.82   |
|                                           |              | 1                       | 279           | 252   | 229   | 210   | 192    | 177    | 164    | 152    | 142    | 133    | 124    | 77     | 70     | 63     | 58     |
|                                           |              | 2                       | 279           | 252   | 229   | 210   | 192    | 177    | 164    | 152    | 142    | 133    | 124    | 117    | 110    | 63     | 58     |
|                                           |              | 3                       | 279           | 252   | 229   | 210   | 192    | 177    | 164    | 152    | 142    | 133    | 124    | 117    | 110    | 104    | 98     |
|                                           | 16           | q4                      | 2200          | 2155  | 2115  | 2080  | 2050   | 2020   | 1995   | 1975   | 1950   | 1930   | 1915   | 1895   | 1880   | 1865   | 1855   |
|                                           |              | F4                      | 0.60          | 0.61  | 0.62  | 0.63  | 0.64   | 0.65   | 0.66   | 0.67   | 0.68   | 0.68   | 0.69   | 0.70   | 0.70   | 0.71   | 0.71   |
| 6"<br>Normal<br>Weight<br>(145 pcf)       | 22           | 1                       | 245           | 217   | 194   | 173   | 155    | 140    | 126    | 114    | 103    | 94     | 85     | 77     | —      | —      | —      |
|                                           |              | 2                       | 289           | 261   | 237   | 217   | 155    | 140    | 126    | 114    | 103    | 94     | 85     | 77     | —      | —      | —      |
|                                           |              | 3                       | 289           | 261   | 237   | 217   | 155    | 140    | 126    | 114    | 103    | 94     | 85     | 77     | —      | —      | —      |
|                                           |              | q4                      | 2175          | 2155  | 2135  | 2120  | 2105   | 2090   | 2075   | 2065   | 2055   | 2045   | 2035   | 2025   | —      | —      | —      |
|                                           |              | F4                      | 0.86          | 0.87  | 0.87  | 0.88  | 0.89   | 0.89   | 0.90   | 0.90   | 0.91   | 0.91   | 0.92   | 0.92   | —      | —      | —      |
|                                           |              | 1                       | 300           | 275   | 250   | 184   | 166    | 149    | 135    | 122    | 111    | 101    | 91     | 83     | 76     | 69     | 63     |
|                                           | 20           | 2                       | 300           | 275   | 250   | 229   | 210    | 193    | 135    | 122    | 111    | 101    | 91     | 83     | 76     | 69     | 63     |
|                                           |              | 3                       | 300           | 275   | 250   | 229   | 210    | 193    | 179    | 122    | 111    | 101    | 91     | 83     | 76     | 69     | 63     |
|                                           |              | q4                      | 2220          | 2190  | 2170  | 2150  | 2130   | 2115   | 2095   | 2085   | 2070   | 2060   | 2050   | 2040   | 2030   | 2020   | 2010   |
|                                           |              | F4                      | 0.77          | 0.78  | 0.79  | 0.79  | 0.80   | 0.81   | 0.81   | 0.82   | 0.82   | 0.83   | 0.83   | 0.84   | 0.84   | 0.84   | 0.85   |

See Page 31 for footnotes.

(continued)

**TABLE 13—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLN™-24 & N-24 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|-------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                           |              |                         | 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" |
| 6"<br>Normal<br>Weight<br>(145 pcf)       | 18           | 1                       | 300           | 274   | 249   | 228   | 209    | 193    | 134    | 121    | 110    | 99     | 90     | 82     | 75     | 68     | 62     |
|                                           |              | 2                       | 300           | 274   | 249   | 228   | 209    | 193    | 178    | 166    | 154    | 99     | 90     | 82     | 75     | 68     | 62     |
|                                           |              | 3                       | 300           | 274   | 249   | 228   | 209    | 193    | 178    | 166    | 154    | 144    | 135    | 127    | 75     | 68     | 62     |
|                                           |              | q4                      | 2320          | 2285  | 2255  | 2230  | 2200   | 2180   | 2160   | 2140   | 2125   | 2105   | 2095   | 2080   | 2065   | 2055   | 2045   |
|                                           |              | F4                      | 0.64          | 0.65  | 0.65  | 0.66  | 0.67   | 0.68   | 0.68   | 0.69   | 0.70   | 0.70   | 0.71   | 0.71   | 0.71   | 0.72   | 0.72   |
|                                           | 16           | 1                       | 300           | 274   | 249   | 228   | 209    | 193    | 178    | 165    | 154    | 144    | 89     | 81     | 74     | 67     | 61     |
|                                           |              | 2                       | 300           | 274   | 249   | 228   | 209    | 193    | 178    | 165    | 154    | 144    | 135    | 127    | 74     | 67     | 61     |
|                                           |              | 3                       | 300           | 274   | 249   | 228   | 209    | 193    | 178    | 165    | 154    | 144    | 135    | 127    | 119    | 112    | 61     |
|                                           |              | q4                      | 2435          | 2395  | 2355  | 2320  | 2290   | 2260   | 2235   | 2210   | 2190   | 2170   | 2155   | 2135   | 2120   | 2105   | 2090   |
|                                           |              | F4                      | 0.54          | 0.55  | 0.56  | 0.57  | 0.58   | 0.58   | 0.59   | 0.60   | 0.60   | 0.61   | 0.61   | 0.62   | 0.62   | 0.63   | 0.63   |
| 6½"<br>Normal<br>Weight<br>(145 pcf)      | 22           | 1                       | 267           | 236   | 210   | 188   | 169    | 152    | 137    | 123    | 112    | 101    | 91     | 83     | —      | —      | —      |
|                                           |              | 2                       | 300           | 286   | 260   | 188   | 169    | 152    | 137    | 123    | 112    | 101    | 91     | 83     | —      | —      | —      |
|                                           |              | 3                       | 300           | 286   | 260   | 188   | 169    | 152    | 137    | 123    | 112    | 101    | 91     | 83     | —      | —      | —      |
|                                           |              | q4                      | 2415          | 2395  | 2375  | 2360  | 2340   | 2330   | 2315   | 2305   | 2295   | 2285   | 2275   | 2265   | —      | —      | —      |
|                                           |              | F4                      | 0.77          | 0.78  | 0.79  | 0.79  | 0.80   | 0.80   | 0.81   | 0.81   | 0.81   | 0.82   | 0.82   | 0.82   | —      | —      | —      |
|                                           | 20           | 1                       | 300           | 300   | 224   | 200   | 180    | 162    | 146    | 132    | 120    | 108    | 98     | 89     | 81     | 74     | 67     |
|                                           |              | 2                       | 300           | 300   | 273   | 250   | 229    | 162    | 146    | 132    | 120    | 108    | 98     | 89     | 81     | 74     | 67     |
|                                           |              | 3                       | 300           | 300   | 273   | 250   | 229    | 211    | 146    | 132    | 120    | 108    | 98     | 89     | 81     | 74     | 67     |
|                                           |              | q4                      | 2460          | 2430  | 2410  | 2390  | 2370   | 2350   | 2335   | 2325   | 2310   | 2300   | 2285   | 2275   | 2265   | 2260   | 2250   |
|                                           |              | F4                      | 0.69          | 0.70  | 0.71  | 0.71  | 0.72   | 0.72   | 0.73   | 0.73   | 0.74   | 0.74   | 0.74   | 0.75   | 0.75   | 0.75   | 0.76   |
|                                           | 18           | 1                       | 300           | 299   | 272   | 248   | 228    | 210    | 144    | 130    | 118    | 107    | 97     | 88     | 80     | 72     | 66     |
|                                           |              | 2                       | 300           | 299   | 272   | 248   | 228    | 210    | 194    | 181    | 118    | 107    | 97     | 88     | 80     | 72     | 66     |
|                                           |              | 3                       | 300           | 299   | 272   | 248   | 228    | 210    | 194    | 181    | 168    | 157    | 97     | 88     | 80     | 72     | 66     |
|                                           |              | q4                      | 2560          | 2525  | 2495  | 2465  | 2440   | 2420   | 2400   | 2380   | 2360   | 2345   | 2330   | 2320   | 2305   | 2295   | 2285   |
|                                           |              | F4                      | 0.58          | 0.58  | 0.59  | 0.60  | 0.60   | 0.61   | 0.62   | 0.62   | 0.62   | 0.63   | 0.63   | 0.64   | 0.64   | 0.64   | 0.65   |
|                                           | 16           | 1                       | 300           | 298   | 271   | 247   | 227    | 209    | 194    | 180    | 167    | 105    | 96     | 87     | 79     | 71     | 64     |
|                                           |              | 2                       | 300           | 298   | 271   | 247   | 227    | 209    | 194    | 180    | 167    | 156    | 96     | 87     | 79     | 71     | 64     |
|                                           |              | 3                       | 300           | 298   | 271   | 247   | 227    | 209    | 194    | 180    | 167    | 156    | 147    | 138    | 130    | 71     | 64     |
|                                           |              | q4                      | 2675          | 2635  | 2595  | 2560  | 2530   | 2500   | 2475   | 2450   | 2430   | 2410   | 2390   | 2375   | 2360   | 2345   | 2330   |
|                                           |              | F4                      | 0.49          | 0.50  | 0.51  | 0.52  | 0.52   | 0.53   | 0.53   | 0.54   | 0.54   | 0.55   | 0.55   | 0.56   | 0.56   | 0.56   | 0.57   |
| 7½"<br>Normal<br>Weight<br>(145 pcf)      | 22           | 1                       | 300           | 277   | 247   | 220   | 197    | 177    | 159    | 144    | 130    | 117    | 106    | 96     | 87     | —      | —      |
|                                           |              | 2                       | 300           | 300   | 247   | 220   | 197    | 177    | 159    | 144    | 130    | 117    | 106    | 96     | 87     | —      | —      |
|                                           |              | 3                       | 300           | 300   | 247   | 220   | 197    | 177    | 159    | 144    | 130    | 117    | 106    | 96     | 87     | —      | —      |
|                                           |              | q4                      | 2895          | 2870  | 2855  | 2835  | 2820   | 2805   | 2795   | 2780   | 2770   | 2760   | 2750   | 2745   | 2735   | —      | —      |
|                                           |              | F4                      | 0.64          | 0.65  | 0.65  | 0.66  | 0.66   | 0.67   | 0.67   | 0.67   | 0.67   | 0.68   | 0.68   | 0.68   | 0.68   | —      | —      |
|                                           | 20           | 1                       | 300           | 294   | 262   | 234   | 210    | 189    | 170    | 154    | 139    | 126    | 114    | 103    | 94     | 85     | 77     |
|                                           |              | 2                       | 300           | 300   | 300   | 295   | 210    | 189    | 170    | 154    | 139    | 126    | 114    | 103    | 94     | 85     | 77     |
|                                           |              | 3                       | 300           | 300   | 300   | 295   | 270    | 189    | 170    | 154    | 139    | 126    | 114    | 103    | 94     | 85     | 77     |
|                                           |              | q4                      | 2935          | 2910  | 2885  | 2865  | 2845   | 2830   | 2815   | 2800   | 2790   | 2775   | 2765   | 2755   | 2745   | 2735   | 2730   |
|                                           |              | F4                      | 0.58          | 0.59  | 0.59  | 0.59  | 0.60   | 0.60   | 0.61   | 0.61   | 0.61   | 0.61   | 0.62   | 0.62   | 0.62   | 0.62   | 0.62   |
|                                           | 18           | 1                       | 300           | 300   | 300   | 292   | 207    | 186    | 168    | 151    | 137    | 124    | 112    | 101    | 92     | 83     | 75     |
|                                           |              | 2                       | 300           | 300   | 300   | 292   | 268    | 247    | 168    | 151    | 137    | 124    | 112    | 101    | 92     | 83     | 75     |
|                                           |              | 3                       | 300           | 300   | 300   | 292   | 268    | 247    | 229    | 212    | 198    | 124    | 112    | 101    | 92     | 83     | 75     |
|                                           |              | q4                      | 3035          | 3005  | 2970  | 2945  | 2920   | 2895   | 2875   | 2860   | 2840   | 2825   | 2810   | 2795   | 2785   | 2775   | 2760   |
|                                           |              | F4                      | 0.49          | 0.49  | 0.50  | 0.50  | 0.51   | 0.51   | 0.51   | 0.52   | 0.52   | 0.52   | 0.53   | 0.53   | 0.53   | 0.53   | 0.53   |
|                                           | 16           | 1                       | 300           | 300   | 300   | 290   | 266    | 245    | 227    | 149    | 135    | 122    | 110    | 100    | 90     | 81     | 74     |
|                                           |              | 2                       | 300           | 300   | 300   | 290   | 266    | 245    | 227    | 211    | 196    | 122    | 110    | 100    | 90     | 81     | 74     |
|                                           |              | 3                       | 300           | 300   | 300   | 290   | 266    | 245    | 227    | 211    | 196    | 184    | 172    | 100    | 90     | 81     | 74     |
|                                           |              | q4                      | 3155          | 3110  | 3070  | 3040  | 3005   | 2980   | 2955   | 2930   | 2910   | 2890   | 2870   | 2855   | 2840   | 2825   | 2810   |
|                                           |              | F4                      | 0.42          | 0.42  | 0.43  | 0.43  | 0.44   | 0.44   | 0.45   | 0.45   | 0.45   | 0.46   | 0.46   | 0.46   | 0.47   | 0.47   | 0.47   |

See Page 31 for footnotes.

(continued)

**TABLE 13—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLN™-24 & N-24 FORMLOK™ DECK WITH CONCRETE FILL <sup>1, 2, 3, 4, 5, 6, 7</sup> – Continued**

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE         | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                                   |              |                         | 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"<br>Structural<br>Light<br>Weight<br>(110 pcf)  | 22           | 1                       | 241           | 218   | 198   | 155   | 141    | 128    | 116    | 106    | 97     | 89     | 82     | 75     | 69     | 64     | 59     |
|                                                   |              | 2                       | 241           | 218   | 198   | 181   | 166    | 153    | 142    | 125    | 97     | 89     | 82     | 75     | 69     | 64     | 59     |
|                                                   |              | 3                       | 241           | 218   | 198   | 181   | 166    | 153    | 142    | 125    | 97     | 89     | 82     | 75     | 69     | 64     | 59     |
|                                                   |              | q4                      | 1375          | 1355  | 1335  | 1315  | 1300   | 1285   | 1275   | 1260   | 1250   | 1240   | 1230   | 1225   | 1215   | 1210   | 1200   |
|                                                   |              | F4                      | 1.36          | 1.38  | 1.40  | 1.42  | 1.43   | 1.45   | 1.47   | 1.48   | 1.49   | 1.50   | 1.51   | 1.52   | 1.53   | 1.54   | 1.55   |
|                                                   |              | 1                       | 255           | 230   | 209   | 191   | 176    | 162    | 124    | 113    | 104    | 95     | 88     | 81     | 75     | 69     | 64     |
|                                                   | 20           | 2                       | 255           | 230   | 209   | 191   | 176    | 162    | 150    | 139    | 130    | 119    | 88     | 81     | 75     | 69     | 64     |
|                                                   |              | 3                       | 255           | 230   | 209   | 191   | 176    | 162    | 150    | 139    | 130    | 119    | 105    | 94     | 75     | 69     | 64     |
|                                                   |              | q4                      | 1415          | 1390  | 1365  | 1345  | 1325   | 1310   | 1295   | 1280   | 1270   | 1255   | 1245   | 1235   | 1225   | 1215   | 1210   |
|                                                   |              | F4                      | 1.20          | 1.23  | 1.25  | 1.27  | 1.28   | 1.30   | 1.32   | 1.33   | 1.34   | 1.36   | 1.37   | 1.38   | 1.39   | 1.40   | 1.41   |
|                                                   |              | 1                       | 257           | 232   | 211   | 193   | 177    | 163    | 151    | 140    | 131    | 122    | 114    | 81     | 75     | 69     | 64     |
|                                                   |              | 2                       | 257           | 232   | 211   | 193   | 177    | 163    | 151    | 140    | 131    | 122    | 114    | 107    | 97     | 87     | 64     |
|                                                   | 18           | 3                       | 257           | 232   | 211   | 193   | 177    | 163    | 151    | 140    | 131    | 122    | 114    | 107    | 97     | 87     | 78     |
|                                                   |              | q4                      | 1520          | 1485  | 1450  | 1425  | 1400   | 1375   | 1355   | 1340   | 1320   | 1305   | 1290   | 1275   | 1265   | 1255   | 1240   |
|                                                   |              | F4                      | 0.97          | 1.00  | 1.02  | 1.04  | 1.05   | 1.07   | 1.09   | 1.10   | 1.12   | 1.13   | 1.14   | 1.16   | 1.17   | 1.18   | 1.19   |
|                                                   |              | 1                       | 259           | 234   | 213   | 194   | 178    | 165    | 152    | 141    | 132    | 123    | 115    | 108    | 102    | 96     | 64     |
|                                                   |              | 2                       | 259           | 234   | 213   | 194   | 178    | 165    | 152    | 141    | 132    | 123    | 115    | 108    | 102    | 96     | 87     |
|                                                   |              | 3                       | 259           | 234   | 213   | 194   | 178    | 165    | 152    | 141    | 132    | 123    | 115    | 108    | 102    | 96     | 87     |
|                                                   | 16           | q4                      | 1635          | 1590  | 1555  | 1520  | 1485   | 1460   | 1435   | 1410   | 1390   | 1370   | 1350   | 1335   | 1320   | 1305   | 1290   |
|                                                   |              | F4                      | 0.81          | 0.83  | 0.85  | 0.87  | 0.89   | 0.90   | 0.92   | 0.94   | 0.95   | 0.96   | 0.98   | 0.99   | 1.00   | 1.01   | 1.02   |
|                                                   | 22           | 1                       | 263           | 238   | 187   | 168   | 152    | 138    | 125    | 114    | 105    | 96     | 88     | 81     | 74     | 68     | 63     |
|                                                   |              | 2                       | 263           | 238   | 217   | 198   | 182    | 167    | 155    | 114    | 105    | 96     | 88     | 81     | 74     | 68     | 63     |
|                                                   |              | 3                       | 263           | 238   | 217   | 198   | 182    | 167    | 155    | 114    | 105    | 96     | 88     | 81     | 74     | 68     | 63     |
|                                                   |              | q4                      | 1530          | 1510  | 1490  | 1475  | 1460   | 1445   | 1430   | 1420   | 1410   | 1400   | 1390   | 1380   | 1375   | 1365   | 1360   |
|                                                   |              | F4                      | 1.22          | 1.24  | 1.25  | 1.27  | 1.28   | 1.29   | 1.30   | 1.31   | 1.32   | 1.33   | 1.34   | 1.35   | 1.36   | 1.37   | 1.37   |
|                                                   |              | 1                       | 278           | 251   | 229   | 209   | 192    | 147    | 134    | 122    | 112    | 102    | 94     | 86     | 80     | 73     | 68     |
|                                                   | 20           | 2                       | 278           | 251   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 102    | 94     | 86     | 80     | 73     | 68     |
|                                                   |              | 3                       | 278           | 251   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 132    | 94     | 86     | 80     | 73     | 68     |
|                                                   |              | q4                      | 1575          | 1550  | 1525  | 1505  | 1485   | 1470   | 1455   | 1440   | 1425   | 1415   | 1405   | 1395   | 1385   | 1375   | 1365   |
|                                                   |              | F4                      | 1.08          | 1.10  | 1.12  | 1.13  | 1.15   | 1.16   | 1.17   | 1.18   | 1.19   | 1.20   | 1.21   | 1.22   | 1.23   | 1.24   | 1.25   |
|                                                   |              | 1                       | 278           | 252   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 132    | 93     | 86     | 79     | 73     | 67     |
|                                                   |              | 2                       | 278           | 252   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 132    | 124    | 116    | 79     | 73     | 67     |
|                                                   | 18           | 3                       | 278           | 252   | 229   | 209   | 192    | 177    | 164    | 152    | 142    | 132    | 124    | 116    | 110    | 103    | 98     |
|                                                   |              | q4                      | 1675          | 1640  | 1610  | 1580  | 1555   | 1535   | 1515   | 1495   | 1480   | 1465   | 1450   | 1435   | 1420   | 1410   | 1400   |
|                                                   |              | F4                      | 0.88          | 0.90  | 0.92  | 0.93  | 0.95   | 0.96   | 0.97   | 0.99   | 1.00   | 1.01   | 1.02   | 1.03   | 1.04   | 1.05   | 1.05   |
|                                                   | 16           | 1                       | 279           | 252   | 229   | 210   | 192    | 177    | 164    | 152    | 142    | 133    | 124    | 117    | 110    | 72     | 67     |
|                                                   |              | 2                       | 279           | 252   | 229   | 210   | 192    | 177    | 164    | 152    | 142    | 133    | 124    | 117    | 110    | 104    | 98     |
|                                                   |              | 3                       | 279           | 252   | 229   | 210   | 192    | 177    | 164    | 152    | 142    | 133    | 124    | 117    | 110    | 104    | 98     |
|                                                   |              | q4                      | 1795          | 1750  | 1710  | 1675  | 1645   | 1615   | 1590   | 1570   | 1545   | 1525   | 1510   | 1490   | 1475   | 1460   | 1450   |
|                                                   |              | F4                      | 0.74          | 0.75  | 0.77  | 0.79  | 0.80   | 0.82   | 0.83   | 0.84   | 0.85   | 0.86   | 0.87   | 0.88   | 0.89   | 0.90   | 0.91   |
|                                                   |              | 1                       | 300           | 238   | 213   | 191   | 173    | 156    | 142    | 129    | 118    | 108    | 99     | 91     | 83     | 76     | 70     |
| 6¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 2                       | 300           | 273   | 248   | 227   | 208    | 156    | 142    | 129    | 118    | 108    | 99     | 91     | 83     | 76     | 70     |
|                                                   |              | 3                       | 300           | 273   | 248   | 227   | 208    | 156    | 142    | 129    | 118    | 108    | 99     | 91     | 83     | 76     | 70     |
|                                                   |              | q4                      | 1770          | 1750  | 1730  | 1710  | 1695   | 1680   | 1670   | 1655   | 1645   | 1635   | 1625   | 1620   | 1610   | 1605   | 1595   |
|                                                   |              | F4                      | 1.05          | 1.07  | 1.08  | 1.09  | 1.10   | 1.11   | 1.12   | 1.13   | 1.13   | 1.14   | 1.15   | 1.15   | 1.16   | 1.16   | 1.17   |
|                                                   |              | 1                       | 300           | 288   | 261   | 239   | 183    | 166    | 151    | 138    | 126    | 115    | 106    | 97     | 89     | 82     | 76     |
|                                                   |              | 2                       | 300           | 288   | 261   | 239   | 219    | 202    | 187    | 138    | 126    | 115    | 106    | 97     | 89     | 82     | 76     |
|                                                   | 20           | 3                       | 300           | 288   | 261   | 239   | 219    | 202    | 187    | 174    | 162    | 115    | 106    | 97     | 89     | 82     | 76     |
|                                                   |              | q4                      | 1810          | 1785  | 1760  | 1740  | 1720   | 1705   | 1690   | 1675   | 1665   | 1650   | 1640   | 1630   | 1620   | 1610   | 1605   |
|                                                   |              | F4                      | 0.94          | 0.95  | 0.97  | 0.98  | 0.99   | 1.00   | 1.01   | 1.02   | 1.02   | 1.03   | 1.04   | 1.04   | 1.05   | 1.06   | 1.06   |

See Page 31 for footnotes.

(continued)



**TABLE 13—ALLOWABLE SUPERIMPOSED LOADS (psf), DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE PLN™-24 & N-24 FORMLOK™ DECK WITH CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6, 7</sup> – Continued

| TOTAL<br>SLAB<br>DEPTH<br>& CONC.<br>TYPE         | DECK<br>GAGE | NO. OF<br>DECK<br>SPANS | SPAN (ft-in.) |       |       |       |        |        |        |        |        |        |        |        |        |        |        |
|---------------------------------------------------|--------------|-------------------------|---------------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                                                   |              |                         | 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" |
| 6¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 18           | 1                       | 300           | 286   | 260   | 238   | 218    | 201    | 186    | 173    | 124    | 114    | 104    | 96     | 88     | 81     | 74     |
|                                                   |              | 2                       | 300           | 286   | 260   | 238   | 218    | 201    | 186    | 173    | 161    | 151    | 141    | 96     | 88     | 81     | 74     |
|                                                   |              | 3                       | 300           | 286   | 260   | 238   | 218    | 201    | 186    | 173    | 161    | 151    | 141    | 132    | 125    | 118    | 74     |
|                                                   |              | q4                      | 1915          | 1880  | 1845  | 1820  | 1795   | 1770   | 1750   | 1735   | 1715   | 1700   | 1685   | 1670   | 1660   | 1650   | 1635   |
|                                                   |              | F4                      | 0.77          | 0.79  | 0.80  | 0.81  | 0.82   | 0.83   | 0.84   | 0.85   | 0.86   | 0.87   | 0.88   | 0.88   | 0.89   | 0.90   | 0.90   |
|                                                   | 16           | 1                       | 300           | 285   | 260   | 237   | 218    | 201    | 186    | 172    | 161    | 150    | 141    | 95     | 87     | 80     | 73     |
|                                                   |              | 2                       | 300           | 285   | 260   | 237   | 218    | 201    | 186    | 172    | 161    | 150    | 141    | 132    | 124    | 80     | 73     |
|                                                   |              | 3                       | 300           | 286   | 260   | 237   | 218    | 201    | 186    | 172    | 161    | 150    | 141    | 132    | 124    | 117    | 111    |
|                                                   |              | q4                      | 2030          | 1985  | 1945  | 1915  | 1880   | 1855   | 1830   | 1805   | 1785   | 1765   | 1745   | 1730   | 1715   | 1700   | 1685   |
|                                                   |              | F4                      | 0.65          | 0.66  | 0.68  | 0.69  | 0.70   | 0.71   | 0.72   | 0.73   | 0.74   | 0.75   | 0.76   | 0.76   | 0.77   | 0.78   | 0.78   |
| 7¼"<br>Structural<br>Light<br>Weight<br>(110 pcf) | 22           | 1                       | 300           | 280   | 251   | 225   | 203    | 184    | 167    | 152    | 139    | 127    | 116    | 106    | 97     | 89     | 82     |
|                                                   |              | 2                       | 300           | 300   | 295   | 269   | 203    | 184    | 167    | 152    | 139    | 127    | 116    | 106    | 97     | 89     | 82     |
|                                                   |              | 3                       | 300           | 300   | 295   | 269   | 203    | 184    | 167    | 152    | 139    | 127    | 116    | 106    | 97     | 89     | 82     |
|                                                   |              | q4                      | 2085          | 2065  | 2045  | 2025  | 2010   | 1995   | 1985   | 1975   | 1960   | 1950   | 1945   | 1935   | 1930   | 1920   | 1915   |
|                                                   |              | F4                      | 0.89          | 0.90  | 0.91  | 0.92  | 0.93   | 0.93   | 0.94   | 0.95   | 0.95   | 0.96   | 0.96   | 0.96   | 0.97   | 0.97   | 0.98   |
|                                                   | 20           | 1                       | 300           | 300   | 300   | 239   | 215    | 195    | 177    | 161    | 147    | 135    | 123    | 113    | 104    | 96     | 88     |
|                                                   |              | 2                       | 300           | 300   | 300   | 283   | 260    | 240    | 177    | 161    | 147    | 135    | 123    | 113    | 104    | 96     | 88     |
|                                                   |              | 3                       | 300           | 300   | 300   | 283   | 260    | 240    | 222    | 161    | 147    | 135    | 123    | 113    | 104    | 96     | 88     |
|                                                   |              | q4                      | 2125          | 2100  | 2075  | 2055  | 2040   | 2020   | 2005   | 1990   | 1980   | 1965   | 1955   | 1945   | 1935   | 1930   | 1920   |
|                                                   |              | F4                      | 0.80          | 0.81  | 0.82  | 0.83  | 0.84   | 0.84   | 0.85   | 0.86   | 0.86   | 0.87   | 0.87   | 0.88   | 0.88   | 0.88   | 0.89   |
|                                                   | 18           | 1                       | 300           | 300   | 300   | 281   | 258    | 238    | 220    | 159    | 145    | 133    | 121    | 111    | 102    | 94     | 86     |
|                                                   |              | 2                       | 300           | 300   | 300   | 281   | 258    | 238    | 220    | 204    | 190    | 133    | 121    | 111    | 102    | 94     | 86     |
|                                                   |              | 3                       | 300           | 300   | 300   | 281   | 258    | 238    | 220    | 204    | 190    | 178    | 166    | 156    | 102    | 94     | 86     |
|                                                   |              | q4                      | 2230          | 2195  | 2165  | 2135  | 2110   | 2090   | 2065   | 2050   | 2030   | 2015   | 2000   | 1990   | 1975   | 1965   | 1955   |
|                                                   |              | F4                      | 0.66          | 0.67  | 0.68  | 0.69  | 0.70   | 0.71   | 0.71   | 0.72   | 0.73   | 0.73   | 0.74   | 0.74   | 0.75   | 0.75   | 0.76   |
|                                                   | 16           | 1                       | 300           | 300   | 300   | 279   | 256    | 236    | 219    | 203    | 189    | 177    | 120    | 110    | 100    | 92     | 85     |
|                                                   |              | 2                       | 300           | 300   | 300   | 279   | 256    | 236    | 219    | 203    | 189    | 177    | 165    | 155    | 100    | 92     | 85     |
|                                                   |              | 3                       | 300           | 300   | 300   | 279   | 256    | 236    | 219    | 203    | 189    | 177    | 165    | 155    | 146    | 138    | 85     |
|                                                   |              | q4                      | 2345          | 2300  | 2265  | 2230  | 2200   | 2170   | 2145   | 2120   | 2100   | 2080   | 2060   | 2045   | 2030   | 2015   | 2000   |
|                                                   |              | F4                      | 0.56          | 0.57  | 0.58  | 0.59  | 0.60   | 0.61   | 0.62   | 0.62   | 0.63   | 0.63   | 0.64   | 0.65   | 0.65   | 0.66   | 0.66   |

<sup>1</sup> Shoring calculations based on deck supporting dead load of concrete plus either 20 psf uniform construction live load or 150-pound concentrated live load for flexure. Dead load deflection limited to L/180 of span length, but not to exceed 3/4 inch.

<sup>2</sup> Shoring is required at midspan for superimposed load values in the shaded areas to the right of the heavy line.

<sup>3</sup> Steel for deck to have a minimum yield strength of 38,000 psi.

<sup>4</sup> Total slab depth is nominal depth from top of concrete to bottom of steel deck.

<sup>5</sup> Concrete fill to have minimum compressive strength  $f'_c = 3,000$  psi.

<sup>6</sup> The number after the letter q or F indicates the number of puddle welds per panel end and at interior supports.

<sup>7</sup> Support reactions for unshored spans due to dead loads and uniform construction live loads shall not exceed the values set forth in Table 5.

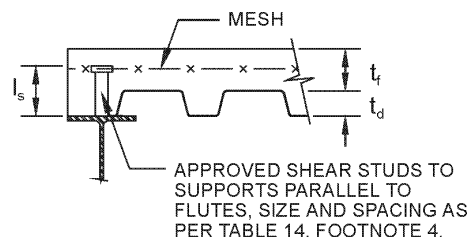
**TABLE 14—ALLOWABLE DIAPHRAGM SHEAR VALUES (plf) FOR DECKS  
WITH CONCRETE FILL AND SHEAR STUDS AT COLLECTORS<sup>1-5</sup>**

| CONCRETE<br>TYPE <sup>6</sup> | CONCRETE<br>THICKNESS <sup>7</sup> | SPACING OF SHEAR STUDS <sup>8</sup> |      |      |      |      |      | F <sup>9</sup> |
|-------------------------------|------------------------------------|-------------------------------------|------|------|------|------|------|----------------|
|                               |                                    | 12"                                 | 16"  | 18"  | 24"  | 32"  | 36"  |                |
| NW                            | 2"                                 | 3780                                | 3780 | 3780 | 3400 | 2500 | 2270 | 0.40           |
| NW                            | 2½"                                | 4730                                | 4730 | 4530 | 3400 | 2500 | 2270 | 0.32           |
| NW                            | 3½"                                | 6620                                | 5100 | 4530 | 3400 | 2500 | 2270 | 0.23           |
| LW                            | 2"                                 | 3540                                | 3540 | 3540 | 2900 | 2180 | 1930 | 0.56           |
| LW                            | 2½"                                | 4430                                | 4350 | 3860 | 2900 | 2180 | 1930 | 0.45           |
| LW                            | 3¼"                                | 5760                                | 4350 | 3860 | 2900 | 2180 | 1930 | 0.34           |

<sup>1</sup> The allowable values are based on concrete slab reinforcement with an area at least 0.0025 times the area of fill above the deck. Welded wire fabric of the sizes listed below meets this requirement. Where the tabulated allowable values are not required, reinforcement can be reduced with allowable diaphragm values according to the schedule below. The fabric is placed approximately one inch below the top of the concrete.

| Concrete Thickness (inches)<br>See Footnote 7 | Minimum Fabric for<br>Tabulated Shear Values | Maximum Allowable Shears for<br>6 x 6 - W1.4 x W1.4 <sup>10</sup> |
|-----------------------------------------------|----------------------------------------------|-------------------------------------------------------------------|
| 2" NW                                         | 6 x 6 - W4 x W4                              | 1600 plf                                                          |
| 2½" NW                                        | 6 x 6 - W4 x W4                              | 1990 plf                                                          |
| 3½" NW                                        | 4 x 4 - W4 x W4                              | 2790 plf                                                          |
| 2" LW                                         | 6 x 6 - W4 x W4                              | 1360 plf                                                          |
| 2½" LW                                        | 6 x 6 - W4 x W4                              | 1700 plf                                                          |
| 3¼" LW                                        | 4 x 4 - W4 x W4                              | 2200 plf                                                          |

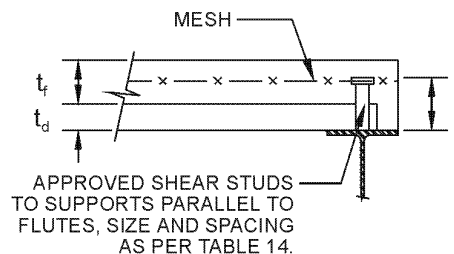
- <sup>2</sup> Connector diameter must be less than or equal to 2.5 times steel support thickness unless connector is located directly over support web.
- <sup>3</sup> See Figure 4 for details.
- <sup>4</sup> For local shear transfer within the field of the diaphragm, 1/2" diameter studs having shear values of 6.8 kips per stud for normal weight concrete fills and 5.8 kips per stud for structural light weight concrete, except as noted hereafter, shall be used. For PLB, B, and BCD-Formlok deck, values of 5.7 kips and 4.9 kips, respectively, shall be used. For PLN, N, and NCD-Formlok, 3/4" diameter studs with values of 3.5 kips and 3.0 kips, respectively, shall be used.
- <sup>5</sup> Sidelap connection shall be at 36 inches on center maximum with either button-punch, No. 10 screw, 1-1/2" long top-seam weld (standing seams), or 1-1/2" long fillet weld (nested seams). Sidelaps of PLB, PLW2, PLW3, and PLN shall be connected with Vercor sidelap connections (VSC) at 36" on center maximum.
- <sup>6</sup> Design compressive strength  $f'_c = 3000$  psi minimum.  
NW = Normal Weight concrete (145 pcf)  
LW = Structural Light Weight concrete (115 pcf)
- <sup>7</sup> Depth of concrete ( $t_c$ ) is measured above top flute of steel deck.
- <sup>8</sup> Formlok deck types PLB, B, BCD, BR and PLW2, W2, W2CD, and Vercor (1 5/16" deep) shall use minimum 1/2" diameter studs. Minimum 5/8" diameter studs are used for PLW3, W3 and W3CD Formlok decks. For PLN, N, and NCD Formlok deck, minimum 3/4" diameter studs shall be used. The tabulated shear values shall be reduced by a factor of 0.74 for N and NCD-Formlok deck.
- <sup>9</sup> The flexibility limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections.
- <sup>10</sup> Also see Tables 8 and 10 through 13 for allowable diaphragm capacity of composite decks.



**SHEAR STUDS AT SUPPORTS  
PARALLEL TO FLUTES**

| DECK<br>HEIGHT ( $t_d$ ) | STUD<br>LENGTH ( $l_s$ ) |
|--------------------------|--------------------------|
| 1-5/16"                  | 3"                       |
| 1½"                      | 3"                       |
| 2"                       | 3½"                      |
| 3"                       | 4½"                      |

(Minimum Finished Length)



**SHEAR STUDS AT SUPPORTS  
PERPENDICULAR TO FLUTES**

**FIGURE 4—SHEAR STUD DETAILS**

**TABLE 15—ALLOWABLE DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR PLW2™-36 FORMLOK™ DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5,6</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |          |          |          |          |          |          |          |          |          |
|-------------------------------|----------------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                            | 6'-0"         | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"   | 13'-0"   | 14'-0"   |          |
| 36/4 WELD PATTERN AT SUPPORTS |                            |               |          |          |          |          |          |          |          |          |          |
| 22                            | VSC @ 24"                  | q             | 443      | 429      | 386      | 380      | 351      | 348      | 327      | 326      | 309      |
|                               |                            | F             | 11.6+54R | 10.9+46R | 13.3+41R | 12.6+36R | 14.8+32R | 14.1+29R | 16.1+27R | 15.4+25R | 17.4+23R |
|                               | VSC @ 12"                  | q             | 554      | 519      | 492      | 470      | 453      | 438      | 426      | 415      | 393      |
|                               |                            | F             | 6.3+54R  | 6.6+46R  | 6.9+41R  | 7.2+36R  | 7.4+32R  | 7.7+29R  | 7.9+27R  | 8.1+25R  | 8.3+23R  |
|                               | VSC @ 8"                   | q             | 640      | 613      | 573      | 547      | 506      | 471      | 441      | 415      | 393      |
|                               |                            | F             | 4.8+54R  | 4.8+46R  | 5.1+41R  | 5.2+36R  | 5.4+32R  | 5.4+29R  | 5.7+27R  | 5.7+25R  | 5.9+23R  |
|                               | VSC @ 4"                   | q             | 742      | 661      | 598      | 547      | 506      | 471      | 441      | 415      | 393      |
|                               |                            | F             | 3.6+54R  | 3.6+46R  | 3.7+41R  | 3.7+36R  | 3.8+32R  | 3.8+29R  | 3.9+27R  | 3.9+25R  | 3.9+23R  |
| 21                            | VSC @ 24"                  | q             | 542      | 523      | 471      | 463      | 427      | 424      | 397      | 397      | 376      |
|                               |                            | F             | 9.5+44R  | 9.0+37R  | 10.9+33R | 10.3+29R | 12.1+26R | 11.6+24R | 13.3+22R | 12.7+20R | 14.3+19R |
|                               | VSC @ 12"                  | q             | 674      | 630      | 597      | 570      | 549      | 531      | 516      | 503      | 476      |
|                               |                            | F             | 5.3+44R  | 5.6+37R  | 5.8+33R  | 6.0+29R  | 6.3+26R  | 6.5+24R  | 6.7+22R  | 6.8+20R  | 7.0+19R  |
|                               | VSC @ 8"                   | q             | 776      | 742      | 694      | 662      | 612      | 570      | 534      | 503      | 476      |
|                               |                            | F             | 4.1+44R  | 4.2+37R  | 4.4+33R  | 4.4+29R  | 4.7+26R  | 4.7+24R  | 4.9+22R  | 4.9+20R  | 5.1+19R  |
|                               | VSC @ 4"                   | q             | 898      | 800      | 724      | 662      | 612      | 570      | 534      | 503      | 476      |
|                               |                            | F             | 3.1+44R  | 3.2+37R  | 3.2+33R  | 3.3+29R  | 3.3+26R  | 3.4+24R  | 3.4+22R  | 3.4+20R  | 3.5+19R  |
| 20                            | VSC @ 24"                  | q             | 646      | 622      | 560      | 550      | 508      | 503      | 472      | 471      | 447      |
|                               |                            | F             | 7.9+36R  | 7.5+31R  | 9.1+27R  | 8.7+24R  | 10.1+22R | 9.7+20R  | 11.1+18R | 10.6+17R | 11.9+15R |
|                               | VSC @ 12"                  | q             | 801      | 748      | 708      | 676      | 650      | 629      | 611      | 596      | 566      |
|                               |                            | F             | 4.6+36R  | 4.8+31R  | 5.0+27R  | 5.2+24R  | 5.4+22R  | 5.5+20R  | 5.7+18R  | 5.9+17R  | 6.0+15R  |
|                               | VSC @ 8"                   | q             | 919      | 878      | 821      | 788      | 728      | 678      | 635      | 598      | 566      |
|                               |                            | F             | 3.6+36R  | 3.7+31R  | 3.9+27R  | 3.9+24R  | 4.1+22R  | 4.1+20R  | 4.2+18R  | 4.2+17R  | 4.4+15R  |
|                               | VSC @ 4"                   | q             | 1068     | 952      | 861      | 788      | 728      | 678      | 635      | 598      | 566      |
|                               |                            | F             | 2.8+36R  | 2.9+31R  | 2.9+27R  | 2.9+24R  | 3.0+22R  | 3.0+20R  | 3.0+18R  | 3.1+17R  | 3.1+15R  |
| 19                            | VSC @ 24"                  | q             | 863      | 829      | 746      | 732      | 675      | 669      | 628      | 626      | 594      |
|                               |                            | F             | 5.8+25R  | 5.5+22R  | 6.6+19R  | 6.3+17R  | 7.3+15R  | 7.0+14R  | 8.0+13R  | 7.7+12R  | 8.7+11R  |
|                               | VSC @ 12"                  | q             | 1063     | 992      | 937      | 895      | 861      | 833      | 809      | 789      | 770      |
|                               |                            | F             | 3.5+25R  | 3.7+22R  | 3.8+19R  | 4.0+17R  | 4.1+15R  | 4.2+14R  | 4.3+13R  | 4.4+12R  | 4.5+11R  |
|                               | VSC @ 8"                   | q             | 1216     | 1160     | 1084     | 1054     | 991      | 923      | 865      | 814      | 770      |
|                               |                            | F             | 2.9+25R  | 2.9+22R  | 3.0+19R  | 3.1+17R  | 3.2+15R  | 3.2+14R  | 3.3+13R  | 3.3+12R  | 3.4+11R  |
|                               | VSC @ 4"                   | q             | 1454     | 1295     | 1172     | 1073     | 991      | 923      | 865      | 814      | 770      |
|                               |                            | F             | 2.3+25R  | 2.4+22R  | 2.4+19R  | 2.4+17R  | 2.4+15R  | 2.5+14R  | 2.5+13R  | 2.5+12R  | 2.5+11R  |
| 18                            | VSC @ 24"                  | q             | 984      | 1003     | 888      | 885      | 817      | 809      | 760      | 757      | 719      |
|                               |                            | F             | 4.6+20R  | 4.4+17R  | 5.2+15R  | 5.0+13R  | 5.8+12R  | 5.6+11R  | 6.3+10R  | 6.1+9R   | 6.8+8R   |
|                               | VSC @ 12"                  | q             | 1283     | 1196     | 1131     | 1080     | 1038     | 1005     | 977      | 953      | 933      |
|                               |                            | F             | 2.9+20R  | 3.0+17R  | 3.1+15R  | 3.3+13R  | 3.4+12R  | 3.5+11R  | 3.5+10R  | 3.6+9R   | 3.7+8R   |
|                               | VSC @ 8"                   | q             | 1465     | 1397     | 1306     | 1269     | 1208     | 1156     | 1083     | 1020     | 965      |
|                               |                            | F             | 2.4+20R  | 2.5+17R  | 2.6+15R  | 2.6+13R  | 2.7+12R  | 2.7+11R  | 2.8+10R  | 2.8+9R   | 2.9+8R   |
|                               | VSC @ 4"                   | q             | 1821     | 1622     | 1468     | 1344     | 1241     | 1156     | 1083     | 1020     | 965      |
|                               |                            | F             | 2.0+20R  | 2.1+17R  | 2.1+15R  | 2.1+13R  | 2.1+12R  | 2.1+11R  | 2.2+10R  | 2.2+9R   | 2.2+8R   |
| 16                            | VSC @ 24"                  | q             | 1261     | 1320     | 1132     | 1184     | 1050     | 1096     | 993      | 1033     | 950      |
|                               |                            | F             | 2.9+12R  | 2.8+10R  | 3.3+9R   | 3.2+8R   | 3.6+7R   | 3.5+6R   | 3.9+6R   | 3.8+5R   | 4.2+5R   |
|                               | VSC @ 12"                  | q             | 1792     | 1672     | 1582     | 1512     | 1455     | 1410     | 1372     | 1340     | 1313     |
|                               |                            | F             | 2.0+12R  | 2.1+10R  | 2.2+9R   | 2.2+8R   | 2.3+7R   | 2.3+6R   | 2.4+6R   | 2.5+5R   | 2.5+5R   |
|                               | VSC @ 8"                   | q             | 2043     | 1949     | 1823     | 1774     | 1691     | 1663     | 1604     | 1587     | 1520     |
|                               |                            | F             | 1.8+12R  | 1.8+10R  | 1.8+9R   | 1.9+8R   | 1.9+7R   | 1.9+6R   | 2.0+6R   | 2.0+5R   | 2.0+5R   |
|                               | VSC @ 4"                   | q             | 2608     | 2472     | 2313     | 2117     | 1956     | 1821     | 1706     | 1607     | 1520     |
|                               |                            | F             | 1.6+12R  | 1.6+10R  | 1.6+9R   | 1.6+8R   | 1.6+7R   | 1.6+6R   | 1.6+6R   | 1.6+5R   | 1.6+5R   |

1 VSC = Verco sidelap connection.

2 The dimension from the first and last sidelap connection within each span is to be no more than one-half of the specified spacing.

3 R is the vertical span ( $L_v$ ) of deck units divided by the length ( $L_s$ ) of the deck sheet:  $R = L_v/L_s$ .

4 The flexibility limitations shown in Table 7 may be used as a guide in lieu of rational analysis of the anticipated deflections.

5 Interpolation of diaphragm strength between adjacent spans is permissible. For interpolated lengths, use diaphragm flexibility factor for the closest span length.

6 Diaphragm shear values for side seam fasteners placed at spacings other than those in the table should be determined based on the number of fasteners in each span.

**TABLE 16—ALLOWABLE DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR W2-36 FORMLOK™ DECK WITH BUTTON PUNCHES (BP) OR 1½ INCH TOP SEAM WELDS (TSW) AT SIDELAPS <sup>1</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |           |           |           |           |           |           |           |           |           |
|-------------------------------|----------------------------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                               |                            | 6'-0"         | 7'-0"     | 8'-0"     | 9'-0"     | 10'-0"    | 11'-0"    | 12'-0"    | 13'-0"    | 14'-0"    |           |
| 36/4 WELD PATTERN AT SUPPORTS |                            |               |           |           |           |           |           |           |           |           |           |
| 22                            | BP @ 24"                   | q             | 195       | 181       | 159       | 152       | 138       | 134       | 124       | 122       | 114       |
|                               |                            | F             | 15.1+255R | 16.4+218R | 18.6+191R | 19.6+170R | 21.7+153R | 22.5+139R | 24.7+127R | 25.3+118R | 27.4+109R |
|                               | BP @ 12"                   | q             | 242       | 222       | 207       | 195       | 186       | 179       | 173       | 168       | 164       |
|                               |                            | F             | 12.8+255R | 13.9+218R | 14.9+191R | 15.9+170R | 16.8+153R | 17.6+139R | 18.4+127R | 19.2+118R | 19.9+109R |
|                               | TSW @ 24"                  | q             | 221       | 220       | 192       | 194       | 174       | 177       | 162       | 166       | 154       |
|                               |                            | F             | 11+255R   | 9.9+218R  | 10.0+191R | 9.2+170R  | 9.3+153R  | 8.6+139R  | 8.7+127R  | 8.2+118R  | 8.2+109R  |
| 21                            | TSW @ 12"                  | q             | 331       | 314       | 301       | 291       | 283       | 277       | 272       | 267       | 263       |
|                               |                            | F             | 8.3+255R  | 7.8+218R  | 7.4+191R  | 7.1+170R  | 6.8+153R  | 6.5+139R  | 6.3+127R  | 6.1+118R  | 6.0+109R  |
|                               | BP @ 24"                   | q             | 245       | 225       | 197       | 188       | 169       | 164       | 151       | 148       | 138       |
|                               |                            | F             | 13.3+191R | 14.5+164R | 16.4+143R | 17.5+128R | 19.4+115R | 20.3+104R | 22.2+96R  | 23.0+88R  | 24.9+82R  |
|                               | BP @ 12"                   | q             | 296       | 269       | 249       | 234       | 223       | 213       | 205       | 199       | 194       |
|                               |                            | F             | 11.4+191R | 12.5+164R | 13.5+143R | 14.5+128R | 15.4+115R | 16.2+104R | 17.0+96R  | 17.8+88R  | 18.5+82R  |
| 20                            | TSW @ 24"                  | q             | 286       | 281       | 245       | 246       | 221       | 224       | 204       | 208       | 193       |
|                               |                            | F             | 9.8+191R  | 8.9+164R  | 9.0+143R  | 8.4+128R  | 8.4+115R  | 7.9+104R  | 8.0+96R   | 7.5+88R   | 7.5+82R   |
|                               | TSW @ 12"                  | q             | 418       | 395       | 377       | 364       | 353       | 344       | 337       | 331       | 325       |
|                               |                            | F             | 7.5+191R  | 7.1+164R  | 6.8+143R  | 6.5+128R  | 6.2+115R  | 6.0+104R  | 5.8+96R   | 5.7+88R   | 5.5+82R   |
|                               | BP @ 24"                   | q             | 300       | 273       | 240       | 226       | 204       | 197       | 181       | 177       | 165       |
|                               |                            | F             | 11.7+147R | 12.9+126R | 14.6+111R | 15.7+98R  | 17.4+88R  | 18.3+80R  | 20.1+74R  | 20.9+68R  | 22.7+63R  |
| 19                            | BP @ 12"                   | q             | 355       | 321       | 296       | 277       | 262       | 250       | 240       | 232       | 225       |
|                               |                            | F             | 10.3+147R | 11.3+126R | 12.3+111R | 13.2+98R  | 14.1+88R  | 14.9+80R  | 15.7+74R  | 16.5+68R  | 17.2+63R  |
|                               | TSW @ 24"                  | q             | 362       | 353       | 307       | 306       | 274       | 277       | 253       | 257       | 238       |
|                               |                            | F             | 8.8+147R  | 8.1+126R  | 8.2+111R  | 7.6+98R   | 7.7+88R   | 7.2+80R   | 7.3+74R   | 6.9+68R   | 7.0+63R   |
|                               | TSW @ 12"                  | q             | 519       | 488       | 464       | 446       | 432       | 420       | 410       | 402       | 395       |
|                               |                            | F             | 6.9+147R  | 6.5+126R  | 6.2+111R  | 6.0+98R   | 5.7+88R   | 5.6+80R   | 5.4+74R   | 5.2+68R   | 5.1+63R   |
| 18                            | BP @ 24"                   | q             | 424       | 382       | 335       | 313       | 283       | 270       | 248       | 240       | 224       |
|                               |                            | F             | 9.4+93R   | 10.4+80R  | 11.8+70R  | 12.8+62R  | 14.3+56R  | 15.2+51R  | 16.7+46R  | 17.5+43R  | 19.0+40R  |
|                               | BP @ 12"                   | q             | 486       | 437       | 400       | 371       | 349       | 331       | 316       | 304       | 293       |
|                               |                            | F             | 8.4+93R   | 9.4+80R   | 10.3+70R  | 11.1+62R  | 11.9+56R  | 12.7+51R  | 13.5+46R  | 14.3+43R  | 15.0+40R  |
|                               | TSW @ 24"                  | q             | 548       | 527       | 458       | 452       | 404       | 405       | 369       | 372       | 344       |
|                               |                            | F             | 7.3+93R   | 6.8+80R   | 6.9+70R   | 6.4+62R   | 6.5+56R   | 6.1+51R   | 6.2+46R   | 5.9+43R   | 6.0+40R   |
| 16                            | TSW @ 12"                  | q             | 762       | 711       | 672       | 642       | 619       | 599       | 583       | 570       | 558       |
|                               |                            | F             | 5.8+93R   | 5.5+80R   | 5.3+70R   | 5.1+62R   | 4.9+56R   | 4.8+51R   | 4.7+46R   | 4.5+43R   | 4.4+40R   |
|                               | BP @ 24"                   | q             | 536       | 480       | 421       | 391       | 353       | 335       | 308       | 297       | 276       |
|                               |                            | F             | 7.9+66R   | 8.9+57R   | 10.1+50R  | 11.0+44R  | 12.3+40R  | 13.1+36R  | 14.4+33R  | 15.2+31R  | 16.6+28R  |
|                               | BP @ 12"                   | q             | 604       | 539       | 491       | 454       | 425       | 402       | 382       | 366       | 352       |
|                               |                            | F             | 7.2+66R   | 8.1+57R   | 8.9+50R   | 9.7+44R   | 10.5+40R  | 11.2+36R  | 12.0+33R  | 12.7+31R  | 13.4+28R  |
| 15                            | TSW @ 24"                  | q             | 734       | 705       | 612       | 599       | 536       | 533       | 485       | 487       | 450       |
|                               |                            | F             | 6.3+66R   | 5.9+57R   | 6.0+50R   | 5.6+44R   | 5.7+40R   | 5.4+36R   | 5.5+33R   | 5.2+31R   | 5.3+28R   |
|                               | TSW @ 12"                  | q             | 1001      | 935       | 880       | 838       | 804       | 777       | 754       | 735       | 718       |
|                               |                            | F             | 5.1+66R   | 4.9+57R   | 4.7+50R   | 4.5+44R   | 4.4+40R   | 4.3+36R   | 4.2+33R   | 4.1+31R   | 4.0+28R   |
|                               | BP @ 24"                   | q             | 812       | 720       | 631       | 581       | 524       | 493       | 453       | 433       | 403       |
|                               |                            | F             | 5.7+33R   | 6.4+29R   | 7.3+25R   | 8.0+22R   | 8.9+20R   | 9.7+18R   | 10.6+17R  | 11.4+15R  | 12.4+14R  |
| 14                            | BP @ 12"                   | q             | 890       | 788       | 712       | 654       | 607       | 570       | 539       | 513       | 492       |
|                               |                            | F             | 5.3+33R   | 5.9+29R   | 6.6+25R   | 7.2+22R   | 7.9+20R   | 8.5+18R   | 9.2+17R   | 9.8+15R   | 10.4+14R  |
|                               | TSW @ 24"                  | q             | 1075      | 1026      | 904       | 888       | 805       | 805       | 743       | 750       | 702       |
|                               |                            | F             | 4.6+33R   | 4.4+29R   | 4.5+25R   | 4.3+22R   | 4.3+20R   | 4.2+18R   | 4.2+17R   | 4.1+15R   | 4.1+14R   |
|                               | TSW @ 12"                  | q             | 1417      | 1324      | 1257      | 1208      | 1170      | 1142      | 1119      | 1102      | 1089      |
|                               |                            | F             | 3.8+33R   | 3.7+29R   | 3.6+25R   | 3.5+22R   | 3.4+20R   | 3.4+18R   | 3.3+17R   | 3.2+15R   | 3.2+14R   |

<sup>1</sup> Footnotes 2–6 of Table 15 apply to this table.

**TABLE 17—ALLOWABLE DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR PLW3™-36 FORMLOK DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5,6</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |          |          |          |          |          |          |          |          |          |
|-------------------------------|----------------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                            | 6'-0"         | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"   | 14'-0"   | 16'-0"   |          |
| 36/4 WELD PATTERN AT SUPPORTS |                            |               |          |          |          |          |          |          |          |          |          |
| 22                            | VSC @ 24"                  | q             | 389      | 377      | 339      | 335      | 309      | 307      | 288      | 272      | 261      |
|                               |                            | F             | 12.0+85R | 11.2+73R | 13.7+64R | 12.9+57R | 15.2+51R | 14.4+46R | 16.5+42R | 17.8+36R | 18.9+32R |
|                               | VSC @ 12"                  | q             | 489      | 458      | 434      | 415      | 400      | 387      | 376      | 359      | 346      |
|                               |                            | F             | 6.5+85R  | 6.8+73R  | 7.1+64R  | 7.4+57R  | 7.6+51R  | 7.9+46R  | 8.1+42R  | 8.5+36R  | 8.9+32R  |
|                               | VSC @ 8"                   | q             | 566      | 542      | 507      | 494      | 470      | 462      | 444      | 413      | 374      |
|                               |                            | F             | 5.0+85R  | 5.0+73R  | 5.3+64R  | 5.3+57R  | 5.6+51R  | 5.6+46R  | 5.8+42R  | 6.1+36R  | 6.3+32R  |
| 21                            | VSC @ 4"                   | q             | 739      | 695      | 629      | 576      | 532      | 495      | 464      | 413      | 374      |
|                               |                            | F             | 3.7+85R  | 3.7+73R  | 3.8+64R  | 3.8+57R  | 3.9+51R  | 3.9+46R  | 4.0+42R  | 4.0+36R  | 4.1+32R  |
|                               | VSC @ 24"                  | q             | 514      | 497      | 447      | 440      | 406      | 403      | 377      | 357      | 342      |
|                               |                            | F             | 9.2+63R  | 8.7+54R  | 10.5+48R | 10.0+42R | 11.7+38R | 11.1+35R | 12.7+32R | 13.7+27R | 14.6+24R |
|                               | VSC @ 12"                  | q             | 642      | 600      | 568      | 543      | 522      | 505      | 491      | 468      | 451      |
|                               |                            | F             | 5.2+63R  | 5.4+54R  | 5.7+48R  | 5.9+42R  | 6.1+38R  | 6.3+35R  | 6.4+32R  | 6.8+27R  | 7.1+24R  |
| 20                            | VSC @ 8"                   | q             | 739      | 707      | 661      | 643      | 611      | 600      | 578      | 535      | 484      |
|                               |                            | F             | 4.1+63R  | 4.1+54R  | 4.3+48R  | 4.3+42R  | 4.5+38R  | 4.6+35R  | 4.7+32R  | 4.9+27R  | 5.1+24R  |
|                               | VSC @ 4"                   | q             | 960      | 900      | 814      | 745      | 689      | 641      | 601      | 535      | 484      |
|                               |                            | F             | 3.1+63R  | 3.2+54R  | 3.2+48R  | 3.2+42R  | 3.3+38R  | 3.3+35R  | 3.4+32R  | 3.4+27R  | 3.5+24R  |
|                               | VSC @ 24"                  | q             | 582      | 561      | 505      | 496      | 457      | 454      | 425      | 402      | 385      |
|                               |                            | F             | 8.1+56R  | 7.7+48R  | 9.3+42R  | 8.9+37R  | 10.3+33R | 9.9+30R  | 11.3+28R | 12.1+24R | 13.0+21R |
| 19                            | VSC @ 12"                  | q             | 723      | 676      | 639      | 611      | 587      | 568      | 552      | 526      | 507      |
|                               |                            | F             | 4.7+56R  | 4.9+48R  | 5.1+42R  | 5.3+37R  | 5.5+33R  | 5.6+30R  | 5.8+28R  | 6.1+24R  | 6.4+21R  |
|                               | VSC @ 8"                   | q             | 832      | 795      | 743      | 722      | 687      | 674      | 649      | 602      | 545      |
|                               |                            | F             | 3.7+56R  | 3.7+48R  | 3.9+42R  | 4.0+37R  | 4.1+33R  | 4.2+30R  | 4.3+28R  | 4.5+24R  | 4.6+21R  |
|                               | VSC @ 4"                   | q             | 1077     | 1012     | 916      | 838      | 775      | 721      | 676      | 602      | 545      |
|                               |                            | F             | 2.9+56R  | 2.9+48R  | 3.0+42R  | 3.0+37R  | 3.0+33R  | 3.1+30R  | 3.1+28R  | 3.2+24R  | 3.2+21R  |
| 18                            | VSC @ 24"                  | q             | 831      | 798      | 718      | 704      | 650      | 643      | 603      | 570      | 545      |
|                               |                            | F             | 5.6+37R  | 5.4+32R  | 6.4+28R  | 6.1+25R  | 7.1+22R  | 6.8+20R  | 7.7+18R  | 8.3+16R  | 8.9+14R  |
|                               | VSC @ 12"                  | q             | 1025     | 955      | 903      | 862      | 828      | 801      | 778      | 742      | 715      |
|                               |                            | F             | 3.5+37R  | 3.6+32R  | 3.7+28R  | 3.9+25R  | 4.0+22R  | 4.1+20R  | 4.2+18R  | 4.4+16R  | 4.6+14R  |
|                               | VSC @ 8"                   | q             | 1173     | 1119     | 1045     | 1015     | 965      | 947      | 912      | 867      | 784      |
|                               |                            | F             | 2.8+37R  | 2.9+32R  | 3.0+28R  | 3.0+25R  | 3.1+22R  | 3.1+20R  | 3.3+18R  | 3.4+16R  | 3.5+14R  |
| 17                            | VSC @ 4"                   | q             | 1508     | 1427     | 1319     | 1207     | 1115     | 1039     | 973      | 867      | 784      |
|                               |                            | F             | 2.3+37R  | 2.3+32R  | 2.4+28R  | 2.4+25R  | 2.4+22R  | 2.4+20R  | 2.5+18R  | 2.5+16R  | 2.5+14R  |
|                               | VSC @ 24"                  | q             | 982      | 973      | 875      | 857      | 791      | 783      | 735      | 694      | 664      |
|                               |                            | F             | 4.5+29R  | 4.3+25R  | 5.1+21R  | 4.9+19R  | 5.6+17R  | 5.4+16R  | 6.1+14R  | 6.6+12R  | 7.0+11R  |
|                               | VSC @ 12"                  | q             | 1245     | 1160     | 1096     | 1046     | 1006     | 972      | 945      | 901      | 869      |
|                               |                            | F             | 2.9+29R  | 3.0+25R  | 3.1+21R  | 3.2+19R  | 3.3+17R  | 3.4+16R  | 3.5+14R  | 3.6+12R  | 3.8+11R  |
| 16                            | VSC @ 8"                   | q             | 1422     | 1356     | 1266     | 1229     | 1170     | 1148     | 1106     | 1060     | 982      |
|                               |                            | F             | 2.4+29R  | 2.4+25R  | 2.5+21R  | 2.6+19R  | 2.6+17R  | 2.7+16R  | 2.7+14R  | 2.8+12R  | 2.9+11R  |
|                               | VSC @ 4"                   | q             | 1823     | 1724     | 1649     | 1512     | 1397     | 1301     | 1218     | 1085     | 982      |
|                               |                            | F             | 2.0+29R  | 2.0+25R  | 2.1+21R  | 2.1+19R  | 2.1+17R  | 2.1+16R  | 2.1+14R  | 2.2+12R  | 2.2+11R  |
|                               | VSC @ 24"                  | q             | 1265     | 1325     | 1136     | 1189     | 1054     | 1100     | 997      | 955      | 922      |
|                               |                            | F             | 2.9+17R  | 2.8+15R  | 3.2+13R  | 3.5+11R  | 3.5+10R  | 3.4+9R   | 3.8+9R   | 4.1+7R   | 4.4+6R   |
| 15                            | VSC @ 12"                  | q             | 1761     | 1641     | 1551     | 1481     | 1425     | 1379     | 1341     | 1281     | 1238     |
|                               |                            | F             | 2.0+17R  | 2.1+15R  | 2.1+13R  | 2.2+11R  | 2.3+10R  | 2.3+9R   | 2.4+9R   | 2.5+7R   | 2.6+6R   |
|                               | VSC @ 8"                   | q             | 2006     | 1912     | 1787     | 1737     | 1655     | 1625     | 1567     | 1505     | 1460     |
|                               |                            | F             | 1.8+17R  | 1.8+15R  | 1.8+13R  | 1.8+11R  | 1.9+10R  | 1.9+9R   | 2.0+9R   | 2.0+7R   | 2.1+6R   |
|                               | VSC @ 4"                   | q             | 2561     | 2424     | 2320     | 2239     | 2174     | 2049     | 1920     | 1710     | 1547     |
|                               |                            | F             | 1.6+17R  | 1.6+15R  | 1.6+13R  | 1.6+11R  | 1.6+10R  | 1.6+9R   | 1.6+9R   | 1.6+7R   | 1.7+6R   |

<sup>1</sup> VSC = Vercor sidlap connection.

<sup>2</sup> The dimension from the first and last sidlap connection within each span is to be no more than one-half of the specified spacing.

<sup>3</sup> R is the vertical span ( $L_v$ ) of deck units divided by the length ( $L_s$ ) of the deck sheet:  $R = L_v/L_s$ .

<sup>4</sup> The flexibility limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections.

<sup>5</sup> Interpolation of diaphragm strength between adjacent spans is permissible. For interpolated lengths, use diaphragm flexibility factor for the closest span length.

<sup>6</sup> Diaphragm shear values for side seam fasteners placed at spacings other than those in the table should be determined based on the number of fasteners in each span.

**TABLE 18—ALLOWABLE DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR W3-36 FORMLOK™ DECK WITH BUTTON PUNCHES (BP) OR 1½" TOP SEAM WELDS (TSW) AT SIDELAPS <sup>1</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |           |           |           |           |           |           |           |           |           |
|-------------------------------|----------------------------|---------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                               |                            | 6'-0"         | 7'-0"     | 8'-0"     | 9'-0"     | 10'-0"    | 11'-0"    | 12'-0"    | 14'-0"    | 16'-0"    |           |
| 36/4 WELD PATTERN AT SUPPORTS |                            |               |           |           |           |           |           |           |           |           |           |
| 22                            | BP @ 24"                   | q             | 155       | 145       | 127       | 123       | 111       | 109       | 100       | 93        | 87        |
|                               |                            | F             | 15.4+410R | 16.5+351R | 18.7+308R | 19.6+273R | 21.7+246R | 22.3+224R | 24.4+205R | 26.9+176R | 29.2+154R |
|                               | BP @ 12"                   | q             | 196       | 180       | 169       | 160       | 153       | 148       | 143       | 137       | 132       |
|                               |                            | F             | 12.8+410R | 13.8+351R | 14.8+308R | 15.7+273R | 16.5+246R | 17.2+224R | 17.9+205R | 19.2+176R | 20.3+154R |
|                               | TSW @ 24"                  | q             | 194       | 195       | 170       | 173       | 156       | 160       | 146       | 139       | 134       |
|                               |                            | F             | 11.0+410R | 9.9+351R  | 9.9+308R  | 9.1+273R  | 9.2+246R  | 8.5+224R  | 8.6+205R  | 8.1+176R  | 7.7+154R  |
| 21                            | BP @ 24"                   | q             | 211       | 195       | 171       | 163       | 147       | 143       | 131       | 121       | 113       |
|                               |                            | F             | 13.0+278R | 14.1+239R | 15.9+209R | 16.9+186R | 18.7+167R | 19.5+152R | 21.3+139R | 23.7+119R | 26.0+104R |
|                               | BP @ 12"                   | q             | 257       | 235       | 218       | 206       | 195       | 187       | 181       | 171       | 164       |
|                               |                            | F             | 11.1+278R | 12.1+239R | 13.0+209R | 13.9+186R | 14.7+167R | 15.4+152R | 16.2+139R | 17.5+119R | 18.7+104R |
|                               | TSW @ 24"                  | q             | 275       | 272       | 237       | 239       | 214       | 218       | 199       | 189       | 181       |
|                               |                            | F             | 9.5+278R  | 8.6+239R  | 8.7+209R  | 8.0+186R  | 8.1+167R  | 7.5+152R  | 7.6+139R  | 7.2+119R  | 6.9+104R  |
| 20                            | BP @ 24"                   | q             | 407       | 385       | 369       | 357       | 347       | 339       | 332       | 321       | 313       |
|                               |                            | F             | 7.2+278R  | 6.8+239R  | 6.5+209R  | 6.2+186R  | 6.0+167R  | 5.8+152R  | 5.6+139R  | 5.3+119R  | 5.0+104R  |
|                               | BP @ 12"                   | q             | 243       | 223       | 195       | 185       | 167       | 162       | 149       | 136       | 127       |
|                               |                            | F             | 11.9+233R | 13.0+200R | 14.8+175R | 15.7+155R | 17.4+140R | 18.2+127R | 19.9+117R | 22.3+100R | 24.6+87R  |
|                               | TSW @ 24"                  | q             | 292       | 265       | 246       | 231       | 219       | 209       | 201       | 190       | 181       |
|                               |                            | F             | 10.3+233R | 11.3+200R | 12.2+175R | 13.1+155R | 13.9+140R | 14.7+127R | 15.4+117R | 16.7+100R | 17.9+87R  |
| 19                            | BP @ 24"                   | q             | 322       | 317       | 276       | 277       | 248       | 252       | 230       | 217       | 208       |
|                               |                            | F             | 8.8+233R  | 8.1+200R  | 8.1+175R  | 7.5+155R  | 7.6+140R  | 7.1+127R  | 7.2+117R  | 6.8+100R  | 6.5+87R   |
|                               | BP @ 12"                   | q             | 471       | 444       | 425       | 410       | 397       | 387       | 379       | 366       | 357       |
|                               |                            | F             | 6.8+233R  | 6.4+200R  | 6.1+175R  | 5.9+155R  | 5.6+140R  | 5.5+127R  | 5.3+117R  | 5.0+100R  | 4.8+87R   |
|                               | TSW @ 24"                  | q             | 372       | 336       | 295       | 276       | 249       | 239       | 219       | 198       | 183       |
|                               |                            | F             | 9.2+135R  | 10.2+116R | 11.5+101R | 12.4+90R  | 13.8+81R  | 14.6+74R  | 16.1+67R  | 18.2+58R  | 20.3+51R  |
| 18                            | BP @ 24"                   | q             | 430       | 387       | 355       | 330       | 310       | 295       | 282       | 262       | 248       |
|                               |                            | F             | 8.2+135R  | 9.1+116R  | 9.9+101R  | 10.7+90R  | 11.5+81R  | 12.2+74R  | 12.9+67R  | 14.3+58R  | 15.5+51R  |
|                               | BP @ 12"                   | q             | 528       | 510       | 444       | 440       | 394       | 395       | 361       | 337       | 320       |
|                               |                            | F             | 7.1+135R  | 6.5+116R  | 6.6+101R  | 6.2+90R   | 6.3+81R   | 5.9+74R   | 6.0+67R   | 5.7+58R   | 5.5+51R   |
|                               | TSW @ 24"                  | q             | 742       | 694       | 658       | 630       | 608       | 590       | 575       | 551       | 534       |
|                               |                            | F             | 5.6+135R  | 5.3+116R  | 5.1+101R  | 4.9+90R   | 4.8+81R   | 4.6+74R   | 4.5+67R   | 4.3+58R   | 4.1+51R   |
| 16                            | BP @ 24"                   | q             | 478       | 429       | 376       | 350       | 316       | 300       | 276       | 248       | 227       |
|                               |                            | F             | 7.8+96R   | 8.7+83R   | 9.8+72R   | 10.7+64R  | 11.9+58R  | 12.7+53R  | 13.9+48R  | 15.9+41R  | 17.9+36R  |
|                               | BP @ 12"                   | q             | 542       | 484       | 442       | 409       | 383       | 362       | 345       | 318       | 299       |
|                               |                            | F             | 7.1+96R   | 7.9+83R   | 8.7+72R   | 9.4+64R   | 10.1+58R  | 10.8+53R  | 11.5+48R  | 12.8+41R  | 14.0+36R  |
|                               | TSW @ 24"                  | q             | 663       | 643       | 566       | 564       | 511       | 515       | 476       | 442       | 417       |
|                               |                            | F             | 6.1+96R   | 5.7+83R   | 5.8+72R   | 5.5+64R   | 5.5+58R   | 5.2+53R   | 5.3+48R   | 5.1+41R   | 4.9+36R   |
| 15                            | BP @ 24"                   | q             | 912       | 859       | 822       | 794       | 773       | 756       | 744       | 710       | 685       |
|                               |                            | F             | 4.9+96R   | 4.7+83R   | 4.5+72R   | 4.4+64R   | 4.3+58R   | 4.1+53R   | 4.0+48R   | 3.8+41R   | 3.7+36R   |
|                               | BP @ 12"                   | q             | 752       | 667       | 585       | 538       | 486       | 457       | 420       | 374       | 340       |
|                               |                            | F             | 5.6+49R   | 6.2+42R   | 7.1+37R   | 7.8+32R   | 8.7+29R   | 9.4+27R   | 10.3+24R  | 11.9+21R  | 13.6+18R  |
|                               | TSW @ 24"                  | q             | 826       | 732       | 662       | 608       | 565       | 530       | 502       | 458       | 426       |
|                               |                            | F             | 5.2+49R   | 5.8+42R   | 6.4+37R   | 7.0+32R   | 7.7+29R   | 8.3+27R   | 8.9+24R   | 10.0+21R  | 11.2+18R  |
| 14                            | BP @ 24"                   | q             | 1003      | 958       | 844       | 830       | 752       | 752       | 694       | 656       | 629       |
|                               |                            | F             | 4.5+49R   | 4.3+42R   | 4.4+37R   | 4.2+32R   | 4.2+29R   | 4.0+27R   | 4.1+24R   | 4.0+21R   | 3.9+18R   |
|                               | BP @ 12"                   | q             | 1327      | 1241      | 1179      | 1133      | 1098      | 1071      | 1050      | 1021      | 1003      |
|                               |                            | F             | 3.8+49R   | 3.6+42R   | 3.5+37R   | 3.4+32R   | 3.3+29R   | 3.3+27R   | 3.2+24R   | 3.1+21R   | 3.0+18R   |

<sup>1</sup> Footnotes 2–6 of Table 17 apply to this table.

**TABLE 19—ALLOWABLE DIAPHRAGM SHEAR, q (plf), AND FLEXIBILITY FACTORS, F, FOR  
TYPE PLB™-36 DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5,6</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |           |           |          |          |          |          |          |          |          |
|-------------------------------|----------------------------|---------------|-----------|-----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                            | 4'-0"         | 5'-0"     | 6'-0"     | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"   |          |
| 36/4 WELD PATTERN AT SUPPORTS |                            |               |           |           |          |          |          |          |          |          |          |
| 22                            | VSC @ 24"                  | q             | 545       | 497       | 434      | 417      | 380      | 374      | 349      | —        | —        |
|                               |                            | F             | 13.7+161R | 16.4+115R | 20.2+87R | 22.7+69R | 26.6+57R | 29.0+48R | 32.9+41R | —        | —        |
|                               | VSC @ 18"                  | q             | 590       | 531       | 465      | 443      | 426      | 395      | 387      | —        | —        |
|                               |                            | F             | 12.8+161R | 15.5+115R | 19.0+87R | 21.6+69R | 24.0+57R | 27.6+48R | 29.9+41R | —        | —        |
|                               | VSC @ 12"                  | q             | 627       | 561       | 518      | 487      | 465      | 449      | 436      | —        | —        |
|                               |                            | F             | 12.2+161R | 14.8+115R | 17.4+87R | 19.9+69R | 22.3+57R | 24.6+48R | 26.9+41R | —        | —        |
|                               | VSC @ 8"                   | q             | 691       | 636       | 582      | 561      | 531      | 522      | 503      | —        | —        |
|                               |                            | F             | 11.4+161R | 13.4+115R | 15.8+87R | 17.6+69R | 19.9+57R | 21.6+48R | 23.7+41R | —        | —        |
|                               | VSC @ 6"                   | q             | 744       | 679       | 636      | 607      | 586      | 571      | 559      | —        | —        |
|                               |                            | F             | 10.8+161R | 12.8+115R | 14.7+87R | 16.5+69R | 18.2+57R | 19.9+48R | 21.6+41R | —        | —        |
|                               | VSC @ 4"                   | q             | 833       | 769       | 727      | 699      | 679      | 665      | 654      | —        | —        |
|                               |                            | F             | 9.9+161R  | 11.6+115R | 13.2+87R | 14.7+69R | 16.1+57R | 17.5+48R | 18.9+41R | —        | —        |
| 20                            | VSC @ 24"                  | q             | 802       | 722       | 628      | 598      | 544      | 532      | 496      | 492      | 466      |
|                               |                            | F             | 10.4+111R | 12.6+80R  | 15.6+61R | 17.8+48R | 20.9+39R | 22.9+33R | 26.1+28R | 28.0+24R | 31.2+21R |
|                               | VSC @ 18"                  | q             | 861       | 767       | 670      | 633      | 606      | 560      | 547      | 537      | 510      |
|                               |                            | F             | 9.9+111R  | 12.0+80R  | 14.8+61R | 16.9+48R | 19.0+39R | 21.9+33R | 23.8+28R | 25.8+24R | 28.7+21R |
|                               | VSC @ 12"                  | q             | 910       | 807       | 739      | 692      | 658      | 632      | 612      | 596      | 584      |
|                               |                            | F             | 9.5+111R  | 11.6+80R  | 13.6+61R | 15.7+48R | 17.7+39R | 19.6+33R | 21.6+28R | 23.5+24R | 25.3+21R |
|                               | VSC @ 8"                   | q             | 994       | 906       | 824      | 789      | 745      | 729      | 701      | 694      | 675      |
|                               |                            | F             | 8.9+111R  | 10.6+80R  | 12.5+61R | 14.0+48R | 15.9+39R | 17.3+33R | 19.1+28R | 20.5+24R | 22.2+21R |
|                               | VSC @ 6"                   | q             | 1064      | 962       | 896      | 851      | 818      | 794      | 776      | 762      | 688      |
|                               |                            | F             | 8.4+111R  | 10.1+80R  | 11.7+61R | 13.2+48R | 14.7+39R | 16.1+33R | 17.5+28R | 18.9+24R | 20.2+21R |
|                               | VSC @ 4"                   | q             | 1181      | 1081      | 1016     | 972      | 941      | 918      | 902      | 818      | 688      |
|                               |                            | F             | 7.8+111R  | 9.2+80R   | 10.5+61R | 11.8+48R | 13.0+39R | 14.2+33R | 15.4+28R | 16.5+24R | 17.6+21R |
| 18                            | VSC @ 24"                  | q             | 1336      | 1187      | 1029     | 971      | 881      | 855      | 796      | 785      | 743      |
|                               |                            | F             | 6.8+63R   | 8.3+45R   | 10.2+34R | 11.7+27R | 13.8+22R | 15.3+19R | 17.5+16R | 19.0+14R | 21.2+12R |
|                               | VSC @ 18"                  | q             | 1421      | 1253      | 1089     | 1021     | 971      | 896      | 872      | 853      | 808      |
|                               |                            | F             | 6.5+63R   | 7.9+45R   | 9.8+34R  | 11.2+27R | 12.7+22R | 14.7+19R | 16.2+16R | 17.6+14R | 19.7+12R |
|                               | VSC @ 12"                  | q             | 1493      | 1310      | 1191     | 1108     | 1047     | 1002     | 967      | 940      | 919      |
|                               |                            | F             | 6.2+63R   | 7.6+45R   | 9.1+34R  | 10.5+27R | 11.9+22R | 13.3+19R | 14.7+16R | 16.1+14R | 17.5+12R |
|                               | VSC @ 8"                   | q             | 1614      | 1455      | 1315     | 1250     | 1175     | 1145     | 1099     | 1084     | 1053     |
|                               |                            | F             | 5.9+63R   | 7.1+45R   | 8.4+34R  | 9.5+27R  | 10.8+22R | 11.9+19R | 13.2+16R | 14.2+14R | 15.5+12R |
|                               | VSC @ 6"                   | q             | 1716      | 1536      | 1420     | 1340     | 1283     | 1241     | 1210     | 1185     | 1057     |
|                               |                            | F             | 5.7+63R   | 6.8+45R   | 7.9+34R  | 9.0+27R  | 10.0+22R | 11.1+19R | 12.1+16R | 13.2+14R | 14.2+12R |
|                               | VSC @ 4"                   | q             | 1887      | 1710      | 1596     | 1519     | 1464     | 1425     | 1395     | 1257     | 1057     |
|                               |                            | F             | 5.3+63R   | 6.3+45R   | 7.2+34R  | 8.1+27R  | 9.0+22R  | 9.9+19R  | 10.8+16R | 11.6+14R | 12.4+12R |
| 16                            | VSC @ 24"                  | q             | 1831      | 1618      | 1400     | 1316     | 1193     | 1155     | 1075     | 1058     | 1001     |
|                               |                            | F             | 4.8+40R   | 5.9+29R   | 7.2+22R  | 8.4+17R  | 9.9+14R  | 11.0+12R | 12.6+10R | 13.7+9R  | 15.4+8R  |
|                               | VSC @ 18"                  | q             | 1940      | 1701      | 1478     | 1380     | 1309     | 1208     | 1173     | 1146     | 1086     |
|                               |                            | F             | 4.6+40R   | 5.6+29R   | 6.9+22R  | 8.0+17R  | 9.1+14R  | 10.6+12R | 11.7+10R | 12.8+9R  | 14.3+8R  |
|                               | VSC @ 12"                  | q             | 2032      | 1775      | 1608     | 1492     | 1408     | 1345     | 1297     | 1259     | 1230     |
|                               |                            | F             | 4.5+40R   | 5.5+29R   | 6.5+22R  | 7.5+17R  | 8.6+14R  | 9.6+12R  | 10.7+10R | 11.7+9R  | 12.8+8R  |
|                               | VSC @ 8"                   | q             | 2186      | 1960      | 1768     | 1675     | 1573     | 1529     | 1467     | 1446     | 1405     |
|                               |                            | F             | 4.2+40R   | 5.1+29R   | 6.0+22R  | 6.9+17R  | 7.8+14R  | 8.6+12R  | 9.6+10R  | 10.4+9R  | 11.4+8R  |
|                               | VSC @ 6"                   | q             | 2316      | 2064      | 1902     | 1791     | 1712     | 1654     | 1611     | 1578     | 1478     |
|                               |                            | F             | 4.1+40R   | 4.9+29R   | 5.7+22R  | 6.5+17R  | 7.3+14R  | 8.1+12R  | 8.9+10R  | 9.7+9R   | 10.4+8R  |
|                               | VSC @ 4"                   | q             | 2533      | 2286      | 2128     | 2021     | 1945     | 1891     | 1851     | 1759     | 1478     |
|                               |                            | F             | 3.9+40R   | 4.6+29R   | 5.2+22R  | 5.9+17R  | 6.6+14R  | 7.3+12R  | 7.9+10R  | 8.5+9R   | 9.2+8R   |

See Page 39 for footnotes

(continued)

**TABLE 19–ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR  
TYPE PLB™-36 DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5,6</sup> – Continued**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft.-in.) |         |          |          |          |          |          |          |          |          |
|-------------------------------|----------------------------|----------------|---------|----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                            | 4'-0"          | 5'-0"   | 6'-0"    | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"   |          |
| 36/5 WELD PATTERN AT SUPPORTS |                            |                |         |          |          |          |          |          |          |          |          |
| 22                            | VSC @ 24"                  | q              | 676     | 604      | 524      | 497      | 451      | 439      | 409      | —        | —        |
|                               |                            | F              | 9.9+78R | 11.9+56R | 14.5+42R | 16.5+34R | 19.3+28R | 21.2+23R | 24.2+20R | —        | —        |
|                               | VSC @ 18"                  | q              | 722     | 639      | 557      | 523      | 499      | 461      | 449      | —        | —        |
|                               |                            | F              | 9.4+78R | 11.4+56R | 13.8+42R | 15.8+34R | 17.7+28R | 20.4+23R | 22.2+20R | —        | —        |
|                               | VSC @ 12"                  | q              | 761     | 670      | 611      | 570      | 540      | 517      | 500      | —        | —        |
|                               |                            | F              | 9.1+78R | 11.0+56R | 12.9+42R | 14.7+34R | 16.6+28R | 18.4+23R | 20.3+20R | —        | —        |
|                               | VSC @ 8"                   | q              | 826     | 748      | 678      | 646      | 608      | 593      | 570      | —        | —        |
|                               |                            | F              | 8.6+78R | 10.1+56R | 11.9+42R | 13.3+34R | 15.1+28R | 16.4+23R | 18.1+20R | —        | —        |
|                               | VSC @ 6"                   | q              | 881     | 792      | 734      | 694      | 666      | 644      | 628      | —        | —        |
|                               |                            | F              | 8.2+78R | 9.7+56R  | 11.2+42R | 12.6+34R | 14.0+28R | 15.3+23R | 16.7+20R | —        | —        |
|                               | VSC @ 4"                   | q              | 973     | 885      | 828      | 790      | 762      | 742      | 727      | —        | —        |
|                               |                            | F              | 7.7+78R | 9.0+56R  | 10.2+42R | 11.4+34R | 12.6+28R | 13.7+23R | 14.8+20R | —        | —        |
| 20                            | VSC @ 24"                  | q              | 1000    | 884      | 764      | 718      | 650      | 629      | 585      | 575      | 544      |
|                               |                            | F              | 7.6+54R | 9.2+39R  | 11.2+29R | 12.9+23R | 15.1+19R | 16.7+16R | 19.1+14R | 20.6+12R | 23.1+10R |
|                               | VSC @ 18"                  | q              | 1060    | 930      | 807      | 754      | 715      | 658      | 639      | 623      | 590      |
|                               |                            | F              | 7.3+54R | 8.8+39R  | 10.8+29R | 12.4+23R | 14.0+19R | 16.1+16R | 17.7+14R | 19.2+12R | 21.4+10R |
|                               | VSC @ 12"                  | q              | 1111    | 971      | 879      | 815      | 769      | 733      | 706      | 685      | 668      |
|                               |                            | F              | 7.0+54R | 8.5+39R  | 10.1+29R | 11.6+23R | 13.1+19R | 14.7+16R | 16.2+14R | 17.7+12R | 19.2+10R |
|                               | VSC @ 8"                   | q              | 1197    | 1073     | 967      | 916      | 859      | 835      | 800      | 787      | 688      |
|                               |                            | F              | 6.7+54R | 7.9+39R  | 19.4+29R | 10.6+23R | 12.0+19R | 13.2+16R | 14.6+14R | 15.7+12R | 17.1+10R |
|                               | VSC @ 6"                   | q              | 1269    | 1131     | 1042     | 980      | 936      | 903      | 878      | 818      | 688      |
|                               |                            | F              | 6.5+54R | 7.7+39R  | 8.9+29R  | 10.0+23R | 11.2+19R | 12.4+16R | 13.5+14R | 14.6+12R | 15.7+10R |
|                               | VSC @ 4"                   | q              | 1390    | 1254     | 1166     | 1107     | 1064     | 1033     | 990      | 818      | 688      |
|                               |                            | F              | 6.1+54R | 7.1+39R  | 8.2+29R  | 9.2+23R  | 10.1+19R | 11.1+16R | 12.0+14R | 12.9+12R | 13.9+10R |
| 18                            | VSC @ 24"                  | q              | 1667    | 1457     | 1256     | 1171     | 1058     | 1017     | 944      | 924      | 873      |
|                               |                            | F              | 5.0+31R | 6.0+22R  | 7.4+17R  | 8.5+13R  | 10.1+11R | 11.2+9R  | 12.9+8R  | 14.0+7R  | 15.7+6R  |
|                               | VSC @ 18"                  | q              | 1755    | 1525     | 1319     | 1223     | 1152     | 1060     | 1024     | 995      | 942      |
|                               |                            | F              | 4.8+31R | 5.8+22R  | 7.1+17R  | 8.2+13R  | 9.4+11R  | 10.8+9R  | 12.0+8R  | 13.1+7R  | 14.7+6R  |
|                               | VSC @ 12"                  | q              | 1829    | 1584     | 1424     | 1313     | 1232     | 1171     | 1124     | 1087     | 1057     |
|                               |                            | F              | 4.7+31R | 5.7+22R  | 6.7+17R  | 7.8+13R  | 8.9+11R  | 10.0+9R  | 11.1+8R  | 12.2+7R  | 13.3+6R  |
|                               | VSC @ 8"                   | q              | 1953    | 1733     | 1553     | 1461     | 1365     | 1320     | 1262     | 1238     | 1057     |
|                               |                            | F              | 4.5+31R | 5.3+22R  | 6.3+17R  | 7.2+13R  | 8.2+11R  | 9.0+9R   | 10.1+8R  | 10.9+7R  | 11.9+6R  |
|                               | VSC @ 6"                   | q              | 2057    | 1817     | 1662     | 1555     | 1478     | 1421     | 1378     | 1257     | 1057     |
|                               |                            | F              | 4.4+31R | 5.2+22R  | 6.0+17R  | 6.9+13R  | 7.7+11R  | 8.5+9R   | 9.4+8R   | 10.2+7R  | 11.0+6R  |
|                               | VSC @ 4"                   | q              | 2233    | 1996     | 1844     | 1740     | 1666     | 1612     | 1521     | 1257     | 1057     |
|                               |                            | F              | 4.2+31R | 4.9+22R  | 5.6+17R  | 6.3+13R  | 7.0+11R  | 7.7+9R   | 8.4+8R   | 9.1+7R   | 9.8+6R   |
| 16                            | VSC @ 24"                  | q              | 2284    | 1987     | 1711     | 1589     | 1435     | 1377     | 1278     | 1249     | 1179     |
|                               |                            | F              | 3.6+20R | 4.3+14R  | 5.3+11R  | 6.1+8R   | 7.2+7R   | 8.1+6R   | 9.3+5R   | 10.2+4R  | 11.5+4R  |
|                               | VSC @ 18"                  | q              | 2396    | 2073     | 1792     | 1656     | 1557     | 1432     | 1381     | 1341     | 1269     |
|                               |                            | F              | 3.5+20R | 4.2+14R  | 5.1+11R  | 5.9+8R   | 6.8+7R   | 7.9+6R   | 8.7+5R   | 9.6+4R   | 10.8+4R  |
|                               | VSC @ 12"                  | q              | 2490    | 2149     | 1927     | 1772     | 1660     | 1576     | 1511     | 1461     | 1421     |
|                               |                            | F              | 3.4+20R | 4.1+14R  | 4.9+11R  | 5.6+8R   | 6.4+7R   | 7.3+6R   | 8.1+5R   | 8.9+4R   | 9.8+4R   |
|                               | VSC @ 8"                   | q              | 2648    | 2340     | 2092     | 1963     | 1832     | 1769     | 1690     | 1658     | 1478     |
|                               |                            | F              | 3.3+20R | 3.9+14R  | 4.6+11R  | 5.2+8R   | 6.0+7R   | 6.6+6R   | 7.4+5R   | 8.0+4R   | 8.8+4R   |
|                               | VSC @ 6"                   | q              | 2781    | 2447     | 2232     | 2084     | 1978     | 1900     | 1841     | 1759     | 1478     |
|                               |                            | F              | 3.2+20R | 3.8+14R  | 4.4+11R  | 5.0+8R   | 5.6+7R   | 6.3+6R   | 6.9+5R   | 7.5+4R   | 8.1+4R   |
|                               | VSC @ 4"                   | q              | 3005    | 2676     | 2466     | 2322     | 2221     | 2148     | 2094     | 1759     | 1478     |
|                               |                            | F              | 3.1+20R | 3.6+14R  | 4.1+11R  | 4.6+8R   | 5.2+7R   | 5.7+6R   | 6.2+5R   | 6.7+4R   | 7.3+4R   |

See Page 39 for footnotes

(continued)



**TABLE 19—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR  
TYPE PLB™-36 DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5,6</sup>— Continued**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |         |         |         |         |          |         |         |        |        |
|-------------------------------|----------------------------|---------------|---------|---------|---------|---------|----------|---------|---------|--------|--------|
|                               |                            | 4'-0"         | 5'-0"   | 6'-0"   | 7'-0"   | 8'-0"   | 9'-0"    | 10'-0"  | 11'-0"  | 12'-0" |        |
| 36/7 WELD PATTERN AT SUPPORTS |                            |               |         |         |         |         |          |         |         |        |        |
| 22                            | VSC @ 24"                  | q             | 792     | 707     | 620     | 592     | 544      | 535     | 505     | —      | —      |
|                               |                            | F             | 8.1+22R | 7.8+17R | 9.2+15R | 8.8+12R | 10.0+11R | 9.5+10R | 10.5+9R | —      | —      |
|                               | VSC @ 18"                  | q             | 836     | 743     | 655     | 621     | 599      | 561     | 554     | —      | —      |
|                               |                            | F             | 6.5+22R | 6.6+17R | 7.7+15R | 7.6+12R | 7.6+11R  | 8.4+10R | 8.2+9R  | —      | —      |
|                               | VSC @ 12"                  | q             | 873     | 774     | 713     | 673     | 646      | 628     | 616     | —      | —      |
|                               |                            | F             | 5.6+22R | 5.9+17R | 6.1+15R | 6.3+12R | 6.4+11R  | 6.5+10R | 6.5+9R  | —      | —      |
|                               | VSC @ 8"                   | q             | 936     | 853     | 784     | 757     | 724      | 718     | 701     | —      | —      |
|                               |                            | F             | 4.7+22R | 4.8+17R | 5.0+15R | 5.0+12R | 5.1+11R  | 5.1+10R | 5.2+9R  | —      | —      |
|                               | VSC @ 6"                   | q             | 988     | 898     | 844     | 811     | 790      | 778     | 753     | —      | —      |
|                               |                            | F             | 4.3+22R | 4.4+17R | 4.5+15R | 4.5+12R | 4.5+11R  | 4.5+10R | 4.6+9R  | —      | —      |
|                               | VSC @ 4"                   | q             | 1077    | 992     | 944     | 917     | 901      | 894     | 753     | —      | —      |
|                               |                            | F             | 3.8+22R | 3.9+17R | 3.9+15R | 3.9+12R | 3.9+11R  | 3.9+10R | 3.9+9R  | —      | —      |
| 20                            | VSC @ 24"                  | q             | 1156    | 1025    | 897     | 852     | 782      | 766     | 722     | 721    | 688    |
|                               |                            | F             | 6.3+15R | 6.2+12R | 7.3+10R | 7.0+9R  | 8.0+8R   | 7.6+7R  | 8.4+6R  | 8.1+6R | 8.8+5R |
|                               | VSC @ 18"                  | q             | 1216    | 1074    | 944     | 892     | 857      | 802     | 789     | 782    | 688    |
|                               |                            | F             | 5.1+15R | 5.3+12R | 6.1+10R | 6.1+9R  | 6.1+8R   | 6.7+7R  | 6.7+6R  | 6.6+6R | 7.1+5R |
|                               | VSC @ 12"                  | q             | 1266    | 1117    | 1023    | 962     | 921      | 893     | 874     | 818    | 688    |
|                               |                            | F             | 4.5+15R | 4.7+12R | 4.9+10R | 5.1+9R  | 5.2+8R   | 5.3+7R  | 5.3+6R  | 5.4+6R | 5.4+5R |
|                               | VSC @ 8"                   | q             | 1351    | 1224    | 1120    | 1078    | 1028     | 1016    | 990     | 818    | 688    |
|                               |                            | F             | 3.8+15R | 3.9+12R | 4.1+10R | 4.1+9R  | 4.2+8R   | 4.2+7R  | 4.3+6R  | 4.2+6R | 4.3+5R |
|                               | VSC @ 6"                   | q             | 1422    | 1284    | 1202    | 1150    | 1119     | 1099    | 990     | 818    | 688    |
|                               |                            | F             | 3.5+15R | 3.6+12R | 3.6+10R | 3.7+9R  | 3.7+8R   | 3.7+7R  | 3.8+6R  | 3.8+6R | 3.8+5R |
|                               | VSC @ 4"                   | q             | 1542    | 1413    | 1338    | 1295    | 1270     | 1223    | 990     | 818    | 688    |
|                               |                            | F             | 3.1+15R | 3.2+12R | 3.2+10R | 3.2+9R  | 3.2+8R   | 3.2+7R  | 3.2+6R  | 3.2+6R | 3.2+5R |
| 18                            | VSC @ 24"                  | q             | 1871    | 1651    | 1443    | 1364    | 1252     | 1224    | 1154    | 1150   | 1057   |
|                               |                            | F             | 4.3+9R  | 4.3+7R  | 5.0+6R  | 4.9+5R  | 5.5+4R   | 5.3+4R  | 5.9+3R  | 5.7+3R | 6.2+3R |
|                               | VSC @ 18"                  | q             | 1961    | 1724    | 1515    | 1427    | 1368     | 1279    | 1258    | 1245   | 1057   |
|                               |                            | F             | 3.6+9R  | 3.7+7R  | 4.3+6R  | 4.3+5R  | 4.3+4R   | 4.7+4R  | 4.7+3R  | 4.7+3R | 5.0+3R |
|                               | VSC @ 12"                  | q             | 2038    | 1789    | 1635    | 1534    | 1466     | 1420    | 1389    | 1257   | 1057   |
|                               |                            | F             | 3.2+9R  | 3.3+7R  | 3.5+6R  | 3.6+5R  | 3.7+4R   | 3.7+4R  | 3.8+3R  | 3.8+3R | 3.9+3R |
|                               | VSC @ 8"                   | q             | 2166    | 1952    | 1783    | 1711    | 1631     | 1610    | 1521    | 1257   | 1057   |
|                               |                            | F             | 2.7+9R  | 2.8+7R  | 2.9+6R  | 2.9+5R  | 3.0+4R   | 3.0+4R  | 3.1+3R  | 3.1+3R | 3.1+3R |
|                               | VSC @ 6"                   | q             | 2274    | 2044    | 1907    | 1822    | 1770     | 1738    | 1521    | 1257   | 1057   |
|                               |                            | F             | 2.5+9R  | 2.6+7R  | 2.6+6R  | 2.7+5R  | 2.7+4R   | 2.7+4R  | 2.7+3R  | 2.7+3R | 2.8+3R |
|                               | VSC @ 4"                   | q             | 2455    | 2240    | 2116    | 2044    | 2002     | 1878    | 1521    | 1257   | 1057   |
|                               |                            | F             | 2.3+9R  | 2.3+7R  | 2.3+6R  | 2.3+5R  | 2.4+4R   | 2.4+4R  | 2.4+3R  | 2.4+3R | 2.4+3R |
| 16                            | VSC @ 24"                  | q             | 2524    | 2227    | 1948    | 1843    | 1692     | 1657    | 1564    | 1561   | 1478   |
|                               |                            | F             | 3.2+5R  | 3.2+4R  | 3.7+4R  | 3.7+3R  | 4.1+3R   | 4.0+2R  | 4.4+2R  | 4.3+2R | 4.7+2R |
|                               | VSC @ 18"                  | q             | 2645    | 2325    | 2044    | 1926    | 1849     | 1731    | 1704    | 1690   | 1478   |
|                               |                            | F             | 2.7+5R  | 2.8+4R  | 3.2+4R  | 3.2+3R  | 3.2+3R   | 3.6+2R  | 3.6+2R  | 3.6+2R | 3.8+2R |
|                               | VSC @ 12"                  | q             | 2746    | 2412    | 2205    | 2071    | 1982     | 1922    | 1882    | 1759   | 1478   |
|                               |                            | F             | 2.4+5R  | 2.5+4R  | 2.6+4R  | 2.7+3R  | 2.8+3R   | 2.8+2R  | 2.9+2R  | 2.9+2R | 3.0+2R |
|                               | VSC @ 8"                   | q             | 2917    | 2630    | 2403    | 2308    | 2203     | 2178    | 2126    | 1759   | 1478   |
|                               |                            | F             | 2.1+5R  | 2.1+4R  | 2.2+4R  | 2.2+3R  | 2.3+3R   | 2.3+2R  | 2.4+2R  | 2.4+2R | 2.4+2R |
|                               | VSC @ 6"                   | q             | 3060    | 2752    | 2570    | 2458    | 2391     | 2351    | 2129    | 1759   | 1478   |
|                               |                            | F             | 1.9+5R  | 2.0+4R  | 2.0+4R  | 2.1+3R  | 2.1+3R   | 2.1+2R  | 2.1+2R  | 2.1+2R | 2.1+2R |
|                               | VSC @ 4"                   | q             | 3301    | 3013    | 2849    | 2755    | 2704     | 2628    | 2129    | 1759   | 1478   |
|                               |                            | F             | 1.8+5R  | 1.8+4R  | 1.8+4R  | 1.8+3R  | 1.8+3R   | 1.9+2R  | 1.9+2R  | 1.9+2R | 1.9+2R |

<sup>1</sup> VSC = Verco sidelap connection.

<sup>2</sup> The dimension from the first and last sidelap connection within each span is to be no more than one-half of the specified spacing.

<sup>3</sup> R is the vertical span ( $L_v$ ) of deck units divided by the length ( $L_s$ ) of the deck sheet:  $R = L_v/L_s$ .

<sup>4</sup> The flexibility limitations shown in Table 7 may be used as a guide in lieu of rational analysis of the anticipated deflections.

<sup>5</sup> Interpolation of diaphragm strength between adjacent spans is permissible. For interpolated lengths, use diaphragm flexibility factor for the closest span length.

<sup>6</sup> Diaphragm shear values for sidelap fasteners placed at spacings other than those in the table should be determined based on the number of fasteners in each span.

TABLE 20—ALLOWABLE DIAPHRAGM SHEAR, q (plf), AND FLEXIBILITY FACTORS, F, FOR TYPE HSB™-36 DECK WITH BUTTON PUNCHES (BP) OR 1½" TOP SEAM WELDS (TSW) AT SIDELAPS¹

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |           |           |           |          |           |           |           |          |          |
|-------------------------------|----------------------------|---------------|-----------|-----------|-----------|----------|-----------|-----------|-----------|----------|----------|
|                               |                            | 4'-0"         | 5'-0"     | 6'-0"     | 7'-0"     | 8'-0"    | 9'-0"     | 10'-0"    | 11'-0"    | 12'-0"   |          |
| 36/4 WELD PATTERN AT SUPPORTS |                            |               |           |           |           |          |           |           |           |          |          |
| 22                            | BP @ 24"                   | q             | 303       | 308       | 289       | 291      | 277       | 262       | 232       | —        | —        |
|                               |                            | F             | 4.7+281R  | 5.7+224R  | 7.2+187R  | 8.8+160R | 11.0+140R | 13.2+125R | 16.2+112R | —        | —        |
|                               | BP @ 12"                   | q             | 363       | 356       | 349       | 343      | 336       | 312       | 284       | —        | —        |
|                               |                            | F             | 4.4+281R  | 5.3+224R  | 6.5+187R  | 7.9+160R | 9.6+140R  | 11.5+125R | 13.8+112R | —        | —        |
|                               | TSW @ 24"                  | q             | 567       | 519       | 434       | 417      | 366       | 359       | 325       | —        | —        |
|                               |                            | F             | 38.7+159R | 32.6+127R | 42.6+106R | 37.1+91R | 45.3+80R  | 40.3+71R  | 47.3+64R  | —        | —        |
|                               | TSW @ 18"                  | q             | 646       | 577       | 484       | 456      | 435       | 389       | 378       | —        | —        |
|                               |                            | F             | 23.8+159R | 22.9+127R | 29.6+106R | 27.8+91R | 26.7+80R  | 31.6+71R  | 30.1+64R  | —        | —        |
|                               | TSW @ 12"                  | q             | 718       | 632       | 573       | 531      | 498       | 472       | 451       | —        | —        |
|                               |                            | F             | 17.0+159R | 17.5+127R | 17.9+106R | 18.2+91R | 18.4+80R  | 18.6+71R  | 18.8+64R  | —        | —        |
|                               | TSW @ 6"                   | q             | 971       | 874       | 807       | 757      | 719       | 689       | 665       | —        | —        |
|                               |                            | F             | 8.0+159R  | 8.1+127R  | 8.2+106R  | 8.2+91R  | 8.2+80R   | 8.2+71R   | 8.2+64R   | —        | —        |
| 20                            | BP @ 24"                   | q             | 457       | 459       | 434       | 418      | 359       | 327       | 290       | 269      | 244      |
|                               |                            | F             | 4.3+162R  | 5.4+130R  | 7.0+108R  | 8.7+93R  | 11.0+81R  | 13.4+72R  | 16.5+65R  | 19.6+59R | 23.7+54R |
|                               | BP @ 12"                   | q             | 528       | 517       | 506       | 478      | 421       | 378       | 343       | 314      | 290      |
|                               |                            | F             | 4.0+162R  | 5.0+130R  | 6.3+108R  | 7.9+93R  | 9.7+81R   | 11.9+72R  | 14.4+65R  | 17.2+59R | 20.3+54R |
|                               | TSW @ 24"                  | q             | 794       | 710       | 595       | 561      | 493       | 477       | 432       | 424      | 390      |
|                               |                            | F             | 30.5+88R  | 26.4+70R  | 34.5+59R  | 30.6+50R | 37.5+44R  | 33.8+39R  | 39.8+35R  | 36.4+32R | 41.8+29R |
|                               | TSW @ 18"                  | q             | 884       | 777       | 651       | 607      | 573       | 512       | 494       | 478      | 441      |
|                               |                            | F             | 19.2+88R  | 18.8+70R  | 24.4+59R  | 23.2+50R | 22.5+44R  | 26.8+39R  | 25.7+35R  | 25.0+32R | 28.5+29R |
|                               | TSW @ 12"                  | q             | 967       | 840       | 755       | 693      | 646       | 609       | 579       | 554      | 534      |
|                               |                            | F             | 13.9+88R  | 14.5+70R  | 15.0+59R  | 15.4+50R | 15.8+44R  | 16.1+39R  | 16.3+35R  | 16.5+32R | 16.7+29R |
|                               | TSW @ 6"                   | q             | 1258      | 1119      | 1024      | 954      | 902       | 860       | 826       | 798      | 688      |
|                               |                            | F             | 6.8+88R   | 6.9+70R   | 7.0+59R   | 7.1+50R  | 7.1+44R   | 7.2+39R   | 7.2+35R   | 7.3+32R  | 7.3+29R  |
| 18                            | BP @ 24"                   | q             | 883       | 820       | 671       | 586      | 506       | 458       | 408       | 376      | 342      |
|                               |                            | F             | 3.8+69R   | 5.0+55R   | 6.7+46R   | 8.6+39R  | 11.0+34R  | 13.6+31R  | 16.9+27R  | 20.3+25R | 24.6+23R |
|                               | BP @ 12"                   | q             | 978       | 891       | 747       | 644      | 567       | 507       | 459       | 420      | 387      |
|                               |                            | F             | 3.6+69R   | 4.8+55R   | 6.2+46R   | 7.9+39R  | 10.0+34R  | 12.4+31R  | 15.2+27R  | 18.4+25R | 21.9+23R |
|                               | TSW @ 24"                  | q             | 1253      | 1092      | 914       | 845      | 743       | 707       | 639       | 619      | 571      |
|                               |                            | F             | 20.2+35R  | 18.0+28R  | 23.6+23R  | 21.5+20R | 26.4+17R  | 24.3+15R  | 28.8+14R  | 26.8+13R | 30.8+12R |
|                               | TSW @ 18"                  | q             | 1359      | 1170      | 980       | 899      | 837       | 748       | 713       | 684      | 631      |
|                               |                            | F             | 13.1+35R  | 13.1+28R  | 17.0+23R  | 16.6+20R | 16.3+17R  | 19.5+15R  | 19.0+14R  | 18.7+13R | 21.5+12R |
|                               | TSW @ 12"                  | q             | 1455      | 1244      | 1102      | 1000     | 923       | 863       | 815       | 775      | 742      |
|                               |                            | F             | 9.7+35R   | 10.3+28R  | 10.8+23R  | 11.3+20R | 11.7+17R  | 12.0+15R  | 12.3+14R  | 12.6+13R | 12.9+12R |
|                               | TSW @ 6"                   | q             | 1796      | 1571      | 1419      | 1310     | 1227      | 1162      | 1110      | 1067     | 1031     |
|                               |                            | F             | 5.0+35R   | 5.1+28R   | 5.3+23R   | 5.4+20R  | 5.5+17R   | 5.6+15R   | 5.6+14R   | 5.7+13R  | 5.8+12R  |
| 16                            | BP @ 24"                   | q             | 1296      | 1056      | 868       | 755      | 654       | 589       | 526       | 483      | 440      |
|                               |                            | F             | 3.6+35R   | 4.8+28R   | 6.5+23R   | 8.5+20R  | 11.0+18R  | 13.7+16R  | 17.1+14R  | 20.7+13R | 25.1+12R |
|                               | BP @ 12"                   | q             | 1399      | 1124      | 941       | 810      | 712       | 636       | 575       | 525      | 483      |
|                               |                            | F             | 3.4+35R   | 4.6+28R   | 6.1+23R   | 8.0+20R  | 10.2+18R  | 12.8+16R  | 15.8+14R  | 19.2+13R | 23.0+12R |
|                               | TSW @ 24"                  | q             | 1667      | 1431      | 1198      | 1094     | 962       | 907       | 820       | 788      | 726      |
|                               |                            | F             | 14.2+17R  | 13.0+13R  | 17.1+11R  | 15.8+10R | 19.5+8R   | 18.2+7R   | 21.6+7R   | 20.3+6R  | 23.5+6R  |
|                               | TSW @ 18"                  | q             | 1781      | 1516      | 1270      | 1153     | 1065      | 952       | 901       | 860      | 793      |
|                               |                            | F             | 9.4+17R   | 9.6+13R   | 12.5+11R  | 12.3+10R | 12.3+8R   | 14.7+7R   | 14.5+7R   | 14.4+6R  | 16.6+6R  |
|                               | TSW @ 12"                  | q             | 1885      | 1596      | 1402      | 1263     | 1159      | 1077      | 1012      | 959      | 915      |
|                               |                            | F             | 7.1+17R   | 7.6+13R   | 8.1+11R   | 8.5+10R  | 8.9+8R    | 9.3+7R    | 9.6+7R    | 9.9+6R   | 10.2+6R  |
|                               | TSW @ 6"                   | q             | 2252      | 1950      | 1746      | 1600     | 1490      | 1404      | 1335      | 1279     | 1233     |
|                               |                            | F             | 3.8+17R   | 3.9+13R   | 4.1+11R   | 4.2+10R  | 4.3+8R    | 4.4+7R    | 4.5+7R    | 4.6+6R   | 4.6+6R   |

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(continued)

TABLE 20—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR TYPE HSB™-36 DECK WITH BUTTON PUNCHES (BP) OR 1½" TOP SEAM WELDS (TSW) AT SIDELAPS<sup>1</sup>— Continued

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |          |          |          |          |          |          |          |          |          |
|-------------------------------|----------------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                            | 4'-0"         | 5'-0"    | 6'-0"    | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"   |          |
| 36/5 WELD PATTERN AT SUPPORTS |                            |               |          |          |          |          |          |          |          |          |          |
| 22                            | BP @ 24"                   | q             | 451      | 445      | 416      | 407      | 351      | 319      | 284      |          |          |
|                               |                            | F             | 4.5+157R | 5.4+126R | 6.9+105R | 8.4+90R  | 10.6+79R | 12.8+70R | 15.8+63R | —        | —        |
|                               | BP @ 12"                   | q             | 511      | 492      | 476      | 458      | 405      | 364      | 331      | —        | —        |
|                               |                            | F             | 4.3+157R | 5.2+126R | 6.3+105R | 7.8+90R  | 9.5+79R  | 11.6+70R | 13.9+63R | —        | —        |
|                               | TSW @ 24"                  | q             | 699      | 627      | 525      | 496      | 437      | 423      | 383      | —        | —        |
|                               |                            | F             | 26.3+77R | 22.8+62R | 29.6+51R | 26.4+44R | 32.1+39R | 29.1+34R | 34.1+31R | —        | —        |
|                               | TSW @ 18"                  | q             | 780      | 687      | 576      | 538      | 508      | 454      | 439      | —        | —        |
|                               |                            | F             | 16.8+77R | 16.5+62R | 21.2+51R | 20.2+44R | 19.6+39R | 23.2+34R | 22.3+31R | —        | —        |
|                               | TSW @ 12"                  | q             | 854      | 744      | 669      | 615      | 574      | 541      | 516      | —        | —        |
|                               |                            | F             | 12.4+77R | 12.9+62R | 13.3+51R | 13.7+44R | 14.0+39R | 14.2+34R | 14.4+31R | —        | —        |
|                               | TSW @ 6"                   | q             | 1115     | 993      | 910      | 850      | 804      | 768      | 738      | —        | —        |
|                               |                            | F             | 6.5+77R  | 6.6+62R  | 6.7+51R  | 6.7+44R  | 6.8+39R  | 6.8+34R  | 6.9+31R  | —        | —        |
| 20                            | BP @ 24"                   | q             | 690      | 675      | 590      | 516      | 447      | 405      | 361      | 334      | 304      |
|                               |                            | F             | 4.0+91R  | 5.1+73R  | 6.5+61R  | 8.2+52R  | 10.4+45R | 12.8+40R | 15.9+36R | 19.0+33R | 23.1+30R |
|                               | BP @ 12"                   | q             | 762      | 733      | 656      | 568      | 501      | 450      | 408      | 374      | 346      |
|                               |                            | F             | 3.9+91R  | 4.9+73R  | 6.1+61R  | 7.7+52R  | 9.5+45R  | 11.7+40R | 14.3+36R | 17.2+33R | 20.6+30R |
|                               | TSW @ 24"                  | q             | 991      | 872      | 730      | 679      | 598      | 572      | 518      | 504      | 465      |
|                               |                            | F             | 20.5+43R | 18.2+34R | 23.7+28R | 21.5+24R | 26.2+21R | 24.1+19R | 28.3+17R | 26.3+16R | 30.2+14R |
|                               | TSW @ 18"                  | q             | 1084     | 941      | 788      | 727      | 680      | 608      | 583      | 561      | 518      |
|                               |                            | F             | 13.4+43R | 13.4+34R | 17.2+28R | 16.6+24R | 16.3+21R | 19.4+19R | 18.8+17R | 18.5+16R | 21.1+14R |
|                               | TSW @ 12"                  | q             | 1169     | 1006     | 895      | 816      | 756      | 709      | 672      | 641      | 615      |
|                               |                            | F             | 10.0+43R | 10.6+34R | 11.0+28R | 11.4+24R | 11.8+21R | 12.1+19R | 12.4+17R | 12.6+16R | 12.8+14R |
|                               | TSW @ 6"                   | q             | 1469     | 1293     | 1174     | 1088     | 1023     | 972      | 931      | 818      | 688      |
|                               |                            | F             | 5.4+43R  | 5.5+34R  | 5.6+28R  | 5.7+24R  | 5.8+21R  | 5.9+19R  | 5.9+17R  | 6.0+16R  | 6.0+14R  |
| 18                            | BP @ 24"                   | q             | 1264     | 1030     | 849      | 738      | 641      | 577      | 516      | 475      | 433      |
|                               |                            | F             | 3.5+39R  | 4.6+31R  | 6.1+26R  | 7.9+22R  | 10.2+19R | 12.7+17R | 15.9+15R | 19.4+14R | 23.6+13R |
|                               | BP @ 12"                   | q             | 1353     | 1089     | 914      | 788      | 694      | 621      | 562      | 514      | 475      |
|                               |                            | F             | 3.4+39R  | 4.5+31R  | 5.8+26R  | 7.5+22R  | 9.5+19R  | 12.0+17R | 14.8+15R | 18.0+14R | 21.7+13R |
|                               | TSW @ 24"                  | q             | 1582     | 1359     | 1138     | 1040     | 914      | 862      | 780      | 750      | 691      |
|                               |                            | F             | 13.4+17R | 12.3+13R | 16.0+11R | 14.9+10R | 18.3+8R  | 17.1+7R  | 20.2+7R  | 19.1+6R  | 22.0+6R  |
|                               | TSW @ 18"                  | q             | 1690     | 1440     | 1206     | 1096     | 1012     | 905      | 858      | 818      | 755      |
|                               |                            | F             | 9.0+17R  | 9.2+13R  | 11.9+11R | 11.7+10R | 11.7+8R  | 13.9+7R  | 13.8+7R  | 13.7+6R  | 15.7+6R  |
|                               | TSW @ 12"                  | q             | 1790     | 1516     | 1333     | 1201     | 1102     | 1025     | 964      | 914      | 872      |
|                               |                            | F             | 6.9+17R  | 7.4+13R  | 7.8+11R  | 8.2+10R  | 8.6+8R   | 8.9+7R   | 9.2+7R   | 9.5+6R   | 9.8+6R   |
|                               | TSW @ 6"                   | q             | 2140     | 1853     | 1661     | 1523     | 1419     | 1338     | 1273     | 1220     | 1057     |
|                               |                            | F             | 3.9+17R  | 4.1+13R  | 4.2+11R  | 4.3+10R  | 4.4+8R   | 4.5+7R   | 4.6+7R   | 4.7+6R   | 4.7+6R   |
| 16                            | BP @ 24"                   | q             | 1656     | 1343     | 1110     | 962      | 837      | 751      | 673      | 617      | 563      |
|                               |                            | F             | 3.2+20R  | 4.3+16R  | 5.9+13R  | 7.7+11R  | 10.0+10R | 12.7+9R  | 16.0+8R  | 19.5+7R  | 23.9+7R  |
|                               | BP @ 12"                   | q             | 1741     | 1400     | 1172     | 1010     | 888      | 793      | 717      | 655      | 603      |
|                               |                            | F             | 3.1+20R  | 4.2+16R  | 5.6+13R  | 7.4+11R  | 9.5+10R  | 12.1+9R  | 15.1+8R  | 18.5+7R  | 22.4+7R  |
|                               | TSW @ 24"                  | q             | 2115     | 1794     | 1502     | 1358     | 1194     | 1117     | 1011     | 964      | 888      |
|                               |                            | F             | 9.5+8R   | 8.9+6R   | 11.6+5R  | 10.9+5R  | 13.5+4R  | 12.8+4R  | 15.2+3R  | 14.5+3R  | 16.7+3R  |
|                               | TSW @ 18"                  | q             | 2232     | 1882     | 1576     | 1420     | 1302     | 1164     | 1096     | 1039     | 959      |
|                               |                            | F             | 6.5+8R   | 6.7+6R   | 8.7+5R   | 8.7+5R   | 8.8+4R   | 10.5+4R  | 10.5+3R  | 10.5+3R  | 12.1+3R  |
|                               | TSW @ 12"                  | q             | 2339     | 1964     | 1713     | 1534     | 1400     | 1296     | 1212     | 1145     | 1088     |
|                               |                            | F             | 5.1+8R   | 5.5+6R   | 5.9+5R   | 6.2+5R   | 6.5+4R   | 6.8+4R   | 7.1+3R   | 7.4+3R   | 7.7+3R   |
|                               | TSW @ 6"                   | q             | 2716     | 2329     | 2070     | 1884     | 1745     | 1638     | 1552     | 1482     | 1424     |
|                               |                            | F             | 3.0+8R   | 3.1+6R   | 3.2+5R   | 3.4+5R   | 3.5+4R   | 3.6+4R   | 3.6+3R   | 3.7+3R   | 3.8+3R   |

See Page 42 for footnotes

(continued)

TABLE 20—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR TYPE HSB™-36 DECK WITH BUTTON PUNCHES (BP) OR 1½" TOP SEAM WELDS (TSW) AT SIDELAPS<sup>1</sup>— Continued

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |         |         |         |         |         |          |          |          |          |
|-------------------------------|----------------------------|---------------|---------|---------|---------|---------|---------|----------|----------|----------|----------|
|                               |                            | 4'-0"         | 5'-0"   | 6'-0"   | 7'-0"   | 8'-0"   | 9'-0"   | 10'-0"   | 11'-0"   | 12'-0"   |          |
| 36/7 WELD PATTERN AT SUPPORTS |                            |               |         |         |         |         |         |          |          |          |          |
| 22                            | BP @ 24"                   | q             | 623     | 598     | 522     | 458     | 397     | 360      | 322      | —        | —        |
|                               |                            | F             | 4.1+70R | 4.9+56R | 6.1+47R | 7.5+40R | 9.3+35R | 11.3+31R | 13.9+28R | —        | —        |
|                               | BP @ 12"                   | q             | 683     | 646     | 579     | 502     | 445     | 400      | 364      | —        | —        |
|                               |                            | F             | 4.0+70R | 4.8+56R | 5.8+47R | 7.0+40R | 8.6+35R | 10.5+31R | 12.7+28R | —        | —        |
|                               | TSW @ 24"                  | q             | 731     | 720     | 595     | 600     | 521     | 529      | 474      | —        | —        |
|                               |                            | F             | 12.2+6R | 11.8+5R | 16.0+4R | 15.3+4R | 19.4+3R | 18.5+3R  | 22.6+3R  | —        | —        |
|                               | TSW @ 18"                  | q             | 907     | 851     | 704     | 689     | 667     | 597      | 578      | —        | —        |
|                               |                            | F             | 8.4+6R  | 8.9+5R  | 11.8+4R | 12.0+4R | 12.3+3R | 15.0+3R  | 15.1+3R  | —        | —        |
|                               | TSW @ 12"                  | q             | 1072    | 972     | 877     | 808     | 756     | 715      | 682      | —        | —        |
|                               |                            | F             | 6.6+6R  | 7.3+5R  | 7.9+4R  | 8.5+4R  | 9.1+3R  | 9.6+3R   | 10.1+3R  | —        | —        |
|                               | TSW @ 6"                   | q             | 1464    | 1310    | 1204    | 1127    | 1068    | 929      | 753      | —        | —        |
|                               |                            | F             | 4.2+6R  | 4.5+5R  | 4.7+4R  | 4.8+4R  | 5.0+3R  | 5.2+3R   | 5.3+3R   | —        | —        |
| 20                            | BP @ 24"                   | q             | 962     | 804     | 663     | 578     | 502     | 454      | 406      | 375      | 342      |
|                               |                            | F             | 3.7+41R | 4.5+32R | 5.7+27R | 7.1+23R | 9.0+20R | 11.1+18R | 13.8+16R | 16.7+15R | 20.4+14R |
|                               | BP @ 12"                   | q             | 1034    | 854     | 719     | 622     | 549     | 493      | 448      | 411      | 380      |
|                               |                            | F             | 3.6+41R | 4.4+32R | 5.4+27R | 6.8+23R | 8.5+20R | 10.4+18R | 12.8+16R | 15.5+15R | 18.6+14R |
|                               | TSW @ 24"                  | q             | 999     | 969     | 800     | 796     | 691     | 695      | 621      | 629      | 573      |
|                               |                            | F             | 9.8+4R  | 9.5+3R  | 13.0+3R | 12.5+2R | 16.0+2R | 15.4+2R  | 18.8+2R  | 18.2+2R  | 21.5+1R  |
|                               | TSW @ 18"                  | q             | 1224    | 1134    | 937     | 908     | 882     | 779      | 769      | 757      | 688      |
|                               |                            | F             | 6.8+4R  | 7.3+3R  | 9.6+3R  | 9.9+2R  | 10.2+2R | 12.5+2R  | 12.7+2R  | 12.9+2R  | 15.1+1R  |
|                               | TSW @ 12"                  | q             | 1431    | 1292    | 1189    | 1091    | 1016    | 958      | 912      | 818      | 688      |
|                               |                            | F             | 5.4+4R  | 6.0+3R  | 6.6+3R  | 7.1+2R  | 7.6+2R  | 8.1+2R   | 8.5+2R   | 9.0+2R   | 9.4+1R   |
|                               | TSW @ 6"                   | q             | 1965    | 1745    | 1596    | 1488    | 1406    | 1223     | 990      | 818      | 688      |
|                               |                            | F             | 3.5+4R  | 3.7+3R  | 3.9+3R  | 4.1+2R  | 4.2+2R  | 4.4+2R   | 4.5+2R   | 4.6+2R   | 4.8+1R   |
| 18                            | BP @ 24"                   | q             | 1405    | 1140    | 943     | 818     | 712     | 640      | 574      | 527      | 482      |
|                               |                            | F             | 3.1+17R | 4.0+14R | 5.2+11R | 6.7+10R | 8.7+9R  | 10.9+8R  | 13.7+7R  | 16.8+6R  | 20.6+6R  |
|                               | BP @ 12"                   | q             | 1475    | 1188    | 996     | 860     | 757     | 678      | 614      | 562      | 518      |
|                               |                            | F             | 3.0+17R | 3.9+14R | 5.0+11R | 6.5+10R | 8.3+9R  | 10.4+8R  | 12.9+7R  | 15.9+6R  | 19.2+6R  |
|                               | TSW @ 24"                  | q             | 1571    | 1495    | 1229    | 1206    | 1044    | 1039     | 926      | 928      | 844      |
|                               |                            | F             | 6.8+2R  | 6.7+2R  | 9.1+1R  | 9.0+1R  | 11.4+1R | 11.2+1R  | 13.7+1R  | 13.4+1R  | 15.9+1R  |
|                               | TSW @ 18"                  | q             | 1895    | 1730    | 1424    | 1363    | 1312    | 1155     | 1131     | 1110     | 1010     |
|                               |                            | F             | 4.8+2R  | 5.2+2R  | 6.9+1R  | 7.1+1R  | 7.4+1R  | 9.1+1R   | 9.4+1R   | 9.6+1R   | 11.3+1R  |
|                               | TSW @ 12"                  | q             | 2191    | 1952    | 1767    | 1612    | 1495    | 1405     | 1332     | 1257     | 1057     |
|                               |                            | F             | 3.9+2R  | 4.3+2R  | 4.8+1R  | 5.2+1R  | 5.6+1R  | 6.0+1R   | 6.4+1R   | 6.7+1R   | 7.1+1R   |
|                               | TSW @ 6"                   | q             | 2878    | 2535    | 2304    | 2139    | 2014    | 1878     | 1521     | 1257     | 1057     |
|                               |                            | F             | 2.6+2R  | 2.8+2R  | 2.9+1R  | 3.0+1R  | 3.2+1R  | 3.3+1R   | 3.4+1R   | 3.5+1R   | 3.6+1R   |
| 16                            | BP @ 24"                   | q             | 1825    | 1475    | 1223    | 1058    | 922     | 826      | 741      | 679      | 621      |
|                               |                            | F             | 2.8+9R  | 3.7+7R  | 4.9+6R  | 6.5+5R  | 8.5+4R  | 10.8+4R  | 13.6+4R  | 16.8+3R  | 20.6+3R  |
|                               | BP @ 12"                   | q             | 1891    | 1521    | 1273    | 1097    | 964     | 862      | 779      | 712      | 656      |
|                               |                            | F             | 2.7+9R  | 3.6+7R  | 4.8+6R  | 6.3+5R  | 8.1+4R  | 10.4+4R  | 13.0+4R  | 16.1+3R  | 19.6+3R  |
|                               | TSW @ 24"                  | q             | 2171    | 2043    | 1675    | 1630    | 1406    | 1390     | 1236     | 1233     | 1119     |
|                               |                            | F             | 5.0+1R  | 5.1+1R  | 6.9+1R  | 6.8+1R  | 8.7+1R  | 8.6+1R   | 10.6+1R  | 10.4     | 12.4     |
|                               | TSW @ 18"                  | q             | 2599    | 2350    | 1929    | 1833    | 1734    | 1540     | 1487     | 1431     | 1324     |
|                               |                            | F             | 3.6+1R  | 4.0+1R  | 5.2+1R  | 5.5+1R  | 5.7+1R  | 7.1+1R   | 7.3+1R   | 7.5      | 8.9      |
|                               | TSW @ 12"                  | q             | 2985    | 2556    | 2270    | 2065    | 1912    | 1793     | 1699     | 1622     | 1478     |
|                               |                            | F             | 3.0+1R  | 3.3+1R  | 3.7+1R  | 4.0+1R  | 4.3+1R  | 4.7+1R   | 5.0+1R   | 5.3      | 5.6      |
|                               | TSW @ 6"                   | q             | 3664    | 3215    | 2914    | 2698    | 2538    | 2413     | 2129     | 1759     | 1478     |
|                               |                            | F             | 2.0+1R  | 2.2+1R  | 2.3+1R  | 2.4+1R  | 2.5+1R  | 2.6+1R   | 2.7+1R   | 2.8      | 2.9      |

<sup>1</sup> Footnotes 2–6 of Table 19 apply to this table.

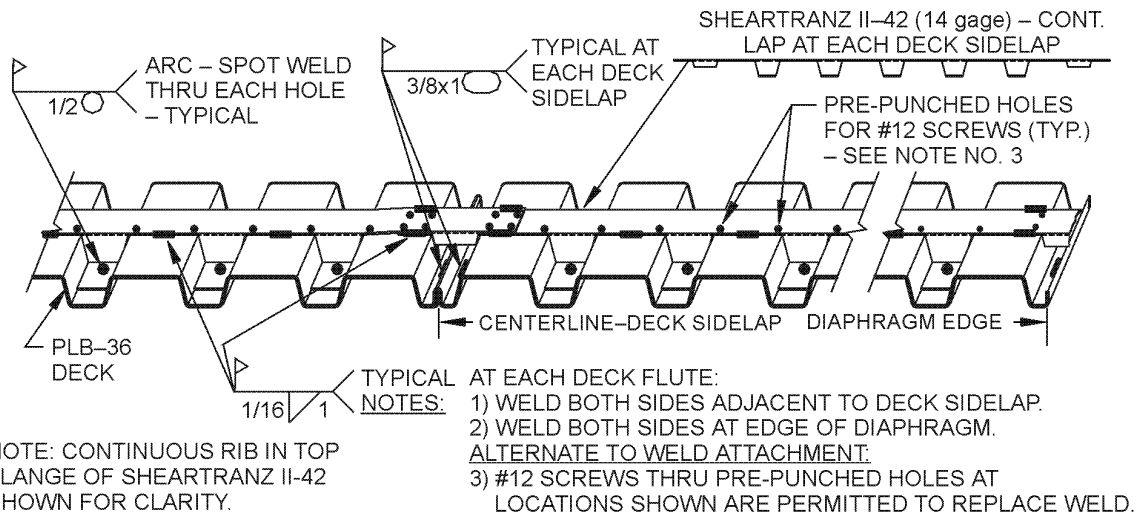
**TABLE 21—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR VESCO SHEARTRANZ<sup>®</sup> II-42 AND PLB<sup>™</sup>-36 DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK<sup>™</sup> SYSTEM<sup>1,2</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |        |        |        |        |        |        |        |        |        |
|-------------------------------|----------------------------|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
|                               |                            | 4'-0"         | 5'-0"  | 6'-0"  | 7'-0"  | 8'-0"  | 9'-0"  | 10'-0" | 11'-0" | 12'-0" |        |
| 36/7 WELD PATTERN AT SUPPORTS |                            |               |        |        |        |        |        |        |        |        |        |
| 22                            | VSC @ 24"                  | q             | 1167   | 986    | 844    | 766    | 689    | 650    | 602    | —      | —      |
|                               |                            | F             | 5.5+4R | 5.6+4R | 6.7+5R | 6.8+6R | 7.8+7R | 7.8+8R | 8.8+9R | —      | —      |
|                               | VSC @ 18"                  | q             | 1199   | 1012   | 869    | 788    | 729    | 668    | 637    | —      | —      |
|                               |                            | F             | 4.7+4R | 5.0+4R | 5.8+5R | 6.1+6R | 6.3+7R | 7.1+8R | 7.2+9R | —      | —      |
|                               | VSC @ 12"                  | q             | 1225   | 1034   | 910    | 825    | 762    | 716    | 681    | —      | —      |
|                               |                            | F             | 4.3+4R | 4.6+4R | 4.9+5R | 5.2+6R | 5.5+7R | 5.7+8R | 6.0+9R | —      | —      |
|                               | VSC @ 8"                   | q             | 1270   | 1091   | 961    | 885    | 819    | 780    | 741    | —      | —      |
|                               |                            | F             | 3.9+4R | 4.0+4R | 4.3+5R | 4.4+6R | 4.6+7R | 4.7+8R | 4.9+9R | —      | —      |
|                               | VSC @ 6"                   | q             | 1308   | 1123   | 1004   | 923    | 866    | 824    | 753    | —      | —      |
|                               |                            | F             | 3.6+4R | 3.8+4R | 3.9+5R | 4.1+6R | 4.2+7R | 4.3+8R | 4.4+9R | —      | —      |
|                               | VSC @ 4"                   | q             | 1371   | 1190   | 1076   | 999    | 945    | 906    | 753    | —      | —      |
|                               |                            | F             | 3.4+4R | 3.5+4R | 3.6+5R | 3.7+6R | 3.7+7R | 3.8+8R | 3.9+9R | —      | —      |
| 20                            | VSC @ 24"                  | q             | 1513   | 1287   | 1105   | 1009   | 911    | 864    | 802    | 778    | 688    |
|                               |                            | F             | 4.6+3R | 4.7+3R | 5.6+4R | 5.7+5R | 6.5+6R | 6.5+6R | 7.4+7R | 7.3+8R | 8.1+8R |
|                               | VSC @ 18"                  | q             | 1558   | 1323   | 1140   | 1040   | 968    | 891    | 853    | 818    | 688    |
|                               |                            | F             | 3.9+3R | 4.2+3R | 4.9+4R | 5.1+5R | 5.2+6R | 5.9+6R | 6.0+7R | 6.1+8R | 6.7+8R |
|                               | VSC @ 12"                  | q             | 1597   | 1356   | 1200   | 1093   | 1017   | 960    | 917    | 818    | 688    |
|                               |                            | F             | 3.6+3R | 3.9+3R | 4.1+4R | 4.3+5R | 4.6+6R | 4.8+6R | 4.9+7R | 5.1+8R | 5.3+8R |
|                               | VSC @ 8"                   | q             | 1661   | 1437   | 1274   | 1181   | 1098   | 1053   | 990    | 818    | 688    |
|                               |                            | F             | 3.2+3R | 3.3+3R | 3.6+4R | 3.7+5R | 3.9+6R | 3.9+6R | 4.1+7R | 4.1+8R | 4.3+8R |
|                               | VSC @ 6"                   | q             | 1715   | 1483   | 1335   | 1236   | 1166   | 1116   | 990    | 818    | 688    |
|                               |                            | F             | 3.0+3R | 3.2+3R | 3.3+4R | 3.4+5R | 3.5+6R | 3.6+6R | 3.6+7R | 3.7+8R | 3.8+8R |
|                               | VSC @ 4"                   | q             | 1806   | 1580   | 1439   | 1345   | 1281   | 1223   | 990    | 818    | 688    |
|                               |                            | F             | 2.8+3R | 2.9+3R | 3.0+4R | 3.0+5R | 3.1+6R | 3.2+6R | 3.2+7R | 3.2+8R | 3.3+8R |
| 18                            | VSC @ 24"                  | q             | 2171   | 1870   | 1616   | 1496   | 1359   | 1304   | 1218   | 1195   | 1057   |
|                               |                            | F             | 3.4+2R | 3.5+2R | 4.2+3R | 4.3+3R | 4.9+4R | 4.9+4R | 5.5+5R | 5.5+5R | 6.1+6R |
|                               | VSC @ 18"                  | q             | 2250   | 1934   | 1678   | 1549   | 1459   | 1351   | 1308   | 1257   | 1057   |
|                               |                            | F             | 3.0+2R | 3.1+2R | 3.7+3R | 3.8+3R | 3.9+4R | 4.4+4R | 4.5+5R | 4.6+5R | 5.0+6R |
|                               | VSC @ 12"                  | q             | 2315   | 1990   | 1782   | 1642   | 1544   | 1473   | 1421   | 1257   | 1057   |
|                               |                            | F             | 2.7+2R | 2.9+2R | 3.1+3R | 3.2+3R | 3.4+4R | 3.5+4R | 3.7+5R | 3.8+5R | 3.9+6R |
|                               | VSC @ 8"                   | q             | 2426   | 2130   | 1910   | 1794   | 1686   | 1637   | 1521   | 1257   | 1057   |
|                               |                            | F             | 2.4+2R | 2.5+2R | 2.7+3R | 2.7+3R | 2.9+4R | 2.9+4R | 3.0+5R | 3.1+5R | 3.2+6R |
|                               | VSC @ 6"                   | q             | 2519   | 2210   | 2017   | 1891   | 1805   | 1747   | 1521   | 1257   | 1057   |
|                               |                            | F             | 2.3+2R | 2.4+2R | 2.4+3R | 2.5+3R | 2.6+4R | 2.6+4R | 2.7+5R | 2.7+5R | 2.8+6R |
|                               | VSC @ 4"                   | q             | 2676   | 2378   | 2197   | 2082   | 2006   | 1878   | 1521   | 1257   | 1057   |
|                               |                            | F             | 2.1+2R | 2.2+2R | 2.2+3R | 2.3+3R | 2.3+4R | 2.3+4R | 2.4+5R | 2.4+5R | 2.4+6R |
| 16                            | VSC @ 24"                  | q             | 2839   | 2476   | 2154   | 2018   | 1844   | 1790   | 1682   | 1667   | 1478   |
|                               |                            | F             | 2.8+1R | 2.8+2R | 3.4+2R | 3.4+3R | 3.9+3R | 3.9+3R | 4.4+4R | 4.3+4R | 4.8+4R |
|                               | VSC @ 18"                  | q             | 2958   | 2573   | 2249   | 2100   | 1999   | 1863   | 1821   | 1759   | 1478   |
|                               |                            | F             | 2.4+1R | 2.5+2R | 2.9+2R | 3.0+3R | 3.1+3R | 3.5+3R | 3.6+4R | 3.6+4R | 3.9+4R |
|                               | VSC @ 12"                  | q             | 3058   | 2659   | 2408   | 2243   | 2130   | 2051   | 1996   | 1759   | 1478   |
|                               |                            | F             | 2.2+1R | 2.3+2R | 2.5+2R | 2.6+3R | 2.7+3R | 2.8+3R | 2.9+4R | 3.0+4R | 3.1+4R |
|                               | VSC @ 8"                   | q             | 3226   | 2873   | 2604   | 2477   | 2349   | 2304   | 2129   | 1759   | 1478   |
|                               |                            | F             | 1.9+1R | 2.0+2R | 2.1+2R | 2.2+3R | 2.3+3R | 2.3+3R | 2.4+4R | 2.4+4R | 2.5+4R |
|                               | VSC @ 6"                   | q             | 3368   | 2994   | 2768   | 2625   | 2533   | 2475   | 2129   | 1759   | 1478   |
|                               |                            | F             | 1.8+1R | 1.9+2R | 1.9+2R | 2.0+3R | 2.0+3R | 2.1+3R | 2.1+4R | 2.2+4R | 2.2+4R |
|                               | VSC @ 4"                   | q             | 3606   | 3252   | 3044   | 2918   | 2843   | 2628   | 2129   | 1759   | 1478   |
|                               |                            | F             | 1.7+1R | 1.7+2R | 1.8+2R | 1.8+3R | 1.8+3R | 1.8+3R | 1.9+4R | 1.9+4R | 1.9+4R |

<sup>1</sup> Notes 1-6 of Table 19 apply to this table.

<sup>2</sup> See Figure 5 for ShearTranz II-42 details.

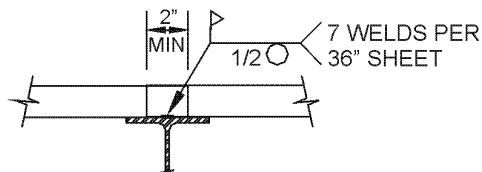
FIGURE 5—DETAILS FOR SHEARTRANZ® II FOR PLB™-36 &amp; SHEARTRANZ® II FOR HSB™-36 DECK

**SECTION 1:**

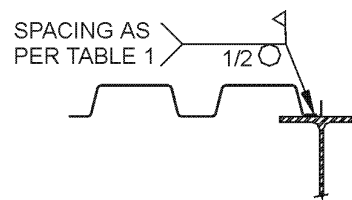
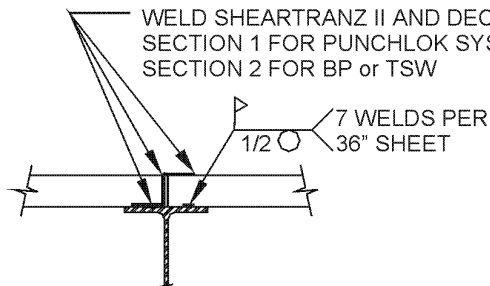
**SHEARTRANZ® II-42 FOR PLB™-36 DECK WITH PUNCHLOK™ SYSTEM**  
**with VSC SIDELAP CONNECTIONS (VSC)**

**TYPICAL DETAILS**

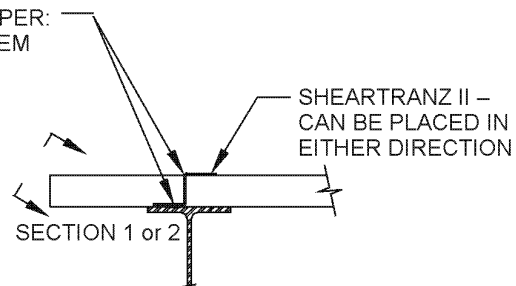
(Apply to either system.)



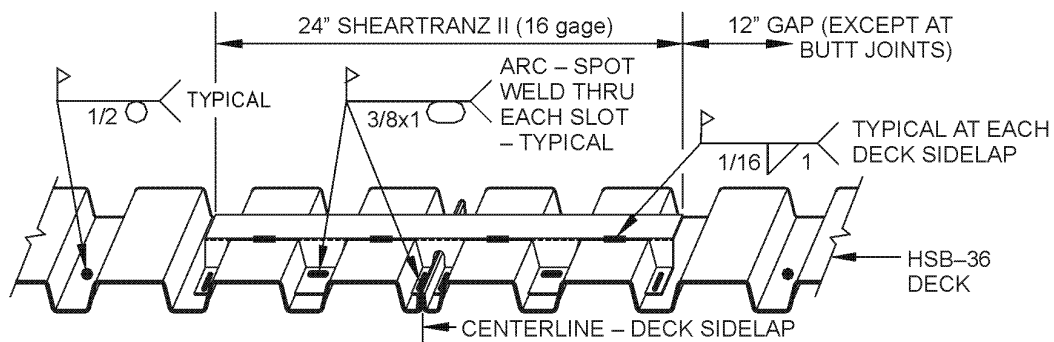
NOTE: LAP DECK MIN. 2" AT END LAPS.

**TYPICAL INTERIOR SUPPORT****ATTACHMENT AT PARALLEL SUPPORTS****TYPICAL BUTT JOINT**

SHEARTRANZ II CONTINUOUS AT BUTT JOINTS.  
 WELD TOP FLANGE OF SHEARTRANZ II TO BOTH PIECES OF DECK AT BUTT JOINTS.

**DETAIL AT DIAPHRAGM PERIMETER**

DECK MAY BE CANTILEVERED OR STOP AT BEAM

**SECTION 2:**

**SHEARTRANZ® II-42 FOR HSB™-36 DECK**  
**with BUTTON PUNCHED (BP) OR TOP SEAM WELD (TSW) SIDELAPS**

**TABLE 22—ALLOWABLE DIAPHRAGM SHEAR, q (plf), AND FLEXIBILITY FACTORS, F, FOR VERCO  
SHEARTRANZ® II AND HSB™-36 WITH BUTTON PUNCHES (BP) or  
1½ INCH TOP SEAM WELDS (TSW) AT SIDELAPS <sup>1,2</sup>**

| GAGE                          | SIDELAP<br>ATTACH -<br>MENT |   | 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" |
| 36/7 WELD PATTERN AT SUPPORTS |                             |   |               |       |       |       |       |       |       |       |       |       |        |
| 22                            | BP @ 24"                    | q | 953           | 880   | 819   | 767   | 724   | 686   | 653   | 624   | 598   | 576   | 555    |
|                               |                             | F | 7.8           | 8.4   | 8.9   | 9.5   | 10.0  | 10.5  | 11.1  | 11.6  | 12.2  | 12.7  | 13.3   |
|                               | BP @ 18"                    | q | 997           | 924   | 863   | 813   | 769   | 732   | 699   | 671   | 646   | 623   | 603    |
|                               |                             | F | 7.6           | 8.1   | 8.6   | 9.1   | 9.6   | 10.1  | 10.5  | 11.0  | 11.5  | 12.0  | 12.4   |
|                               | BP @ 12"                    | q | 1084          | 1012  | 953   | 903   | 860   | 824   | 792   | 765   | 740   | 719   | 700    |
|                               |                             | F | 7.2           | 7.6   | 8.1   | 8.5   | 8.9   | 9.2   | 9.6   | 10.0  | 10.4  | 10.7  | 11.1   |
|                               | TSW @ 24"                   | q | 865           | 808   | 759   | 719   | 684   | 654   | 628   | 605   | 585   | 567   | 551    |
|                               |                             | F | 5.1           | 5.3   | 5.5   | 5.7   | 5.9   | 6.1   | 6.2   | 6.4   | 6.5   | 6.7   | 6.8    |
|                               | TSW @ 18"                   | q | 961           | 904   | 855   | 815   | 780   | 750   | 724   | 701   | 681   | 663   | 647    |
|                               |                             | F | 4.9           | 5.1   | 5.2   | 5.4   | 5.5   | 5.6   | 5.8   | 5.9   | 6.0   | 6.1   | 6.2    |
|                               | TSW @ 12"                   | q | 1153          | 1095  | 1047  | 1007  | 972   | 942   | 916   | 893   | 873   | 855   | 839    |
|                               |                             | F | 4.6           | 4.7   | 4.8   | 4.9   | 5.0   | 5.1   | 5.1   | 5.2   | 5.3   | 5.4   | 5.5    |
| 20                            | BP @ 24"                    | q | 1120          | 1032  | 959   | 898   | 845   | 799   | 760   | 725   | 694   | 667   | 643    |
|                               |                             | F | 6.1           | 6.5   | 6.9   | 7.3   | 7.7   | 8.2   | 8.6   | 9.1   | 9.5   | 9.9   | 10.4   |
|                               | BP @ 18"                    | q | 1165          | 1078  | 1005  | 944   | 892   | 847   | 808   | 773   | 743   | 716   | 692    |
|                               |                             | F | 5.9           | 6.3   | 6.7   | 7.1   | 7.5   | 7.8   | 8.2   | 8.6   | 9.0   | 9.4   | 9.8    |
|                               | BP @ 12"                    | q | 1255          | 1168  | 1097  | 1037  | 985   | 942   | 903   | 870   | 841   | 815   | 792    |
|                               |                             | F | 5.7           | 6.0   | 6.3   | 6.6   | 7.0   | 7.3   | 7.6   | 7.9   | 8.2   | 8.6   | 8.9    |
|                               | TSW @ 24"                   | q | 1309          | 1218  | 1143  | 1079  | 1025  | 978   | 938   | 902   | 870   | 842   | 817    |
|                               |                             | F | 4.1           | 4.2   | 4.4   | 4.5   | 4.6   | 4.8   | 4.9   | 5.0   | 5.2   | 5.3   | 5.4    |
|                               | TSW @ 18"                   | q | 1447          | 1356  | 1281  | 1218  | 1163  | 1117  | 1076  | 1040  | 1008  | 980   | 955    |
|                               |                             | F | 3.9           | 4.0   | 4.1   | 4.3   | 4.4   | 4.5   | 4.6   | 4.7   | 4.8   | 4.9   | 5.0    |
|                               | TSW @ 12"                   | q | 1724          | 1633  | 1558  | 1494  | 1440  | 1393  | 1352  | 1317  | 1285  | 1209  | 1091   |
|                               |                             | F | 3.6           | 3.7   | 3.8   | 3.9   | 4.0   | 4.0   | 4.1   | 4.2   | 4.3   | 4.3   | 4.4    |
| 18                            | BP @ 24"                    | q | 1453          | 1335  | 1238  | 1156  | 1085  | 1025  | 972   | 926   | 885   | 848   | 815    |
|                               |                             | F | 4.1           | 4.4   | 4.6   | 4.9   | 5.2   | 5.5   | 5.8   | 6.2   | 6.5   | 6.8   | 7.1    |
|                               | BP @ 18"                    | q | 1499          | 1382  | 1286  | 1204  | 1135  | 1075  | 1022  | 977   | 936   | 900   | 868    |
|                               |                             | F | 4.0           | 4.3   | 4.5   | 4.8   | 5.1   | 5.4   | 5.6   | 5.9   | 6.2   | 6.5   | 6.8    |
|                               | BP @ 12"                    | q | 1592          | 1477  | 1381  | 1301  | 1233  | 1174  | 1123  | 1079  | 1040  | 1005  | 974    |
|                               |                             | F | 3.9           | 4.1   | 4.3   | 4.6   | 4.8   | 5.1   | 5.3   | 5.5   | 5.8   | 6.0   | 6.2    |
|                               | TSW @ 24"                   | q | 1862          | 1751  | 1659  | 1583  | 1518  | 1463  | 1416  | 1375  | 1339  | 1308  | 1281   |
|                               |                             | F | 2.8           | 2.9   | 3.0   | 3.1   | 3.2   | 3.3   | 3.4   | 3.5   | 3.6   | 3.7   | 3.8    |
|                               | TSW @ 18"                   | q | 2045          | 1936  | 1847  | 1773  | 1711  | 1659  | 1614  | 1576  | 1543  | 1514  | 1453   |
|                               |                             | F | 2.7           | 2.8   | 2.9   | 3.0   | 3.1   | 3.1   | 3.2   | 3.3   | 3.4   | 3.4   | 3.5    |
|                               | TSW @ 12"                   | q | 2411          | 2307  | 2224  | 2155  | 2098  | 2051  | 2011  | 1978  | 1794  | 1610  | 1453   |
|                               |                             | F | 2.6           | 2.7   | 2.7   | 2.8   | 2.8   | 2.9   | 2.9   | 3.0   | 3.0   | 3.1   | 3.1    |
| 16                            | BP @ 24"                    | q | 1787          | 1640  | 1518  | 1415  | 1328  | 1252  | 1185  | 1127  | 1076  | 1030  | 989    |
|                               |                             | F | 3.0           | 3.2   | 3.4   | 3.7   | 3.9   | 4.1   | 4.4   | 4.6   | 4.8   | 5.1   | 5.3    |
|                               | BP @ 18"                    | q | 1835          | 1689  | 1568  | 1466  | 1379  | 1304  | 1238  | 1181  | 1130  | 1085  | 1045   |
|                               |                             | F | 3.0           | 3.2   | 3.4   | 3.6   | 3.8   | 4.0   | 4.2   | 4.4   | 4.7   | 4.9   | 5.1    |
|                               | BP @ 12"                    | q | 1932          | 1787  | 1668  | 1567  | 1482  | 1408  | 1344  | 1288  | 1239  | 1195  | 1156   |
|                               |                             | F | 2.9           | 3.1   | 3.3   | 3.4   | 3.6   | 3.8   | 4.0   | 4.2   | 4.4   | 4.6   | 4.8    |
|                               | TSW @ 24"                   | q | 2279          | 2140  | 2026  | 1932  | 1852  | 1784  | 1725  | 1675  | 1631  | 1592  | 1559   |
|                               |                             | F | 2.2           | 2.2   | 2.3   | 2.4   | 2.5   | 2.5   | 2.6   | 2.7   | 2.8   | 2.8   | 2.9    |
|                               | TSW @ 18"                   | q | 2491          | 2356  | 2246  | 2154  | 2078  | 2013  | 1958  | 1911  | 1870  | 1835  | 1803   |
|                               |                             | F | 2.1           | 2.2   | 2.2   | 2.3   | 2.3   | 2.4   | 2.5   | 2.5   | 2.6   | 2.6   | 2.7    |
|                               | TSW @ 12"                   | q | 2915          | 2787  | 2684  | 2600  | 2530  | 2472  | 2424  | 2383  | 2226  | 1998  | 1803   |
|                               |                             | F | 2.0           | 2.0   | 2.1   | 2.1   | 2.2   | 2.2   | 2.3   | 2.3   | 2.3   | 2.4   | 2.4    |

<sup>1</sup> See Figure 5 for ShearTranz II details.

<sup>2</sup> The flexibility limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections.

**TABLE 23—ALLOWABLE DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ ,  
FOR VERO SHEARTRANZ<sup>®</sup> AND HSB<sup>™</sup>-30 OR HSB<sup>™</sup>-36 DECK  
WITH BUTTON PUNCHES (BP) OR 1½ INCH TOP SEAM WELDS (TSW) AT SIDELAPS<sup>1,2,3</sup>**

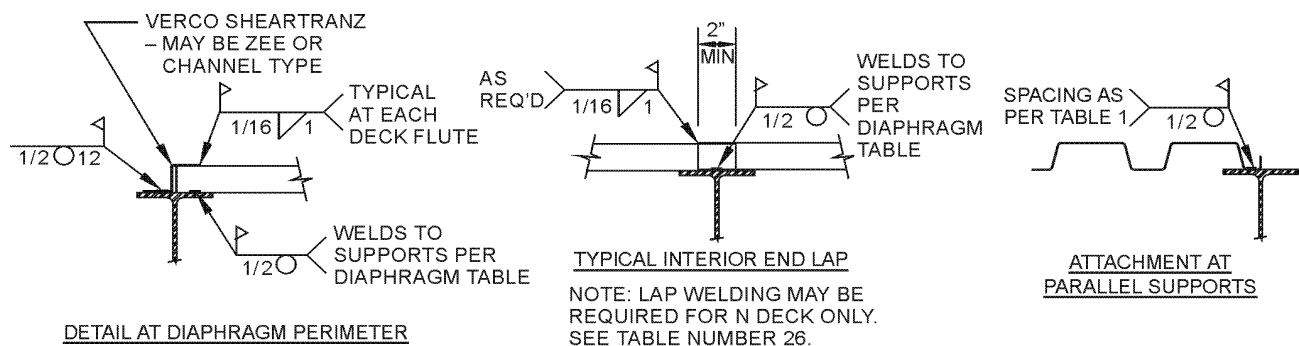
| DECK<br>GAGE | SIDELAP<br>ATTACH-<br>MENT |   | SPAN (ft-in.)                                        |               |               |               |               |               |               |               |                |                |               |               |
|--------------|----------------------------|---|------------------------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|----------------|---------------|---------------|
|              |                            |   | 5'-0"                                                |               | 6'-0"         |               | 7'-0"         |               | 8'-0"         |               | 9'-0"          |                | 10'-0"        |               |
|              |                            |   | Number of Puddle Welds per Panel End and at Supports |               |               |               |               |               |               |               |                |                |               |               |
|              |                            |   | 6                                                    | 7             | 6             | 7             | 6             | 7             | 6             | 7             | 6              | 7              | 6             | 7             |
| 22           | BP @ 24"                   | q | 340                                                  | 450           | 270           | 400           | 270           | 380           | 260           | 370           | 260            | 350            | --            | --            |
|              |                            | F | 4.8+<br>34.6R                                        | 5.1+<br>28.1R | 6.4+<br>28.9R | 6.1+<br>23.4R | 7.8+<br>24.7R | 7.5+<br>20R   | 9.5+<br>21.6R | 9.3+<br>17.5R | 11.5+<br>19.2R | 11.4+<br>15.6R | --            | --            |
|              | BP @ 12"                   | q | 390                                                  | 510           | 330           | 460           | 330           | 440           | 320           | 430           | 320            | 410            | --            | --            |
|              |                            | F | 4.6+<br>34.6R                                        | 4.9+<br>28.1R | 5.7+<br>28.9R | 5.7+<br>23.4R | 6.9+<br>24.7R | 6.9+<br>20R   | 8.2+<br>21.6R | 8.4+<br>17.5R | 9.8+<br>19.2R  | 10.1+<br>15.6R | --            | --            |
|              | TSW @24"                   | q | 740                                                  | 940           | 600           | 780           | 550           | 730           | 510           | 680           | 480            | 620            | 460           | 580           |
|              |                            | F | 12.7                                                 | 9.3           | 15.1          | 11.1          | 16.2          | 12.3          | 17.2          | 13.5          | 18.1           | 14.6           | 18.8          | 15.5          |
| 20           | BP @ 24"                   | q | 530                                                  | 710           | 420           | 620           | 410           | 590           | 400           | 560           | 390            | 520            | --            | --            |
|              |                            | F | 4.4+<br>20.0R                                        | 4.7+<br>16.2R | 6.0+<br>16.7R | 5.7+<br>13.5R | 7.5+<br>14.3R | 7.2+<br>11.6R | 9.3+<br>12.5R | 9.0+<br>10.1R | 11.4+<br>11.1R | 11.2+<br>9.0R  | --            | --            |
|              | BP @ 12"                   | q | 580                                                  | 770           | 490           | 690           | 480           | 660           | 470           | 640           | 460            | 580            | --            | --            |
|              |                            | F | 4.2+<br>20.0R                                        | 4.5+<br>16.2R | 5.5+<br>16.7R | 5.4+<br>13.5R | 6.7+<br>14.3R | 6.7+<br>11.6R | 8.2+<br>12.5R | 8.3+<br>10.1R | 10.0+<br>11.1R | 10.1+<br>9.0R  | --            | --            |
|              | TSW @24"                   | q | 930                                                  | 1100          | 780           | 930           | 710           | 860           | 650           | 810           | 610            | 780            | 580           | 720           |
|              |                            | F | 9.8                                                  | 7.3           | 11.9          | 8.7           | 12.9          | 9.8           | 13.6          | 10.7          | 14.3           | 11.7           | 15.0          | 12.5          |
| 18           | BP @ 24"                   | q | 890                                                  | 1200          | 730           | 970           | 630           | 840           | 560           | 740           | 500            | 660            | 450           | 600           |
|              |                            | F | 4.2+<br>8.5R                                         | 4.2+<br>6.6R  | 5.6+<br>7.1R  | 5.3+<br>5.7R  | 7.2+<br>6.1R  | 6.8+<br>4.9R  | 9.1+<br>5.3R  | 8.7+<br>4.3R  | 11.3+<br>4.7R  | 10.9+<br>3.8R  | 13.9+<br>4.2R | 13.6+<br>3.4R |
|              | BP @ 12"                   | q | 950                                                  | 1270          | 820           | 1050          | 710           | 910           | 630           | 800           | 560            | 720            | 510           | 660           |
|              |                            | F | 3.9+<br>8.5R                                         | 4.1+<br>6.6R  | 5.2+<br>7.1R  | 5.0+<br>5.7R  | 6.6+<br>6.1R  | 6.4+<br>4.9R  | 8.3+<br>5.3R  | 8.1+<br>4.3R  | 10.2+<br>4.7R  | 10.2+<br>3.8R  | 12.5+<br>4.2R | 12.6+<br>3.4R |
|              | TSW @24"                   | q | 1160                                                 | 1420          | 990           | 1200          | 930           | 1100          | 880           | 1040          | 860            | 1000           | 840           | 970           |
|              |                            | F | 6.6                                                  | 5.0           | 7.9           | 6.0           | 8.7           | 6.8           | 9.4           | 7.6           | 10.0           | 8.3            | 10.5          | 8.9           |
| 16           | BP @ 24"                   | q | 1080                                                 | 1140          | 900           | 1200          | 770           | 1030          | 680           | 910           | 610            | 810            | 550           | 730           |
|              |                            | F | 3.6+<br>4.3R                                         | 3.9+<br>3.5R  | 5.4+<br>3.6R  | 5.0+<br>2.9R  | 7.0+<br>3.1R  | 6.5+<br>2.5R  | 8.9+<br>2.7R  | 8.5+<br>2.2R  | 11.2+<br>2.4R  | 10.8+<br>1.9R  | 13.9+<br>2.2R | 13.5+<br>1.8R |
|              | BP @ 12"                   | q | 1140                                                 | 1540          | 970           | 1270          | 840           | 1100          | 740           | 970           | 670            | 870            | 600           | 780           |
|              |                            | F | 3.5+<br>4.3R                                         | 3.8+<br>3.5R  | 5.0+<br>3.6R  | 4.8+<br>2.9R  | 6.5+<br>3.1R  | 6.2+<br>2.5R  | 8.3+<br>2.7R  | 8.0+<br>2.2R  | 10.4+<br>2.4R  | 10.2+<br>1.9R  | 12.8+<br>2.2R | 12.8+<br>1.8R |
|              | TSW @24"                   | q | 1390                                                 | 1740          | 1190          | 1470          | 1110          | 1350          | 1050          | 1270          | 1020           | 1210           | 1000          | 1180          |
|              |                            | F | 4.9                                                  | 3.8           | 5.8           | 4.6           | 6.4           | 5.2           | 7.0           | 5.8           | 7.5            | 6.4            | 8.0           | 6.9           |
|              | TSW @12"                   | q | 1740                                                 | 2050          | 1660          | 1880          | 1610          | 1800          | 1580          | 1760          | 1580           | 1750           | 1590          | 1760          |
|              |                            | F | 4.2                                                  | 3.5           | 4.6           | 3.9           | 4.9           | 4.2           | 5.1           | 4.5           | 5.4            | 4.8            | 5.5           | 5.1           |

<sup>1</sup> Footnotes 3 and 4 of Table 19 apply to this table.

<sup>2</sup> See Figure 6 for ShearTranz details.

<sup>3</sup> For HSB-30 deck, 5 and 6 puddle weld patterns apply.

**FIGURE 6—DETAILS FOR SHEARTRANZ<sup>®</sup> FOR HSB<sup>™</sup>-30, HSB<sup>™</sup>-36, AND N-24 DECKS**





**TABLE 24—ALLOWABLE DIAPHRAGM SHEAR, q (plf), AND FLEXIBILITY FACTORS, F,  
FOR TYPE PLN™-24 DECK WITH SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5,6</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |          |          |          |          |          |          |          |          |          |
|-------------------------------|----------------------------|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|                               |                            | 6'-0"         | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"   | 14'-0"   | 16'-0"   |          |
| 24/4 WELD PATTERN AT SUPPORTS |                            |               |          |          |          |          |          |          |          |          |          |
| 22                            | VSC @ 24"                  | q             | 480      | 457      | 410      | 399      | 367      | 362      | 339      | 318      | 303      |
|                               |                            | F             | 20.4+51R | 19.3+47R | 24.3+44R | 23.2+41R | 27.9+39R | 26.7+37R | 31.2+36R | 34.3+33R | 37.2+31R |
|                               | VSC @ 18"                  | q             | 518      | 487      | 463      | 422      | 409      | 398      | 373      | 361      | 340      |
|                               |                            | F             | 15.0+51R | 15.2+47R | 15.5+44R | 18.8+41R | 18.9+39R | 19.1+37R | 22.1+36R | 22.2+33R | 25.0+31R |
|                               | VSC @ 12"                  | q             | 583      | 540      | 508      | 483      | 462      | 445      | 431      | 409      | 392      |
|                               |                            | F             | 10.0+51R | 10.8+47R | 11.5+44R | 12.1+41R | 12.8+39R | 13.4+37R | 13.9+36R | 15.0+33R | 16.1+31R |
|                               | VSC @ 8"                   | q             | 662      | 627      | 583      | 564      | 535      | 523      | 502      | 479      | 461      |
|                               |                            | F             | 7.0+51R  | 7.2+47R  | 7.8+44R  | 7.9+41R  | 8.5+39R  | 8.6+37R  | 9.2+36R  | 9.8+33R  | 10.3+31R |
|                               | VSC @ 6"                   | q             | 728      | 682      | 647      | 619      | 596      | 578      | 562      | 537      | 519      |
|                               |                            | F             | 5.7+51R  | 6.0+47R  | 6.2+44R  | 6.4+41R  | 6.7+39R  | 6.9+37R  | 7.1+36R  | 7.4+33R  | 7.8+31R  |
|                               | VSC @ 4"                   | q             | 840      | 791      | 753      | 723      | 699      | 679      | 662      | 602      | 545      |
|                               |                            | F             | 4.5+51R  | 4.6+47R  | 4.7+44R  | 4.9+41R  | 5.0+39R  | 5.1+37R  | 5.2+36R  | 5.4+33R  | 5.6+31R  |
| 20                            | VSC @ 24"                  | q             | 680      | 646      | 580      | 563      | 518      | 510      | 477      | 448      | 426      |
|                               |                            | F             | 16.1+34R | 15.4+31R | 19.4+29R | 18.5+27R | 22.4+26R | 21.5+25R | 25.2+24R | 27.8+22R | 30.3+21R |
|                               | VSC @ 18"                  | q             | 733      | 687      | 652      | 595      | 576      | 560      | 525      | 507      | 477      |
|                               |                            | F             | 11.9+34R | 12.1+31R | 12.4+29R | 15.1+27R | 15.2+26R | 15.4+25R | 17.9+24R | 18.1+22R | 20.5+21R |
|                               | VSC @ 12"                  | q             | 820      | 759      | 713      | 677      | 648      | 624      | 604      | 573      | 549      |
|                               |                            | F             | 8.0+34R  | 8.7+31R  | 9.3+29R  | 9.8+27R  | 10.3+26R | 10.9+25R | 11.3+24R | 12.3+22R | 13.2+21R |
|                               | VSC @ 8"                   | q             | 927      | 877      | 815      | 787      | 747      | 730      | 701      | 668      | 644      |
|                               |                            | F             | 5.7+34R  | 5.8+31R  | 6.4+29R  | 6.5+27R  | 7.0+26R  | 7.0+25R  | 7.5+24R  | 8.0+22R  | 8.5+21R  |
|                               | VSC @ 6"                   | q             | 1017     | 952      | 902      | 862      | 831      | 804      | 783      | 749      | 723      |
|                               |                            | F             | 4.6+34R  | 4.9+31R  | 5.1+29R  | 5.3+27R  | 5.4+26R  | 5.6+25R  | 5.8+24R  | 6.1+22R  | 6.4+21R  |
|                               | VSC @ 4"                   | q             | 1169     | 1099     | 1046     | 1004     | 971      | 943      | 920      | 869      | 786      |
|                               |                            | F             | 3.7+34R  | 3.8+31R  | 3.9+29R  | 4.0+27R  | 4.1+26R  | 4.2+25R  | 4.3+24R  | 4.5+22R  | 4.6+21R  |
| 18                            | VSC @ 24"                  | q             | 1072     | 1016     | 913      | 885      | 816      | 802      | 752      | 707      | 674      |
|                               |                            | F             | 10.9+18R | 10.5+16R | 13.2+15R | 12.7+14R | 15.4+14R | 14.8+13R | 17.4+12R | 19.4+12R | 21.3+11R |
|                               | VSC @ 18"                  | q             | 1151     | 1079     | 1023     | 934      | 904      | 879      | 825      | 798      | 754      |
|                               |                            | F             | 8.1+18R  | 8.3+16R  | 8.6+15R  | 10.4+14R | 10.5+14R | 10.7+13R | 12.5+12R | 12.7+12R | 14.4+11R |
|                               | VSC @ 12"                  | q             | 1284     | 1188     | 1116     | 1060     | 1015     | 978      | 948      | 900      | 865      |
|                               |                            | F             | 5.6+18R  | 6.0+16R  | 6.4+15R  | 6.8+14R  | 7.2+14R  | 7.6+13R  | 8.0+12R  | 8.7+12R  | 9.3+11R  |
|                               | VSC @ 8"                   | q             | 1446     | 1367     | 1272     | 1229     | 1167     | 1141     | 1097     | 1048     | 1012     |
|                               |                            | F             | 4.0+18R  | 4.1+16R  | 4.5+15R  | 4.6+14R  | 4.9+14R  | 5.0+13R  | 5.3+12R  | 5.7+12R  | 6.1+11R  |
|                               | VSC @ 6"                   | q             | 1583     | 1481     | 1404     | 1343     | 1295     | 1256     | 1224     | 1173     | 1136     |
|                               |                            | F             | 3.3+18R  | 3.5+16R  | 3.6+15R  | 3.8+14R  | 3.9+14R  | 4.0+13R  | 4.2+12R  | 4.4+12R  | 4.6+11R  |
|                               | VSC @ 4"                   | q             | 1812     | 1705     | 1624     | 1561     | 1511     | 1469     | 1435     | 1383     | 1345     |
|                               |                            | F             | 2.6+18R  | 2.7+16R  | 2.8+15R  | 2.9+14R  | 3.0+14R  | 3.0+13R  | 3.1+12R  | 3.2+12R  | 3.4+11R  |
| 16                            | VSC @ 24"                  | q             | 1439     | 1364     | 1227     | 1192     | 1101     | 1084     | 1017     | 959      | 916      |
|                               |                            | F             | 7.9+11R  | 7.7+10R  | 9.7+9R   | 9.4+9R   | 11.3+8R  | 11.0+8R  | 12.9+8R  | 14.4+7R  | 15.8+7R  |
|                               | VSC @ 18"                  | q             | 1544     | 1448     | 1375     | 1257     | 1219     | 1187     | 1116     | 1083     | 1025     |
|                               |                            | F             | 6.0+11R  | 6.1+10R  | 6.3+9R   | 7.7+9R   | 7.8+8R   | 7.9+8R   | 9.2+8R   | 9.4+7R   | 10.8+7R  |
|                               | VSC @ 12"                  | q             | 1720     | 1594     | 1500     | 1426     | 1368     | 1321     | 1282     | 1221     | 1178     |
|                               |                            | F             | 4.1+11R  | 4.5+10R  | 4.8+9R   | 5.1+9R   | 5.4+8R   | 5.7+8R   | 6.0+8R   | 6.5+7R   | 7.0+7R   |
|                               | VSC @ 8"                   | q             | 1937     | 1834     | 1709     | 1654     | 1573     | 1541     | 1484     | 1423     | 1378     |
|                               |                            | F             | 3.0+11R  | 3.1+10R  | 3.4+9R   | 3.4+9R   | 3.7+8R   | 3.8+8R   | 4.0+8R   | 4.3+7R   | 4.6+7R   |
|                               | VSC @ 6"                   | q             | 2119     | 1985     | 1885     | 1808     | 1746     | 1696     | 1655     | 1593     | 1547     |
|                               |                            | F             | 2.5+11R  | 2.6+10R  | 2.7+9R   | 2.9+9R   | 3.0+8R   | 3.1+8R   | 3.2+8R   | 3.3+7R   | 3.5+7R   |
|                               | VSC @ 4"                   | q             | 2424     | 2285     | 2181     | 2100     | 2036     | 1985     | 1942     | 1877     | 1831     |
|                               |                            | F             | 2.0+11R  | 2.1+10R  | 2.2+9R   | 2.2+9R   | 2.3+8R   | 2.3+8R   | 2.4+8R   | 2.5+7R   | 2.6+7R   |

<sup>1</sup> VSC = Verco sidelap connection.

<sup>2</sup> The dimension from the first and last sidelap connection within each span is to be no more than one-half of the specified spacing.

<sup>3</sup> R is the vertical span ( $L_v$ ) of deck units divided by the length ( $L_s$ ) of the deck sheet:  $R = L_v/L_s$ .

<sup>4</sup> The flexibility limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections.

<sup>5</sup> Interpolation of diaphragm strength between adjacent spans is permissible. For interpolated lengths, use diaphragm flexibility factor for the closest span length.

<sup>6</sup> Diaphragm shear values for side seam fasteners placed at spacings other than those in the table should be determined based on the number of fasteners in each span.

**TABLE 25—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR TYPE N-24 DECK WITH BUTTON PUNCHES (BP) OR 1½" TOP SEAM WELDS (TSW) AT SIDELAPS<sup>1</sup>**

| GAGE                          | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |           |           |           |           |           |          |          |          |          |
|-------------------------------|----------------------------|---------------|-----------|-----------|-----------|-----------|-----------|----------|----------|----------|----------|
|                               |                            | 6'-0"         | 7'-0"     | 8'-0"     | 9'-0"     | 10'-0"    | 11'-0"    | 12'-0"   | 14'-0"   | 16'-0"   |          |
| 24/4 WELD PATTERN AT SUPPORTS |                            |               |           |           |           |           |           |          |          |          |          |
| 22                            | BP @ 24"                   | q             | 234       | 216       | 189       | 180       | 163       | 158      | 145      | 130      | 119      |
|                               |                            | F             | 21.3+166R | 23.3+143R | 26.7+125R | 28.4+111R | 31.8+100R | 33.2+91R | 36.6+83R | 41.1+71R | 45.4+62R |
|                               | BP @ 12"                   | q             | 285       | 260       | 241       | 227       | 216       | 207      | 198      | 184      | 173      |
|                               |                            | F             | 18.0+166R | 19.8+143R | 21.5+125R | 23.1+111R | 24.6+100R | 26.1+91R | 27.4+83R | 29.9+71R | 32.1+62R |
|                               | TSW @ 24"                  | q             | 234       | 231       | 201       | 202       | 181       | 183      | 167      | 158      | 151      |
|                               |                            | F             | 15.5+166R | 13.9+143R | 14.1+125R | 12.9+111R | 13.1+100R | 12.1+91R | 12.2+83R | 11.5+71R | 11.0+62R |
| 20                            | BP @ 24"                   | q             | 343       | 324       | 309       | 298       | 289       | 282      | 276      | 267      | 260      |
|                               |                            | F             | 11.4+166R | 10.7+143R | 10.1+125R | 9.6+111R  | 9.2+100R  | 8.8+91R  | 8.5+83R  | 8.0+71R  | 7.5+62R  |
|                               | BP @ 12"                   | q             | 355       | 323       | 283       | 266       | 240       | 231      | 212      | 189      | 171      |
|                               |                            | F             | 16.3+96R  | 18.2+82R  | 20.9+72R  | 22.5+64R  | 25.3+58R  | 26.8+52R | 29.6+48R | 33.8+41R | 37.8+36R |
|                               | TSW @ 24"                  | q             | 415       | 374       | 344       | 321       | 303       | 289      | 277      | 253      | 235      |
|                               |                            | F             | 14.3+96R  | 16.0+82R  | 17.6+72R  | 19.1+64R  | 20.5+58R  | 21.9+52R | 23.2+48R | 25.7+41R | 28.1+36R |
| 18                            | BP @ 24"                   | q             | 384       | 371       | 322       | 320       | 286       | 287      | 262      | 245      | 232      |
|                               |                            | F             | 12.3+96R  | 11.3+82R  | 11.5+72R  | 10.6+64R  | 10.8+58R  | 10.1+52R | 10.2+48R | 9.7+41R  | 9.3+36R  |
|                               | BP @ 12"                   | q             | 540       | 505       | 479       | 459       | 443       | 429      | 418      | 401      | 389      |
|                               |                            | F             | 9.4+96R   | 8.9+82R   | 8.5+72R   | 8.1+64R   | 7.8+58R   | 7.5+52R  | 7.2+48R  | 6.8+41R  | 6.5+36R  |
|                               | TSW @ 24"                  | q             | 637       | 568       | 498       | 461       | 416       | 394      | 362      | 324      | 296      |
|                               |                            | F             | 10.6+41R  | 12.0+35R  | 13.8+31R  | 15.2+27R  | 17.1+24R  | 18.5+22R | 20.5+20R | 23.9+17R | 27.3+15R |
| 16                            | BP @ 24"                   | q             | 710       | 632       | 574       | 530       | 494       | 466      | 443      | 407      | 381      |
|                               |                            | F             | 9.7+41R   | 11.0+35R  | 12.2+31R  | 13.5+27R  | 14.7+24R  | 15.9+22R | 17.1+20R | 19.4+17R | 21.6+15R |
|                               | BP @ 12"                   | q             | 819       | 773       | 670       | 652       | 582       | 576      | 524      | 483      | 453      |
|                               |                            | F             | 8.4+41R   | 7.9+35R   | 8.0+31R   | 7.6+27R   | 7.7+24R   | 7.3+22R  | 7.4+20R  | 7.2+17R  | 6.9+15R  |
|                               | TSW @ 24"                  | q             | 1096      | 1011      | 948       | 899       | 860       | 828      | 802      | 761      | 730      |
|                               |                            | F             | 6.7+41R   | 6.4+35R   | 6.2+31R   | 6.0+27R   | 5.8+24R   | 5.6+22R  | 5.5+20R  | 5.2+17R  | 5.0+15R  |
| 14                            | BP @ 24"                   | q             | 918       | 812       | 712       | 654       | 590       | 554      | 509      | 453      | 411      |
|                               |                            | F             | 7.5+21R   | 8.6+18R   | 9.9+16R   | 11.0+14R  | 12.5+12R  | 13.6+11R | 15.1+10R | 17.9+9R  | 20.7+8R  |
|                               | BP @ 12"                   | q             | 1000      | 884       | 797       | 731       | 678       | 636      | 601      | 547      | 508      |
|                               |                            | F             | 7.0+21R   | 8.0+18R   | 9.0+16R   | 10.0+14R  | 11.0+12R  | 12.0+11R | 13.0+10R | 15.0+9R  | 17.0+8R  |
|                               | TSW @ 24"                  | q             | 1197      | 1137      | 1002      | 982       | 891       | 888      | 821      | 774      | 742      |
|                               |                            | F             | 6.1+21R   | 5.8+18R   | 5.9+16R   | 5.7+14R   | 5.8+12R   | 5.6+11R  | 5.7+10R  | 5.5+9R   | 5.4+8R   |
| TSW @ 12"                     | q                          | 1558          | 1453      | 1378      | 1322      | 1280      | 1248      | 1223     | 1190     | 1170     |          |
|                               | F                          | 5.0+21R       | 4.8+18R   | 4.7+16R   | 4.6+14R   | 4.5+12R   | 4.4+11R   | 4.3+10R  | 4.1+9R   | 3.9+8R   |          |

<sup>1</sup> Footnotes 2–6 of Table 24 apply to this table.

**TABLE 26—ALLOWABLE DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR TYPE N-24 DECK WITH VERO SHEARTRANZ<sup>®</sup> AND 1½" TOP SEAM WELDS (TSW) AT SIDELAPS<sup>1,2</sup>**

| SIDELAP<br>ATTACH-<br>MENT |                               |   | SPAN (ft- in.)     |       |                   |        |        |                                        |       |                   |        |        |
|----------------------------|-------------------------------|---|--------------------|-------|-------------------|--------|--------|----------------------------------------|-------|-------------------|--------|--------|
|                            |                               |   | END LAP NOT WELDED |       |                   |        |        | END LAP WELDED WITH 1-INCH FILLET WELD |       |                   |        |        |
|                            |                               |   | 6'-0"              | 8'-0" | 10'-0"            | 12'-0" | 14'-0" | 6'-0"                                  | 8'-0" | 10'-0"            | 12'-0" | 14'-0" |
| GAGE                       | 24/4 WELD PATTERN AT SUPPORTS |   |                    |       |                   |        |        |                                        |       |                   |        |        |
| 22                         | TSW @ 12"                     | q | 620                | 620   | 540               | 450    | 380    | 750                                    | 670   | 540               | 450    | 380    |
|                            |                               | F | 11.5               | 12.2  | 12.6              | 12.9   | 13.1   | 11.5                                   | 12.2  | 12.6              | 12.9   | 13.1   |
| 20                         | TSW @ 12"                     | q | 750                | 750   | 650               | 540    | 460    | 1020                                   | 810   | 650               | 540    | 460    |
|                            |                               | F | 9.2                | 9.8   | 10.3              | 10.6   | 10.8   | 9.2                                    | 9.8   | 10.3              | 10.6   | 10.8   |
| 18                         | TSW @ 12"                     | q | 1000               | 1000  | Use N Deck Values |        |        | 1430                                   | 1080  | Use N Deck Values |        |        |
|                            |                               | F | 6.5                | 7.0   |                   |        |        | 6.5                                    | 7.0   |                   |        |        |

<sup>1</sup> See Figure 6 for SHEARTRANZ<sup>®</sup> details.

<sup>2</sup> The flexibility limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections.

**TABLE 27—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR PLB™-36 DECK ATTACHED WITH HILTI FASTENERS TO SUPPORTS AND SIDELAPS CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5</sup>**

| GAGE                                    | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |          |          |          |          |          |          |          |        |
|-----------------------------------------|----------------------------|---------------|----------|----------|----------|----------|----------|----------|----------|--------|
|                                         |                            | 4'-0"         | 5'-0"    | 6'-0"    | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0" |
| 36/7 HILTI FASTENER PATTERN AT SUPPORTS |                            |               |          |          |          |          |          |          |          |        |
| 22                                      | VSC @ 24"                  | q 687         | 627      | 527      | 501      | 442      | 428      | 388      | —        | —      |
|                                         | F 11.3+23R                 | 11.9+27R      | 20.4+31R | 21.0+35R | 32.3+38R | 32.8+42R | 46.9+45R | —        | —        |        |
|                                         | VSC @ 18"                  | q 777         | 689      | 579      | 540      | 509      | 456      | 438      | —        | —      |
|                                         | F 6.9+23R                  | 8.2+27R       | 13.2+31R | 14.8+35R | 16.7+38R | 24.2+42R | 26.4+45R | —        | —        |        |
|                                         | VSC @ 12"                  | q 853         | 743      | 666      | 609      | 565      | 530      | 501      | —        | —      |
|                                         | F 5.2+23R                  | 6.4+27R       | 7.7+31R  | 9.2+35R  | 10.9+38R | 12.8+42R | 14.9+45R | —        | —        |        |
|                                         | VSC @ 8"                   | q 980         | 878      | 773      | 722      | 660      | 629      | 588      | —        | —      |
|                                         | F 3.9+23R                  | 4.3+27R       | 5.1+31R  | 5.6+35R  | 6.6+38R  | 7.1+42R  | 8.4+45R  | —        | —        |        |
|                                         | VSC @ 6"                   | q 1087        | 955      | 862      | 793      | 740      | 697      | 661      | —        | —      |
|                                         | F 3.5+23R                  | 3.8+27R       | 4.1+31R  | 4.5+35R  | 5.0+38R  | 5.5+42R  | 6.0+45R  | —        | —        |        |
|                                         | VSC @ 4"                   | q 1267        | 1118     | 1013     | 935      | 874      | 824      | 753      | —        | —      |
|                                         | F 3.1+23R                  | 3.2+27R       | 3.4+31R  | 3.6+35R  | 3.8+38R  | 4.0+42R  | 4.3+45R  | —        | —        |        |
| 20                                      | VSC @ 24"                  | q 826         | 750      | 631      | 598      | 528      | 511      | 464      | 453      | 419    |
|                                         | F 10.1+13R                 | 10.7+15R      | 18.5+17R | 19.2+19R | 29.7+21R | 30.3+23R | 43.6+25R | 44.2+27R | 60.0+29R |        |
|                                         | VSC @ 18"                  | q 929         | 821      | 691      | 644      | 606      | 544      | 522      | 503      | 465    |
|                                         | F 6.1+13R                  | 7.3+15R       | 11.9+17R | 13.5+19R | 15.3+21R | 22.3+23R | 24.5+25R | 26.8+27R | 36.1+29R |        |
|                                         | VSC @ 12"                  | q 1016        | 883      | 791      | 723      | 671      | 629      | 595      | 566      | 542    |
|                                         | F 4.5+13R                  | 5.6+15R       | 6.9+17R  | 8.3+19R  | 10.0+21R | 11.7+23R | 13.7+25R | 15.8+27R | 18.1+29R |        |
|                                         | VSC @ 8"                   | q 1161        | 1039     | 913      | 853      | 780      | 744      | 695      | 672      | 637    |
|                                         | F 3.4+13R                  | 3.7+15R       | 4.5+17R  | 4.9+19R  | 5.9+21R  | 6.4+23R  | 7.6+25R  | 8.2+27R  | 9.6+29R  |        |
|                                         | VSC @ 6"                   | q 1284        | 1126     | 1017     | 935      | 872      | 822      | 780      | 745      | 688    |
|                                         | F 2.9+13R                  | 3.2+15R       | 3.6+17R  | 4.0+19R  | 4.4+21R  | 4.9+23R  | 5.4+25R  | 5.9+27R  | 6.5+29R  |        |
|                                         | VSC @ 4"                   | q 1489        | 1313     | 1190     | 1098     | 1027     | 969      | 922      | 818      | 688    |
|                                         | F 2.6+13R                  | 2.7+15R       | 2.9+17R  | 3.1+19R  | 3.3+21R  | 3.5+23R  | 3.7+25R  | 4.0+27R  | 4.3+29R  |        |
| 18                                      | VSC @ 24"                  | q 1040        | 941      | 793      | 750      | 663      | 640      | 583      | 569      | 528    |
|                                         | F 8.3+5R                   | 8.9+6R        | 15.6+7R  | 16.3+8R  | 25.6+8R  | 26.3+9R  | 38.0+10R | 38.8+11R | 53.0+11R |        |
|                                         | VSC @ 18"                  | q 1162        | 1025     | 864      | 804      | 757      | 680      | 653      | 630      | 584    |
|                                         | F 4.9+5R                   | 6.0+6R        | 10.0+7R  | 11.4+8R  | 13.1+8R  | 19.3+9R  | 21.3+10R | 23.5+11R | 31.9+11R |        |
|                                         | VSC @ 12"                  | q 1265        | 1099     | 984      | 900      | 835      | 784      | 742      | 707      | 678    |
|                                         | F 3.6+5R                   | 4.6+6R        | 5.7+7R   | 7.0+8R   | 8.4+8R   | 10.0+9R  | 11.8+10R | 13.8+11R | 15.9+11R |        |
|                                         | VSC @ 8"                   | q 1438        | 1285     | 1131     | 1056     | 967      | 923      | 864      | 835      | 793    |
|                                         | F 2.6+5R                   | 2.9+6R        | 3.6+7R   | 4.0+8R   | 4.9+8R   | 5.4+9R   | 6.5+10R  | 7.0+11R  | 8.3+11R  |        |
|                                         | VSC @ 6"                   | q 1583        | 1389     | 1254     | 1155     | 1078     | 1017     | 967      | 925      | 890    |
|                                         | F 2.3+5R                   | 2.5+6R        | 2.8+7R   | 3.2+8R   | 3.6+8R   | 4.0+9R   | 4.5+10R  | 5.0+11R  | 5.5+11R  |        |
|                                         | VSC @ 4"                   | q 1827        | 1612     | 1462     | 1350     | 1264     | 1195     | 1139     | 1092     | 1052   |
|                                         | F 2.0+5R                   | 2.1+6R        | 2.3+7R   | 2.4+8R   | 2.6+8R   | 2.8+9R   | 3.0+10R  | 3.2+11R  | 3.5+11R  |        |
| 16                                      | VSC @ 24"                  | q 1215        | 1096     | 926      | 874      | 775      | 748      | 682      | 667      | 619    |
|                                         | F 7.0+2R                   | 7.6+3R        | 13.6+3R  | 14.3+4R  | 22.6+4R  | 23.4+4R  | 34.0+5R  | 34.9+5R  | 47.9+5R  |        |
|                                         | VSC @ 18"                  | q 1352        | 1191     | 1007     | 937      | 881      | 794      | 763      | 736      | 683    |
|                                         | F 4.1+2R                   | 5.1+3R        | 8.7+3R   | 10.0+4R  | 11.5+4R  | 17.1+4R  | 19.0+5R  | 21.1+5R  | 28.7+5R  |        |
|                                         | VSC @ 12"                  | q 1468        | 1275     | 1142     | 1045     | 971      | 912      | 864      | 825      | 791    |
|                                         | F 3.0+2R                   | 3.9+3R        | 4.9+3R   | 6.1+4R   | 7.4+4R   | 8.9+4R   | 10.5+5R  | 12.3+5R  | 14.2+5R  |        |
|                                         | VSC @ 8"                   | q 1662        | 1485     | 1309     | 1223     | 1121     | 1071     | 1004     | 972      | 924    |
|                                         | F 2.2+2R                   | 2.5+3R        | 3.1+3R   | 3.4+4R   | 4.2+4R   | 4.7+4R   | 5.7+5R   | 6.2+5R   | 7.4+5R   |        |
|                                         | VSC @ 6"                   | q 1826        | 1603     | 1449     | 1335     | 1248     | 1179     | 1122     | 1075     | 1036   |
|                                         | F 1.9+2R                   | 2.1+3R        | 2.4+3R   | 2.7+4R   | 3.0+4R   | 3.4+4R   | 3.9+5R   | 4.3+5R   | 4.9+5R   |        |
|                                         | VSC @ 4"                   | q 2100        | 1854     | 1684     | 1558     | 1461     | 1383     | 1320     | 1268     | 1223   |
|                                         | F 1.6+2R                   | 1.7+3R        | 1.9+3R   | 2.0+4R   | 2.2+4R   | 2.3+4R   | 2.5+5R   | 2.8+5R   | 3.0+5R   |        |

<sup>1</sup> Notes 1–6 of Table 19 apply to this table.

<sup>2</sup> Allowable diaphragm shear values,  $q$  (plf), and flexibility factors,  $F$ , are based on Hilti X-EDN19 THQ12 fasteners with 3/8 in. thick substrate. Modify  $q$  and  $F$  values in table and select the appropriate fastener based on actual substrate thickness as follows:

Allowable Diaphragm Shear =  $q \cdot R_q$

Flexibility Factor = (First number of  $F$ )  $\cdot R_F$  + (Second number of  $F$ )

<sup>3</sup> See General Note 7c for spacing of Hilti fasteners at collector elements parallel to deck flutes.

<sup>4</sup> See Table 2 for Allowable Tension Loads for Hilti fasteners subjected to wind uplift loads.

<sup>5</sup> See ICBO Report ER-4373 for additional details.

| Substrate<br>Thickness (in.) | Hilti Fastener<br>Designation | Reduction Factor             |                                 |
|------------------------------|-------------------------------|------------------------------|---------------------------------|
|                              |                               | Diaphragm<br>Shear ( $R_q$ ) | Flexibility<br>Factor ( $R_F$ ) |
| 0.313 to 3/8                 | X-EDN19 THQ12                 | 1.00                         | 1.00                            |
| 0.250 to 0.313               | X-EDN19 THQ12                 | 0.82                         | 1.50                            |
| 0.188 to 0.250               | X-EDNK22 THQ12                | 1.00                         | 1.00                            |
| 1/8 to 0.188                 | X-EDNK22 THQ12                | 0.76                         | 1.60                            |

**TABLE 28—ALLOWABLE DIAPHRAGM SHEAR, q (plf), AND FLEXIBILITY FACTORS, F,  
FOR PLB™-36 DECK ATTACHED WITH PNEUTEK® PINS TO SUPPORTS AND SIDELAPS  
CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,2,3,4,5</sup>**

| GAGE                                                                            | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |         |         |          |          |          |          |          |         |         |
|---------------------------------------------------------------------------------|----------------------------|---------------|---------|---------|----------|----------|----------|----------|----------|---------|---------|
|                                                                                 |                            | 4'-0"         | 5'-0"   | 6'-0"   | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"  |         |
| 36/7 PNEUTEK® K66062 OR K66075 PIN PATTERN AT SUPPORTS 0.281" THICK AND THICKER |                            |               |         |         |          |          |          |          |          |         |         |
| 36/7 PNEUTEK® K64062 PIN PATTERN AT SUPPORTS 0.187 – 0.312" THICK               |                            |               |         |         |          |          |          |          |          |         |         |
| 22                                                                              | VSC @ 24"                  | q             | 823     | 781     | 678      | 653      | 592      | 582      | 540      | –       | –       |
|                                                                                 |                            | F             | 7.6+24R | 8.5+19R | 11.2+16R | 12.1+14R | 15.1+12R | 16.0+11R | 19.4+10R | –       | –       |
|                                                                                 | VSC @ 18"                  | q             | 933     | 843     | 733      | 698      | 671      | 617      | 604      | –       | –       |
|                                                                                 |                            | F             | 6.3+24R | 7.4+19R | 9.5+16R  | 10.6+14R | 11.7+12R | 14.2+11R | 15.3+10R | –       | –       |
|                                                                                 | VSC @ 12"                  | q             | 1003    | 897     | 826      | 776      | 738      | 708      | 684      | –       | –       |
|                                                                                 |                            | F             | 5.6+24R | 6.6+19R | 7.6+16R  | 8.7+14R  | 9.8+12R  | 10.9+11R | 12.0+10R | –       | –       |
|                                                                                 | VSC @ 8"                   | q             | 1121    | 1033    | 940      | 903      | 850      | 830      | 753      | –       | –       |
|                                                                                 |                            | F             | 4.9+24R | 5.4+19R | 6.3+16R  | 6.8+14R  | 7.8+12R  | 8.3+11R  | 9.3+10R  | –       | –       |
|                                                                                 | VSC @ 6"                   | q             | 1220    | 1110    | 1036     | 984      | 944      | 913      | 753      | –       | –       |
|                                                                                 |                            | F             | 4.4+24R | 5.0+19R | 5.5+16R  | 6.1+14R  | 6.7+12R  | 7.2+11R  | 7.8+10R  | –       | –       |
|                                                                                 | VSC @ 4"                   | q             | 1387    | 1273    | 1197     | 1143     | 1102     | 929      | 753      | –       | –       |
|                                                                                 |                            | F             | 4.0+24R | 4.3+19R | 4.7+16R  | 5.1+14R  | 5.5+12R  | 5.9+11R  | 6.3+10R  | –       | –       |
| 20                                                                              | VSC @ 24"                  | q             | 981     | 1008    | 810      | 843      | 720      | 751      | 665      | 693     | 627     |
|                                                                                 |                            | F             | 6.3+13R | 7.0+10R | 9.3+8R   | 10.0+7R  | 12.5+6R  | 13.3+6R  | 16.0+5R  | 16.7+5R | 19.6+4R |
|                                                                                 | VSC @ 18"                  | q             | 1203    | 1088    | 947      | 902      | 867      | 798      | 781      | 767     | 688     |
|                                                                                 |                            | F             | 5.3+13R | 6.1+10R | 7.9+8R   | 8.8+7R   | 9.7+6R   | 11.7+6R  | 12.7+5R  | 13.6+5R | 15.8+4R |
|                                                                                 | VSC @ 12"                  | q             | 1295    | 1158    | 1068     | 1003     | 954      | 916      | 885      | 818     | 688     |
|                                                                                 |                            | F             | 4.7+13R | 5.5+10R | 6.3+8R   | 7.2+7R   | 8.1+6R   | 9.0+6R   | 9.9+5R   | 10.9+5R | 11.8+4R |
|                                                                                 | VSC @ 8"                   | q             | 1447    | 1335    | 1215     | 1168     | 1099     | 1075     | 990      | 818     | 688     |
|                                                                                 |                            | F             | 4.0+13R | 4.5+10R | 5.2+8R   | 5.7+7R   | 6.4+6R   | 6.9+6R   | 7.7+5R   | 8.2+5R  | 9.0+4R  |
|                                                                                 | VSC @ 6"                   | q             | 1576    | 1435    | 1340     | 1272     | 1222     | 1182     | 990      | 818     | 688     |
|                                                                                 |                            | F             | 3.7+13R | 4.1+10R | 4.6+8R   | 5.0+7R   | 5.5+6R   | 6.0+6R   | 6.5+5R   | 7.0+5R  | 7.4+4R  |
|                                                                                 | VSC @ 4"                   | q             | 1793    | 1647    | 1549     | 1479     | 1427     | 1223     | 990      | 818     | 688     |
|                                                                                 |                            | F             | 3.3+13R | 3.6+10R | 3.9+8R   | 4.2+7R   | 4.6+6R   | 4.9+6R   | 5.2+5R   | 5.5+5R  | 5.9+4R  |
| 18                                                                              | VSC @ 24"                  | q             | 1260    | 1302    | 1047     | 1094     | 935      | 978      | 866      | 904     | 819     |
|                                                                                 |                            | F             | 4.6+5R  | 5.2+4R  | 6.8+3R   | 7.3+3R   | 9.1+2R   | 9.6+2R   | 11.6+2R  | 12.1+2R | 14.1+2R |
|                                                                                 | VSC @ 18"                  | q             | 1678    | 1523    | 1311     | 1267     | 1221     | 1124     | 1102     | 1084    | 1023    |
|                                                                                 |                            | F             | 3.9+5R  | 4.5+4R  | 5.8+3R   | 6.4+3R   | 7.0+2R   | 8.5+2R   | 9.2+2R   | 9.8+2R  | 11.4+2R |
|                                                                                 | VSC @ 12"                  | q             | 1809    | 1624    | 1500     | 1412     | 1346     | 1294     | 1253     | 1219    | 1057    |
|                                                                                 |                            | F             | 3.5+5R  | 4.0+4R  | 4.6+3R   | 5.3+3R   | 5.9+2R   | 6.6+2R   | 7.2+2R   | 7.9+2R  | 8.5+2R  |
|                                                                                 | VSC @ 8"                   | q             | 2029    | 1878    | 1713     | 1650     | 1555     | 1523     | 1460     | 1257    | 1057    |
|                                                                                 |                            | F             | 3.0+5R  | 3.3+4R  | 3.8+3R   | 4.1+3R   | 4.7+2R   | 5.0+2R   | 5.6+2R   | 5.9+2R  | 6.5+2R  |
|                                                                                 | VSC @ 6"                   | q             | 2215    | 2022    | 1893     | 1801     | 1731     | 1678     | 1521     | 1257    | 1057    |
|                                                                                 |                            | F             | 2.7+5R  | 3.0+4R  | 3.4+3R   | 3.7+3R   | 4.0+2R   | 4.4+2R   | 4.7+2R   | 5.0+2R  | 5.4+2R  |
|                                                                                 | VSC @ 4"                   | q             | 2526    | 2327    | 2194     | 2099     | 2027     | 1878     | 1521     | 1257    | 1057    |
|                                                                                 |                            | F             | 2.5+5R  | 2.7+4R  | 2.9+3R   | 3.1+3R   | 3.3+2R   | 3.6+2R   | 3.8+2R   | 4.0+2R  | 4.3+2R  |
| 16                                                                              | VSC @ 24"                  | q             | 1518    | 1576    | 1269     | 1331     | 1139     | 1194     | 1058     | 1107    | 1003    |
|                                                                                 |                            | F             | 3.6+2R  | 4.0+2R  | 5.3+1R   | 5.7+1R   | 7.0+1R   | 7.4+1R   | 8.9+1R   | 9.3+1R  | 10.8+1R |
|                                                                                 | VSC @ 18"                  | q             | 2057    | 1926    | 1594     | 1596     | 1555     | 1392     | 1407     | 1386    | 1287    |
|                                                                                 |                            | F             | 3.0+2R  | 3.5+2R  | 4.5+1R   | 4.9+1R   | 5.4+1R   | 6.6+1R   | 7.0+1R   | 7.5+1R  | 8.7+1R  |
|                                                                                 | VSC @ 12"                  | q             | 2284    | 2058    | 1907     | 1799     | 1717     | 1654     | 1604     | 1562    | 1478    |
|                                                                                 |                            | F             | 2.7+2R  | 3.1+2R  | 3.6+1R   | 4.1+1R   | 4.6+1R   | 5.0+1R   | 5.5+1R   | 6.0+1R  | 6.5+1R  |
|                                                                                 | VSC @ 8"                   | q             | 2571    | 2390    | 2184     | 2109     | 1990     | 1953     | 1874     | 1759    | 1478    |
|                                                                                 |                            | F             | 2.3+2R  | 2.6+2R  | 3.0+1R   | 3.2+1R   | 3.6+1R   | 3.9+1R   | 4.3+1R   | 4.5+1R  | 5.0+1R  |
|                                                                                 | VSC @ 6"                   | q             | 2813    | 2577    | 2418     | 2305     | 2220     | 2154     | 2101     | 1759    | 1478    |
|                                                                                 |                            | F             | 2.1+2R  | 2.4+2R  | 2.6+1R   | 2.9+1R   | 3.1+1R   | 3.4+1R   | 3.6+1R   | 3.9+1R  | 4.1+1R  |
|                                                                                 | VSC @ 4"                   | q             | 3219    | 2975    | 2811     | 2694     | 2606     | 2538     | 2129     | 1759    | 1478    |
|                                                                                 |                            | F             | 1.9+2R  | 2.1+2R  | 2.3+1R   | 2.4+1R   | 2.6+1R   | 2.8+1R   | 2.9+1R   | 3.1+1R  | 3.3+1R  |

<sup>1</sup> Notes 1-6 of Table 19 apply to this table.

<sup>2</sup> Select the appropriate fastener based on actual substrate thickness.

<sup>3</sup> See ICBO Report ER-3829 for additional details.

<sup>4</sup> See Table 3 for allowable shear capacities for K66062, K66075, and K64062 fasteners parallel to deck flutes.

<sup>5</sup> See Table 3 for allowable tension loads for K66062, K66075, and K64062 fasteners subjected to wind uplift forces.

**TABLE 28—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ ,  
FOR PLB™-36 DECK ATTACHED WITH PNEUTEK® PINS TO SUPPORTS AND SIDELAPS  
CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,3,6,7</sup> - Continued**

| GAGE                                                                | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |         |         |          |          |          |          |          |         |         |
|---------------------------------------------------------------------|----------------------------|---------------|---------|---------|----------|----------|----------|----------|----------|---------|---------|
|                                                                     |                            | 4'-0"         | 5'-0"   | 6'-0"   | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"  |         |
| 36/7 PNEUTEK® SDK63075 PIN PATTERN AT SUPPORTS 0.155 – 0.250" THICK |                            |               |         |         |          |          |          |          |          |         |         |
| 22                                                                  | VSC @ 24"                  | q             | 782     | 742     | 644      | 621      | 562      | 553      | 513      | —       | —       |
|                                                                     |                            | F             | 7.6+24R | 8.5+19R | 11.2+16R | 12.1+14R | 15.1+12R | 16.0+11R | 19.4+10R | —       | —       |
|                                                                     | VSC @ 18"                  | q             | 887     | 801     | 697      | 663      | 637      | 586      | 574      | —       | —       |
|                                                                     |                            | F             | 6.3+24R | 7.4+19R | 9.5+16R  | 10.6+14R | 11.7+12R | 14.2+11R | 15.3+10R | —       | —       |
|                                                                     | VSC @ 12"                  | q             | 953     | 852     | 785      | 737      | 701      | 673      | 650      | —       | —       |
|                                                                     |                            | F             | 5.6+24R | 6.6+19R | 7.6+16R  | 8.7+14R  | 9.8+12R  | 10.9+11R | 12.0+10R | —       | —       |
|                                                                     | VSC @ 8"                   | q             | 1065    | 982     | 893      | 858      | 807      | 789      | 753      | —       | —       |
|                                                                     |                            | F             | 4.9+24R | 5.4+19R | 6.3+16R  | 6.8+14R  | 7.8+12R  | 8.3+11R  | 9.3+10R  | —       | —       |
|                                                                     | VSC @ 6"                   | q             | 1159    | 1055    | 985      | 934      | 897      | 867      | 753      | —       | —       |
|                                                                     |                            | F             | 4.4+24R | 5.0+19R | 5.5+16R  | 6.1+14R  | 6.7+12R  | 7.2+11R  | 7.8+10R  | —       | —       |
|                                                                     | VSC @ 4"                   | q             | 1318    | 1210    | 1138     | 1086     | 1047     | 929      | 753      | —       | —       |
|                                                                     |                            | F             | 4.0+24R | 4.3+19R | 4.7+16R  | 5.1+14R  | 5.5+12R  | 5.9+11R  | 6.3+10R  | —       | —       |
| 20                                                                  | VSC @ 24"                  | q             | 932     | 958     | 770      | 801      | 684      | 714      | 632      | 658     | 596     |
|                                                                     |                            | F             | 6.3+13R | 7.0+10R | 9.3+8R   | 10.0+7R  | 12.5+6R  | 13.3+6R  | 16.0+5R  | 16.7+5R | 19.6+4R |
|                                                                     | VSC @ 18"                  | q             | 1143    | 1034    | 899      | 857      | 824      | 758      | 742      | 728     | 687     |
|                                                                     |                            | F             | 5.3+13R | 6.1+10R | 7.9+8R   | 8.8+7R   | 9.7+6R   | 11.7+6R  | 12.7+5R  | 13.6+5R | 15.8+4R |
|                                                                     | VSC @ 12"                  | q             | 1230    | 1101    | 1014     | 952      | 906      | 870      | 841      | 817     | 688     |
|                                                                     |                            | F             | 4.7+13R | 5.5+10R | 6.3+8R   | 7.2+7R   | 8.1+6R   | 9.0+6R   | 9.9+5R   | 10.9+5R | 11.8+4R |
|                                                                     | VSC @ 8"                   | q             | 1375    | 1268    | 1155     | 1109     | 1044     | 1021     | 978      | 818     | 688     |
|                                                                     |                            | F             | 4.0+13R | 4.5+10R | 5.2+8R   | 5.7+7R   | 6.4+6R   | 6.9+6R   | 7.7+5R   | 8.2+5R  | 9.0+4R  |
|                                                                     | VSC @ 6"                   | q             | 1498    | 1363    | 1273     | 1209     | 1160     | 1123     | 990      | 818     | 688     |
|                                                                     |                            | F             | 3.7+13R | 4.1+10R | 4.6+8R   | 5.0+7R   | 5.5+6R   | 6.0+6R   | 6.5+5R   | 7.0+5R  | 7.4+4R  |
|                                                                     | VSC @ 4"                   | q             | 1703    | 1564    | 1472     | 1405     | 1356     | 1223     | 990      | 818     | 688     |
|                                                                     |                            | F             | 3.3+13R | 3.6+10R | 3.9+8R   | 4.2+7R   | 4.6+6R   | 4.9+6R   | 5.2+5R   | 5.5+5R  | 5.9+4R  |
| 18                                                                  | VSC @ 24"                  | q             | 1197    | 1237    | 995      | 1039     | 888      | 929      | 822      | 859     | 778     |
|                                                                     |                            | F             | 4.6+5R  | 5.2+4R  | 6.8+3R   | 7.3+3R   | 9.1+2R   | 9.6+2R   | 11.6+2R  | 12.1+2R | 14.1+2R |
|                                                                     | VSC @ 18"                  | q             | 1594    | 1446    | 1246     | 1203     | 1160     | 1068     | 1047     | 1030    | 972     |
|                                                                     |                            | F             | 3.9+5R  | 4.5+4R  | 5.8+3R   | 6.4+3R   | 7.0+2R   | 8.5+2R   | 9.2+2R   | 9.8+2R  | 11.4+2R |
|                                                                     | VSC @ 12"                  | q             | 1718    | 1543    | 1425     | 1341     | 1278     | 1229     | 1190     | 1158    | 1057    |
|                                                                     |                            | F             | 3.5+5R  | 4.0+4R  | 4.6+3R   | 5.3+3R   | 5.9+2R   | 6.6+2R   | 7.2+2R   | 7.9+2R  | 8.5+2R  |
|                                                                     | VSC @ 8"                   | q             | 1928    | 1784    | 1628     | 1567     | 1477     | 1447     | 1387     | 1257    | 1057    |
|                                                                     |                            | F             | 3.0+5R  | 3.3+4R  | 3.8+3R   | 4.1+3R   | 4.7+2R   | 5.0+2R   | 5.6+2R   | 5.9+2R  | 6.5+2R  |
|                                                                     | VSC @ 6"                   | q             | 2104    | 1921    | 1798     | 1711     | 1645     | 1594     | 1521     | 1257    | 1057    |
|                                                                     |                            | F             | 2.7+5R  | 3.0+4R  | 3.4+3R   | 3.7+3R   | 4.0+2R   | 4.4+2R   | 4.7+2R   | 5.0+2R  | 5.4+2R  |
|                                                                     | VSC @ 4"                   | q             | 2400    | 2211    | 2084     | 1994     | 1926     | 1873     | 1521     | 1257    | 1057    |
|                                                                     |                            | F             | 2.5+5R  | 2.7+4R  | 2.9+3R   | 3.1+3R   | 3.3+2R   | 3.6+2R   | 3.8+2R   | 4.0+2R  | 4.3+2R  |
| 16                                                                  | VSC @ 24"                  | q             | 1442    | 1498    | 1206     | 1264     | 1082     | 1134     | 1005     | 1052    | 953     |
|                                                                     |                            | F             | 3.6+2R  | 4.0+2R  | 5.3+1R   | 5.7+1R   | 7.0+1R   | 7.4+1R   | 8.9+1R   | 9.3+1R  | 10.8+1R |
|                                                                     | VSC @ 18"                  | q             | 1954    | 1829    | 1514     | 1516     | 1477     | 1322     | 1337     | 1317    | 1222    |
|                                                                     |                            | F             | 3.0+2R  | 3.5+2R  | 4.5+1R   | 4.9+1R   | 5.4+1R   | 6.6+1R   | 7.0+1R   | 7.5+1R  | 8.7+1R  |
|                                                                     | VSC @ 12"                  | q             | 2170    | 1955    | 1811     | 1709     | 1632     | 1572     | 1523     | 1484    | 1451    |
|                                                                     |                            | F             | 2.7+2R  | 3.1+2R  | 3.6+1R   | 4.1+1R   | 4.6+1R   | 5.0+1R   | 5.5+1R   | 6.0+1R  | 6.5+1R  |
|                                                                     | VSC @ 8"                   | q             | 2443    | 2270    | 2075     | 2003     | 1891     | 1855     | 1780     | 1759    | 1478    |
|                                                                     |                            | F             | 2.3+2R  | 2.6+2R  | 3.0+1R   | 3.2+1R   | 3.6+1R   | 3.9+1R   | 4.3+1R   | 4.5+1R  | 5.0+1R  |
|                                                                     | VSC @ 6"                   | q             | 2673    | 2448    | 2297     | 2190     | 2109     | 2046     | 1996     | 1759    | 1478    |
|                                                                     |                            | F             | 2.1+2R  | 2.4+2R  | 2.6+1R   | 2.9+1R   | 3.1+1R   | 3.4+1R   | 3.6+1R   | 3.9+1R  | 4.1+1R  |
|                                                                     | VSC @ 4"                   | q             | 3058    | 2826    | 2670     | 2559     | 2476     | 2411     | 2129     | 1759    | 1478    |
|                                                                     |                            | F             | 1.9+2R  | 2.1+2R  | 2.3+1R   | 2.4+1R   | 2.6+1R   | 2.8+1R   | 2.9+1R   | 3.1+1R  | 3.3+1R  |

<sup>1</sup> Notes 1-6 of Table 19 apply to this table.

<sup>3</sup> See ICBO Report ER-3829 for additional details.

<sup>6</sup> See Table 3 for allowable shear capacities for SDK63075 fasteners parallel to deck flutes.

<sup>7</sup> See Table 3 for allowable tension loads for SDK63075 fasteners subjected to wind uplift forces.

**TABLE 28—ALLOWABLE DIAPHRAGM SHEAR,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ ,  
FOR PLB™-36 DECK ATTACHED WITH PNEUTEK® PINS TO SUPPORTS AND SIDELAPS  
CONNECTED WITH THE PUNCHLOK™ SYSTEM<sup>1,3,8,9</sup> - Continued**

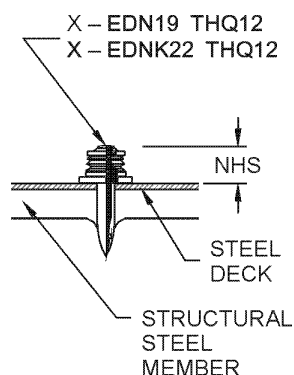
| GAGE                                                                | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft-in.) |         |         |          |          |          |          |          |         |         |
|---------------------------------------------------------------------|----------------------------|---------------|---------|---------|----------|----------|----------|----------|----------|---------|---------|
|                                                                     |                            | 4'-0"         | 5'-0"   | 6'-0"   | 7'-0"    | 8'-0"    | 9'-0"    | 10'-0"   | 11'-0"   | 12'-0"  |         |
| 36/7 PNEUTEK® SDK61075 PIN PATTERN AT SUPPORTS 0.113 – 0.155" THICK |                            |               |         |         |          |          |          |          |          |         |         |
| 22                                                                  | VSC @ 24"                  | q             | 535     | 508     | 441      | 425      | 385      | 378      | 351      | —       | —       |
|                                                                     |                            | F             | 7.6+24R | 8.5+19R | 11.2+16R | 12.1+14R | 15.1+12R | 16.0+11R | 19.4+10R | —       | —       |
|                                                                     | VSC @ 18"                  | q             | 607     | 548     | 477      | 454      | 436      | 401      | 393      | —       | —       |
|                                                                     |                            | F             | 6.3+24R | 7.4+19R | 9.5+16R  | 10.6+14R | 11.7+12R | 14.2+11R | 15.3+10R | —       | —       |
|                                                                     | VSC @ 12"                  | q             | 652     | 583     | 537      | 504      | 480      | 460      | 445      | —       | —       |
|                                                                     |                            | F             | 5.6+24R | 6.6+19R | 7.6+16R  | 8.7+14R  | 9.8+12R  | 10.9+11R | 12.0+10R | —       | —       |
|                                                                     | VSC @ 8"                   | q             | 729     | 672     | 611      | 587      | 552      | 540      | 517      | —       | —       |
|                                                                     |                            | F             | 4.9+24R | 5.4+19R | 6.3+16R  | 6.8+14R  | 7.8+12R  | 8.3+11R  | 9.3+10R  | —       | —       |
|                                                                     | VSC @ 6"                   | q             | 793     | 722     | 674      | 639      | 614      | 594      | 577      | —       | —       |
|                                                                     |                            | F             | 4.4+24R | 5.0+19R | 5.5+16R  | 6.1+14R  | 6.7+12R  | 7.2+11R  | 7.8+10R  | —       | —       |
|                                                                     | VSC @ 4"                   | q             | 901     | 828     | 778      | 743      | 716      | 696      | 679      | —       | —       |
|                                                                     |                            | F             | 4.0+24R | 4.3+19R | 4.7+16R  | 5.1+14R  | 5.5+12R  | 5.9+11R  | 6.3+10R  | —       | —       |
| 20                                                                  | VSC @ 24"                  | q             | 638     | 655     | 527      | 548      | 468      | 488      | 432      | 451     | 408     |
|                                                                     |                            | F             | 6.3+13R | 7.0+10R | 9.3+8R   | 10+7R    | 12.5+6R  | 13.3+6R  | 16.0+5R  | 16.7+5R | 19.6+4R |
|                                                                     | VSC @ 18"                  | q             | 782     | 707     | 615      | 586      | 564      | 519      | 508      | 498     | 470     |
|                                                                     |                            | F             | 5.3+13R | 6.1+10R | 7.9+8R   | 8.8+7R   | 9.7+6R   | 11.7+6R  | 12.7+5R  | 13.6+5R | 15.8+4R |
|                                                                     | VSC @ 12"                  | q             | 841     | 753     | 694      | 652      | 620      | 595      | 575      | 559     | 546     |
|                                                                     |                            | F             | 4.7+13R | 5.5+10R | 6.3+8R   | 7.2+7R   | 8.1+6R   | 9.0+6R   | 9.9+5R   | 10.9+5R | 11.8+4R |
|                                                                     | VSC @ 8"                   | q             | 941     | 868     | 790      | 759      | 714      | 699      | 669      | 660     | 639     |
|                                                                     |                            | F             | 4.0+13R | 4.5+10R | 5.2+8R   | 5.7+7R   | 6.4+6R   | 6.9+6R   | 7.7+5R   | 8.2+5R  | 9.0+4R  |
|                                                                     | VSC @ 6"                   | q             | 1025    | 933     | 871      | 827      | 794      | 768      | 748      | 731     | 688     |
|                                                                     |                            | F             | 3.7+13R | 4.1+10R | 4.6+8R   | 5.0+7R   | 5.5+6R   | 6.0+6R   | 6.5+5R   | 7.0+5R  | 7.4+4R  |
|                                                                     | VSC @ 4"                   | q             | 1165    | 1070    | 1007     | 962      | 928      | 901      | 880      | 818     | 688     |
|                                                                     |                            | F             | 3.3+13R | 3.6+10R | 3.9+8R   | 4.2+7R   | 4.6+6R   | 4.9+6R   | 5.2+5R   | 5.5+5R  | 5.9+4R  |
| 18                                                                  | VSC @ 24"                  | q             | 819     | 846     | 680      | 711      | 608      | 636      | 563      | 588     | 532     |
|                                                                     |                            | F             | 4.6+5R  | 5.2+4R  | 6.8+3R   | 7.3+3R   | 9.1+2R   | 9.6+2R   | 11.6+2R  | 12.1+2R | 14.1+2R |
|                                                                     | VSC @ 18"                  | q             | 1090    | 990     | 852      | 823      | 794      | 731      | 717      | 705     | 665     |
|                                                                     |                            | F             | 3.9+5R  | 4.5+4R  | 5.8+3R   | 6.4+3R   | 7.0+2R   | 8.5+2R   | 9.2+2R   | 9.8+2R  | 11.4+2R |
|                                                                     | VSC @ 12"                  | q             | 1176    | 1056    | 975      | 918      | 875      | 841      | 814      | 792     | 774     |
|                                                                     |                            | F             | 3.5+5R  | 4.0+4R  | 4.6+3R   | 5.3+3R   | 5.9+2R   | 6.6+2R   | 7.2+2R   | 7.9+2R  | 8.5+2R  |
|                                                                     | VSC @ 8"                   | q             | 1319    | 1221    | 1114     | 1072     | 1011     | 990      | 949      | 937     | 908     |
|                                                                     |                            | F             | 3.0+5R  | 3.3+4R  | 3.8+3R   | 4.1+3R   | 4.7+2R   | 5.0+2R   | 5.6+2R   | 5.9+2R  | 6.5+2R  |
|                                                                     | VSC @ 6"                   | q             | 1440    | 1314    | 1230     | 1170     | 1125     | 1090     | 1062     | 1039    | 1020    |
|                                                                     |                            | F             | 2.7+5R  | 3.0+4R  | 3.4+3R   | 3.7+3R   | 4.0+2R   | 4.4+2R   | 4.7+2R   | 5.0+2R  | 5.4+2R  |
|                                                                     | VSC @ 4"                   | q             | 1642    | 1513    | 1426     | 1364     | 1318     | 1282     | 1253     | 1229    | 1057    |
|                                                                     |                            | F             | 2.5+5R  | 2.7+4R  | 2.9+3R   | 3.1+3R   | 3.3+2R   | 3.6+2R   | 3.8+2R   | 4.0+2R  | 4.3+2R  |
| 16                                                                  | VSC @ 24"                  | q             | 987     | 1025    | 825      | 865      | 740      | 776      | 688      | 720     | 652     |
|                                                                     |                            | F             | 3.6+2R  | 4.0+2R  | 5.3+1R   | 5.7+1R   | 7.0+1R   | 7.4+1R   | 8.9+1R   | 9.3+1R  | 10.8+1R |
|                                                                     | VSC @ 18"                  | q             | 1337    | 1252    | 1036     | 1037     | 1011     | 904      | 915      | 901     | 836     |
|                                                                     |                            | F             | 3.0+2R  | 3.5+2R  | 4.5+1R   | 4.9+1R   | 5.4+1R   | 6.6+1R   | 7.0+1R   | 7.5+1R  | 8.7+1R  |
|                                                                     | VSC @ 12"                  | q             | 1485    | 1338    | 1239     | 1169     | 1116     | 1075     | 1042     | 1015    | 993     |
|                                                                     |                            | F             | 2.7+2R  | 3.1+2R  | 3.6+1R   | 4.1+1R   | 4.6+1R   | 5.0+1R   | 5.5+1R   | 6.0+1R  | 6.5+1R  |
|                                                                     | VSC @ 8"                   | q             | 1671    | 1553    | 1420     | 1371     | 1294     | 1269     | 1218     | 1204    | 1167    |
|                                                                     |                            | F             | 2.3+2R  | 2.6+2R  | 3.0+1R   | 3.2+1R   | 3.6+1R   | 3.9+1R   | 4.3+1R   | 4.5+1R  | 5.0+1R  |
|                                                                     | VSC @ 6"                   | q             | 1829    | 1675    | 1572     | 1498     | 1443     | 1400     | 1366     | 1337    | 1314    |
|                                                                     |                            | F             | 2.1+2R  | 2.4+2R  | 2.6+1R   | 2.9+1R   | 3.1+1R   | 3.4+1R   | 3.6+1R   | 3.9+1R  | 4.1+1R  |
|                                                                     | VSC @ 4"                   | q             | 2092    | 1933    | 1827     | 1751     | 1694     | 1649     | 1614     | 1585    | 1478    |
|                                                                     |                            | F             | 1.9+2R  | 2.1+2R  | 2.3+1R   | 2.4+1R   | 2.6+1R   | 2.8+1R   | 2.9+1R   | 3.1+1R  | 3.3+1R  |

<sup>1</sup> Notes 1–6 of Table 19 apply to this table.

<sup>3</sup> See ICBO Report ER-3829 for additional details.

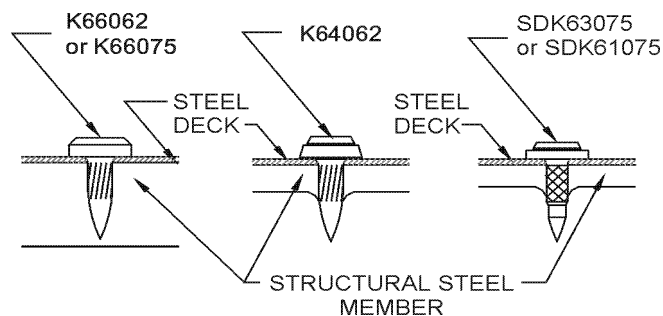
<sup>8</sup> See Table 3 for allowable shear capacities for SDK61075 fasteners parallel to deck flutes.

<sup>9</sup> See Table 3 for allowable tension loads for SDK61075 fasteners subjected to wind uplift forces.

FIGURE 7—HILTI FASTENER  
NAIL HEAD STANDOFF (NHS)

NOTE: NHS = 3/16" – 3/8"

FIGURE 8—PNEUTEK FASTENERS

TABLE 29—DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ ,  
FOR INVERTED AND "NORMAL" 1 5/16" VERCOR DECK WITH TEKS SCREWS<sup>1,2,3,4,5,6,7</sup>

| GAGE                                       | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft.-in.) |             |             |             |             |             |             |             |
|--------------------------------------------|----------------------------|----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                                            |                            | 4'-0"          | 5'-0"       | 6'-0"       | 7'-0"       | 8'-0"       | 9'-0"       | 10'-0"      |             |
| 36/4 (36/5) TEKS SCREW PATTERN AT SUPPORTS |                            |                |             |             |             |             |             |             |             |
| 26                                         | TEKS @ 24"                 | q              | 100         | 103         | 105         | 106         | 107         | 107         | 108         |
|                                            |                            | F              | 19.4+265.9R | 16.6+212.7R | 14.9+177.3R | 13.6+151.9R | 12.7+132.9R | 12.0+118.2R | 11.5+106.4R |
|                                            | TEKS @ 18"                 | q              | 139         | 141         | 143         | 144         | 145         | 146         | 146         |
|                                            |                            | F              | 15.8+265.9R | 13.9+212.7R | 12.6+177.3R | 11.7+151.9R | 11.1+132.9R | 10.6+118.2R | 10.2+106.4R |
|                                            | TEKS @ 12"                 | q              | 215         | 218         | 219         | 220         | 221         | 222         | 223         |
|                                            |                            | F              | 12.5+265.9R | 11.2+212.7R | 10.4+177.3R | 9.9+151.9R  | 9.5+132.9R  | 9.1+118.2R  | 8.9+106.4R  |
| 24                                         | TEKS @ 24"                 | q              | 147         | 147         | 147         | 147         | 147         | 147         | 147         |
|                                            |                            | F              | 13.9+178.9R | 12.2+143.1R | 11.0+119.2R | 10.2+102.2R | 9.6+89.4R   | 9.1+79.5R   | 8.8+71.5R   |
|                                            | TEKS @ 18"                 | q              | 197         | 196         | 196         | 196         | 196         | 196         | 196         |
|                                            |                            | F              | 11.6+178.9R | 10.3+143.1R | 9.5+119.2R  | 8.9+102.2R  | 8.4+89.4R   | 8.1+79.5R   | 7.8+71.5R   |
|                                            | TEKS @ 12"                 | q              | 296         | 296         | 296         | 296         | 296         | 296         | 296         |
|                                            |                            | F              | 9.4+178.9R  | 8.5+143.1R  | 8.0+119.2R  | 7.6+102.2R  | 7.2+89.4R   | 7.0+79.5R   | 6.8+71.5R   |
| 22                                         | TEKS @ 24"                 | q              | 201         | 197         | 194         | 192         | 190         | 189         | 188         |
|                                            |                            | F              | 10.6+130.1R | 9.5+104.1R  | 8.7+86.7R   | 8.1+74.4R   | 7.7+65.1R   | 7.3+57.8R   | 7.0+52.0R   |
|                                            | TEKS @ 18"                 | q              | 263         | 258         | 255         | 253         | 252         | 251         | 250         |
|                                            |                            | F              | 9.0+130.1R  | 8.2+104.1R  | 7.6+86.7R   | 7.1+74.4R   | 6.8+65.1R   | 6.5+57.8R   | 6.3+52.0R   |
|                                            | TEKS @ 12"                 | q              | 386         | 382         | 379         | 376         | 375         | 374         | 373         |
|                                            |                            | F              | 7.4+130.1R  | 6.8+104.1R  | 6.4+86.7R   | 6.1+74.4R   | 5.9+65.1R   | 5.7+57.8R   | 5.5+52.0R   |
| 20                                         | TEKS @ 24"                 | q              | 263         | 253         | 246         | 241         | 237         | 234         | 232         |
|                                            |                            | F              | 8.5+100.1R  | 7.7+80.1R   | 7.1+66.7R   | 6.7+57.2R   | 6.4+50.1R   | 6.1+44.5R   | 5.9+40.0R   |
|                                            | TEKS @ 18"                 | q              | 336         | 326         | 319         | 314         | 310         | 308         | 305         |
|                                            |                            | F              | 7.3+100.1R  | 6.7+80.1R   | 6.2+66.7R   | 5.9+57.2R   | 5.6+50.1R   | 5.4+44.5R   | 5.3+40.0R   |
|                                            | TEKS @ 12"                 | q              | 483         | 472         | 466         | 461         | 457         | 454         | 452         |
|                                            |                            | F              | 6.1+100.1R  | 5.7+80.1R   | 5.3+66.7R   | 5.1+57.2R   | 4.9+50.1R   | 4.8+44.5R   | 4.6+40.0R   |

See Page 54 for footnotes

(Continued)

**TABLE 29—DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR INVERTED AND "NORMAL" 1 5/16" VERCOR DECK WITH TEKS SCREWS-Continued**<sup>1,2,3,4,5,6,7</sup>

| GAGE                                       | SIDELAP<br>ATTACH-<br>MENT | SPAN (ft.-in.) |            |            |            |            |            |            |            |
|--------------------------------------------|----------------------------|----------------|------------|------------|------------|------------|------------|------------|------------|
|                                            |                            | 4'-0"          | 5'-0"      | 6'-0"      | 7'-0"      | 8'-0"      | 9'-0"      | 10'-0"     |            |
| 36/8 (36/9) TEKS SCREW PATTERN AT SUPPORTS |                            |                |            |            |            |            |            |            |            |
| 26                                         | TEKS @ 24"                 | q              | 118        | 117        | 116        | 115        | 115        | 115        | 114        |
|                                            |                            | F              | 17.6+33.4R | 15.6+26.7R | 14.2+22.3R | 13.2+19.1R | 12.4+16.7R | 11.9+14.9R | 11.4+13.4R |
|                                            | TEKS @ 18"                 | q              | 156        | 155        | 154        | 154        | 153        | 153        | 153        |
|                                            |                            | F              | 14.9+33.4R | 13.3+26.7R | 12.3+22.3R | 11.5+19.1R | 10.9+16.7R | 10.5+14.9R | 10.1+13.4R |
|                                            | TEKS @ 12"                 | q              | 233        | 231        | 231        | 230        | 230        | 229        | 229        |
|                                            |                            | F              | 12.1+33.4R | 11.0+26.7R | 10.3+22.3R | 9.8+19.1R  | 9.4+16.7R  | 9.1+14.9R  | 8.9+13.4R  |
| 24                                         | TEKS @ 24"                 | q              | 176        | 169        | 165        | 162        | 160        | 158        | 157        |
|                                            |                            | F              | 12.6+22.5R | 11.4+18.0R | 10.5+15.0R | 9.9+12.8R  | 9.4+11.2R  | 9.0+10.0R  | 8.7+9.0R   |
|                                            | TEKS @ 18"                 | q              | 226        | 219        | 215        | 212        | 210        | 208        | 206        |
|                                            |                            | F              | 10.9+22.5R | 9.9+18.0R  | 9.2+15.0R  | 8.7+12.8R  | 8.3+11.2R  | 8.0+10.0R  | 7.8+9.0R   |
|                                            | TEKS @ 12"                 | q              | 325        | 319        | 314        | 311        | 309        | 307        | 306        |
|                                            |                            | F              | 9.1+22.5R  | 8.3+18.0R  | 7.9+15.0R  | 7.5+12.8R  | 7.2+11.2R  | 7.0+10.0R  | 6.8+9.0R   |
| 22                                         | TEKS @ 24"                 | q              | 245        | 231        | 221        | 215        | 210        | 206        | 203        |
|                                            |                            | F              | 9.5+16.4R  | 8.8+13.1R  | 8.2+10.9R  | 7.8+9.3R   | 7.5+8.2R   | 7.2+7.3R   | 7.0+6.5R   |
|                                            | TEKS @ 18"                 | q              | 306        | 292        | 283        | 276        | 271        | 267        | 264        |
|                                            |                            | F              | 8.4+16.4R  | 7.8+13.1R  | 7.3+10.9R  | 7.0+9.3R   | 6.7+8.2R   | 6.4+7.3R   | 6.3+6.5R   |
|                                            | TEKS @ 12"                 | q              | 429        | 415        | 406        | 399        | 394        | 390        | 387        |
|                                            |                            | F              | 7.2+16.4R  | 6.7+13.1R  | 6.3+10.9R  | 6.0+9.3R   | 5.8+8.2R   | 5.7+7.3R   | 5.5+6.5R   |
| 20                                         | TEKS @ 24"                 | q              | 323        | 299        | 283        | 272        | 263        | 257        | 252        |
|                                            |                            | F              | 7.6+12.6R  | 7.1+10.1R  | 6.7+8.4R   | 6.4+7.2R   | 6.2+6.3R   | 6.0+5.6R   | 5.8+5.0R   |
|                                            | TEKS @ 18"                 | q              | 397        | 372        | 356        | 345        | 337        | 330        | 325        |
|                                            |                            | F              | 6.8+12.6R  | 6.4+10.1R  | 6.0+8.4R   | 5.8+7.2R   | 5.6+6.3R   | 5.4+5.6R   | 5.3+5.0R   |
|                                            | TEKS @ 12"                 | q              | 543        | 519        | 503        | 492        | 483        | 477        | 472        |
|                                            |                            | F              | 5.9+12.6R  | 5.5+10.1R  | 5.3+8.4R   | 5.0+7.2R   | 4.9+6.3R   | 4.8+5.6R   | 4.7+5.0R   |

<sup>1</sup> R is the vertical span ( $L_v$ ) of deck units divided by the length ( $L_s$ ) of the deck sheet:  $R = L_v/L_s$ .

<sup>2</sup> The spacing of TEKS Screws,  $a_s$ , to chords, struts and shear transfer elements, parallel to panel flutes, is equal to:  $a_s = 11,600t/q_s$ .  
Where:  $a_s$  = Center to center spacing of screws, in feet.

$t$  = Base metal thickness of deck sheet, in inches.

$q_s$  = Actual shear on diaphragm, in pounds per lineal foot.

<sup>3</sup> Screws for deck-to-deck seam fastening shall be No. 12-14 X 3/4" TEKS 1. Screws for deck to support fastening shall be one of the following:

| FASTENER DESCRIPTION   | SUPPORT THICKNESS |
|------------------------|-------------------|
| #12-14 X 3/4" TEKS 3   | 16 GAGE TO 3/16"  |
| #12-24 X 7/8" TEKS 4   | 1/8" TO 1/4"      |
| #12-24 X 1 1/4" TEKS 5 | 1/8" TO 1/2"      |

See ICBO ES Evaluation Report ER-3056 for additional details.

<sup>4</sup> The flexibility limitations shown in Table 7 may be used as a guide in lieu of rational analysis of the anticipated deflections.

<sup>5</sup> Deck support fastener patterns are as described in Figure 9.

<sup>6</sup> Eight or four screws used for Inverted 1 5/16" Vercor. Nine or five screws used for "Normal" 1 5/16" Vercor.

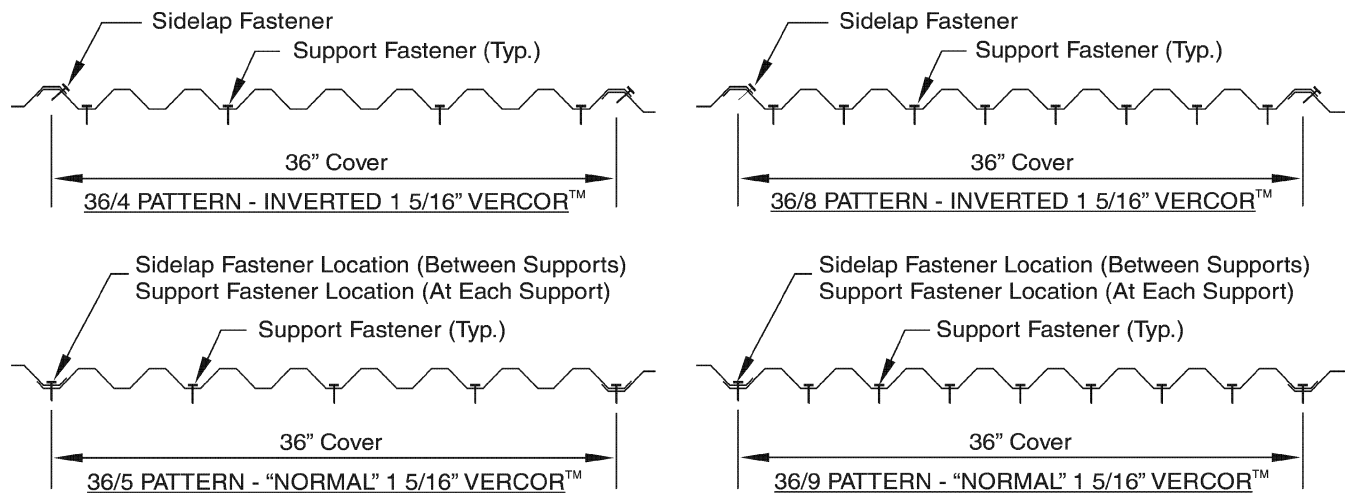
<sup>7</sup> Fasteners subjected to wind uplift (suction loads) shall be evaluated based on the ALLOWABLE TENSION LOAD shown in the chart below. The tension loads are the lesser value of the allowable pullover (deck pulling over the head of the screw) or pullout (screw pulling out of the support member) loads for a given combination of deck gage and support member thickness. The ALLOWABLE TENSION LOAD assumes supports have a minimum 33 ksi yield strength and 45 ksi tensile strength.

| ALLOWABLE TENSION LOAD (lb.) |                                      |              |              |             |               |                 |                        |
|------------------------------|--------------------------------------|--------------|--------------|-------------|---------------|-----------------|------------------------|
| DECK GAGE                    | SUPPORT THICKNESS [GAGE / "t" (IN.)] |              |              |             |               |                 |                        |
|                              | 16<br>0.0566                         | 14<br>0.0713 | 12<br>0.1042 | 10<br>0.124 | 1/8"<br>0.125 | 3/16"<br>0.1875 | 1/4" or ><br>0.25 or > |
| 26                           | 155                                  | 195          | 280          | 330         | 330           | 330             | 330                    |
| 24                           | 155                                  | 195          | 280          | 340         | 340           | 430             | 430                    |
| 22                           | 155                                  | 195          | 280          | 340         | 340           | 515             | 530                    |
| 20                           | 155                                  | 195          | 280          | 340         | 340           | 515             | 630                    |

Allowable loads in the shaded area to the left of the heavy line may be multiplied by 1.44 for supports with minimum 50 ksi yield strength and 65 ksi tensile strength.



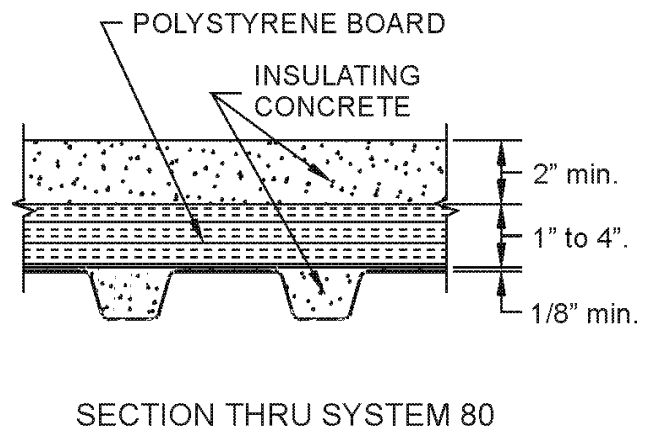
FIGURE 9—TEKS FASTENER PATTERNS FOR 1 5/16" VERCOR



**TABLE 30—DIAPHRAGM SHEAR VALUES,  $q$  (plf), AND FLEXIBILITY FACTORS,  $F$ , FOR SYSTEM 80® WITH GALVANIZED HSB™-30, HSB™-36, B-30 FORMLOK™, AND B-36 FORMLOK™ DECKS<sup>1,2,3,4,5,6</sup>**

| GAGE | SEAM ATTACHMENT |     | MAXIMUM CLEAR SPAN |       |        |
|------|-----------------|-----|--------------------|-------|--------|
|      |                 |     | 8'-0"              | 9'-0" | 10'-0" |
| 22   | BP @ 24"        | $q$ | 880                |       |        |
|      |                 | $F$ | 13.0               |       |        |
|      | TSW @ 24"       | $q$ | 1050               |       |        |
|      |                 | $F$ | 8.0                |       |        |
|      | TSW @ 16"       | $q$ | 1160               |       |        |
|      |                 | $F$ | 4.5                |       |        |
| 20   | BP@ 24"         | $q$ | 970                | 890   | 820    |
|      |                 | $F$ | 13.0               | 13.0  | 13.0   |
|      | TSW @ 24"       | $q$ | 1290               | 1190  | 1090   |
|      |                 | $F$ | 8.0                | 8.0   | 8.0    |
|      | TSW @ 16"       | $q$ | 1430               | 1340  | 1260   |
|      |                 | $F$ | 4.5                | 4.5   | 4.5    |
| 18   | BP@ 24"         | $q$ | 1030               | 990   | 960    |
|      |                 | $F$ | 13.0               | 13.0  | 13.0   |
|      | TSW @ 24"       | $q$ | 1370               | 1320  | 1280   |
|      |                 | $F$ | 8.0                | 8.0   | 8.0    |
|      | TSW @ 16"       | $q$ | 1520               | 1490  | 1480   |
|      |                 | $F$ | 4.5                | 4.5   | 4.5    |

FIGURE 10—SECTION OF SYSTEM 80 WITH ZONOLITE OR PERLITE INSULATING CONCRETE



- <sup>1</sup> System 80 is comprised of deck, ShearTranz, insulating concrete, and polystyrene board constructed in accordance with Figures 8 and 9.
- <sup>2</sup> Attach HSB-30 and B-30 FORMLOK to supports with 6 arc spot welds per sheet. Attach HSB-36 and B-36 FORMLOK to supports with 7 arc spot welds per sheet.
- <sup>3</sup> These values may be used for systems without the insulation board if the net thickness of fill over the top of deck is 2 1/4 inches.
- <sup>4</sup> If venting is required, vent tabs may be provided in the interior low flutes of the deck, or HSB deck may be provided with VENTLOK.
- <sup>5</sup> BP = Button punch; TSW = Top seam weld.
- <sup>6</sup> Insulating concrete shall be Zonolite or Perlite insulating concrete.

**TABLE 31—ALLOWABLE DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR GALVANIZED TYPE 1 5/16" VERCOR DECK WITH INSULATING CONCRETE FILL** <sup>1, 2, 3, 4, 5, 6</sup>

| DECK<br>GAGE      | WELD<br>PATTERN |     | SPAN (ft.-In.) |       |       |       |       |       |       |       |       |       |       |       |        |      |
|-------------------|-----------------|-----|----------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|------|
|                   |                 |     | 4'-0"          | 4'-6" | 5'-0" | 5'-6" | 6'-0" | 6'-3" | 6'-8" | 7'-0" | 7'-6" | 8'-0" | 8'-4" | 9'-0" | 10'-0" |      |
| MESH REQUIRED     |                 |     |                |       |       |       |       |       |       |       |       |       |       |       |        |      |
| 26                | 2-2             | q   | 497            | 480   | 467   | 456   | 446   | 442   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.75           | 1.82  | 1.88  | 1.93  | 1.97  | 1.99  |       |       |       |       |       |       |        |      |
|                   | 3-2             | q   | 578            | 555   | 537   | 522   | 510   | 504   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.69           | 1.76  | 1.82  | 1.88  | 1.93  | 1.95  |       |       |       |       |       |       |        |      |
|                   | 5-2             | q   | 691            | 661   | 636   | 616   | 600   | 592   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.69           | 1.76  | 1.82  | 1.88  | 1.93  | 1.95  |       |       |       |       |       |       |        |      |
|                   | 5-3             | q   | 1019           | 979   | 947   | 920   | 897   | 889   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.67           | 1.74  | 1.81  | 1.86  | 1.91  | 1.94  |       |       |       |       |       |       |        |      |
|                   | 24              | 2-2 | q              | 552   | 552   | 552   | 530   | 512   | 505   | 493   | 485   | 473   | 463   | 458   |        |      |
|                   |                 |     | F              | 1.45  | 1.45  | 1.45  | 1.51  | 1.57  | 1.60  | 1.64  | 1.67  | 1.71  | 1.75  | 1.77  |        |      |
| 3-2               |                 | q   | 653            | 653   | 653   | 625   | 601   | 591   | 575   | 564   | 550   | 536   | 528   |       |        |      |
|                   |                 | F   | 1.40           | 1.40  | 1.40  | 1.46  | 1.52  | 1.54  | 1.59  | 1.62  | 1.66  | 1.70  | 1.73  |       |        |      |
| 5-2               |                 | q   | 804            | 804   | 804   | 765   | 733   | 720   | 698   | 683   | 663   | 645   | 635   |       |        |      |
|                   |                 | F   | 1.40           | 1.40  | 1.40  | 1.46  | 1.52  | 1.54  | 1.59  | 1.62  | 1.66  | 1.70  | 1.73  |       |        |      |
| 5-3               |                 | q   | 1142           | 1142  | 1142  | 1093  | 1052  | 1035  | 1008  | 989   | 963   | 941   | 928   |       |        |      |
|                   |                 | F   | 1.39           | 1.39  | 1.39  | 1.45  | 1.51  | 1.54  | 1.58  | 1.61  | 1.66  | 1.70  | 1.72  |       |        |      |
| 22                |                 | 2-2 | q              | 604   | 604   | 604   | 604   | 604   | 592   | 573   | 560   | 543   | 528   | 518   | 502    |      |
|                   |                 |     | F              | 1.26  | 1.26  | 1.26  | 1.26  | 1.26  | 1.29  | 1.33  | 1.37  | 1.41  | 1.45  | 1.48  | 1.53   |      |
|                   | 3-2             | q   | 718            | 718   | 718   | 718   | 718   | 702   | 678   | 661   | 639   | 619   | 607   | 586   |        |      |
|                   |                 | F   | 1.22           | 1.22  | 1.22  | 1.22  | 1.22  | 1.25  | 1.29  | 1.32  | 1.37  | 1.41  | 1.44  | 1.49  |        |      |
|                   | 5-2             | q   | 900            | 900   | 900   | 900   | 900   | 878   | 845   | 822   | 791   | 765   | 748   | 730   |        |      |
|                   |                 | F   | 1.22           | 1.22  | 1.22  | 1.22  | 1.22  | 1.25  | 1.29  | 1.32  | 1.37  | 1.41  | 1.44  | 1.49  |        |      |
|                   | 5-3             | q   | 1241           | 1241  | 1241  | 1241  | 1241  | 1215  | 1175  | 1146  | 1108  | 1075  | 1055  | 1020  |        |      |
|                   |                 | F   | 1.23           | 1.23  | 1.23  | 1.23  | 1.23  | 1.26  | 1.30  | 1.33  | 1.38  | 1.42  | 1.45  | 1.50  |        |      |
|                   | 20              | 2-2 | q              | 642   | 642   | 642   | 642   | 642   | 642   | 642   | 619   | 598   | 586   | 563   | 536    |      |
|                   |                 |     | F              | 1.16  | 1.16  | 1.16  | 1.16  | 1.16  | 1.16  | 1.16  | 1.16  | 1.20  | 1.25  | 1.27  | 1.32   | 1.39 |
| 3-2               |                 | q   | 763            | 763   | 763   | 763   | 763   | 763   | 763   | 763   | 733   | 707   | 691   | 663   | 628    |      |
|                   |                 | F   | 1.13           | 1.13  | 1.13  | 1.13  | 1.13  | 1.13  | 1.13  | 1.13  | 1.17  | 1.22  | 1.24  | 1.29  | 1.37   |      |
| 5-2               |                 | q   | 965            | 965   | 965   | 965   | 965   | 965   | 965   | 965   | 924   | 888   | 867   | 828   | 780    |      |
|                   |                 | F   | 1.13           | 1.13  | 1.13  | 1.13  | 1.13  | 1.13  | 1.13  | 1.13  | 1.17  | 1.22  | 1.24  | 1.29  | 1.37   |      |
| 5-3               |                 | q   | 1307           | 1307  | 1307  | 1307  | 1307  | 1307  | 1307  | 1307  | 1257  | 1214  | 1188  | 1141  | 1085   |      |
|                   |                 | F   | 1.15           | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.19  | 1.24  | 1.26  | 1.32  | 1.39   |      |
| MESH NOT REQUIRED |                 |     |                |       |       |       |       |       |       |       |       |       |       |       |        |      |
| 26                |                 | 2-2 | q              | 397   | 381   | 368   | 357   | 348   | 344   |       |       |       |       |       |        |      |
|                   | F               |     | 1.65           | 1.72  | 1.78  | 1.83  | 1.88  | 1.90  |       |       |       |       |       |       |        |      |
|                   | 3-2             | q   | 452            | 426   | 411   | 397   | 385   | 379   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.34           | 1.41  | 1.48  | 1.54  | 1.60  | 1.62  |       |       |       |       |       |       |        |      |
|                   | 5-2             | q   | 562            | 533   | 507   | 487   | 470   | 463   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.34           | 1.41  | 1.48  | 1.54  | 1.60  | 1.62  |       |       |       |       |       |       |        |      |
|                   | 5-3             | q   | 866            | 826   | 794   | 768   | 746   | 736   |       |       |       |       |       |       |        |      |
|                   |                 | F   | 1.58           | 1.66  | 1.73  | 1.78  | 1.84  | 1.86  |       |       |       |       |       |       |        |      |
|                   | 24              | 2-2 | q              | 492   | 492   | 492   | 471   | 453   | 446   | 434   | 426   | 415   | 405   | 400   |        |      |
|                   |                 |     | F              | 1.39  | 1.39  | 1.39  | 1.45  | 1.51  | 1.54  | 1.58  | 1.61  | 1.65  | 1.69  | 1.72  |        |      |
| 3-2               |                 | q   | 569            | 569   | 569   | 541   | 518   | 508   | 492   | 481   | 467   | 454   | 447   |       |        |      |
|                   |                 | F   | 1.09           | 1.09  | 1.09  | 1.15  | 1.21  | 1.24  | 1.28  | 1.31  | 1.36  | 1.40  | 1.42  |       |        |      |
| 5-2               |                 | q   | 719            | 719   | 719   | 680   | 649   | 635   | 613   | 598   | 578   | 560   | 550   |       |        |      |
|                   |                 | F   | 1.09           | 1.09  | 1.09  | 1.15  | 1.21  | 1.24  | 1.28  | 1.31  | 1.36  | 1.40  | 1.42  |       |        |      |
| 5-3               |                 | q   | 1063           | 1063  | 1063  | 1014  | 973   | 958   | 929   | 910   | 885   | 862   | 849   |       |        |      |
|                   |                 | F   | 1.35           | 1.35  | 1.35  | 1.41  | 1.47  | 1.50  | 1.54  | 1.57  | 1.62  | 1.66  | 1.69  |       |        |      |
| 22                |                 | 2-2 | q              | 573   | 573   | 573   | 573   | 573   | 560   | 542   | 529   | 511   | 497   | 487   | 471    |      |
|                   |                 |     | F              | 1.24  | 1.24  | 1.24  | 1.24  | 1.24  | 1.26  | 1.31  | 1.34  | 1.38  | 1.43  | 1.45  | 1.50   |      |
|                   | 3-2             | q   | 662            | 662   | 662   | 662   | 662   | 647   | 623   | 606   | 584   | 564   | 552   | 532   |        |      |
|                   |                 | F   | 0.96           | 0.96  | 0.96  | 0.96  | 0.96  | 0.98  | 1.02  | 1.05  | 1.10  | 1.14  | 1.16  | 1.22  |        |      |
|                   | 5-2             | q   | 845            | 845   | 845   | 845   | 845   | 823   | 790   | 768   | 737   | 710   | 694   | 665   |        |      |
|                   |                 | F   | 0.96           | 0.96  | 0.96  | 0.96  | 0.96  | 0.98  | 1.02  | 1.05  | 1.10  | 1.14  | 1.16  | 1.22  |        |      |
|                   | 5-3             | q   | 1208           | 1208  | 1208  | 1208  | 1208  | 1181  | 1141  | 1112  | 1075  | 1041  | 1022  | 986   |        |      |
|                   |                 | F   | 1.22           | 1.22  | 1.22  | 1.22  | 1.22  | 1.24  | 1.29  | 1.32  | 1.37  | 1.41  | 1.44  | 1.49  |        |      |
|                   | 20              | 2-2 | q              | 628   | 628   | 628   | 628   | 628   | 628   | 628   | 628   | 604   | 584   | 571   | 549    | 522  |
|                   |                 |     | F              | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.20  | 1.24  | 1.26  | 1.32   | 1.38 |
| 3-2               |                 | q   | 724            | 724   | 724   | 724   | 724   | 724   | 724   | 724   | 694   | 668   | 652   | 624   | 589    |      |
|                   |                 | F   | 0.89           | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.93  | 0.97  | 0.99  | 1.04  | 1.11   |      |
| 5-2               |                 | q   | 926            | 926   | 926   | 926   | 926   | 926   | 926   | 926   | 885   | 849   | 826   | 789   | 742    |      |
|                   |                 | F   | 0.89           | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.89  | 0.93  | 0.97  | 0.99  | 1.04  | 1.11   |      |
| 5-3               |                 | q   | 1297           | 1297  | 1297  | 1297  | 1297  | 1297  | 1297  | 1297  | 1247  | 1203  | 1177  | 1130  | 1072   |      |
|                   |                 | F   | 1.15           | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.15  | 1.20  | 1.24  | 1.27  | 1.32  | 1.39   |      |

<sup>1</sup> The values are based on decks filled to a minimum 2-inch depth over the top flange of light weight insulating concrete, conforming to the specifications in this report.

<sup>2</sup> Welded wire mesh reinforcement consists of 2-inch hexagonal mesh woven from No. 19 gage galvanized wire with additional longitudinal No. 16 gage galvanized wire spaced 3½ inches on center. Mesh is placed at the approximate center of concrete fill.

<sup>3</sup> Continuous No. 3 bars shall be placed at exterior boundaries of diaphragm perpendicular to corrugations where anchor bar supports are specified.

- 4 The first digit of the weld pattern indicates type of attachment at exterior supports; the second digit indicates type of attachment at interior supports; the type of deck attachment is as described in Table 32.
- 5 Attachments to shear transfer elements parallel to deck corrugations: Fastener spacing to chords, struts, or other shear transfer framing members parallel to the deck flutes shall be such as to limit the amount of shear transfer to 800 pounds per fastener.
- 6 Attachments at interior lines of shear transfer perpendicular to deck corrugations: The shear transfer from a diaphragm to interior chord or strut lines perpendicular to deck corrugations shall not exceed the shear values indicated in table above using connections at the line of shear transfer similar to those used for the exterior support connections. Two lines of such exterior connections may be used to develop the total shear transfer.

**TABLE 32—DESCRIPTION OF DECK ATTACHMENT FOR 1 5/16" VERCOR  
DECKS WITH INSULATING CONCRETE FILL SHOWN IN TABLE 31<sup>1,2</sup>**

| CONNECTION TYPE | DESCRIPTION OF 36-INCH-WIDE DECK END CONNECTIONS TO SUPPORTING MEMBERS                                                               |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------------|
| 2               | One fastener <sup>1</sup> at each lap and three intermediate fasteners                                                               |
| 3               | One fastener <sup>1</sup> at each lap and fastener in each remaining corrugation                                                     |
| 5               | One anchor bar <sup>2</sup> support at each lap and two intermediate anchor bar supports and fasteners in each remaining corrugation |

<sup>1</sup> Fasteners consist of No. 14 gage steel washers attached by plug welds to supporting members through a 5/16-inch-diameter hole in the washer.

<sup>2</sup> Anchor bar supports consist of No. 16 gage steel, ear-type washers 2 3/4 inches high. The anchor bar support is connected to the deck and supporting member with a plug weld through a 7/16-inch-diameter hole. The anchor bar support is designed to support a No. 3 reinforcing bar running transverse to the direction of the corrugation.

**TABLE 33—ALLOWABLE DIAPHRAGM SHEAR VALUES, q (plf), AND FLEXIBILITY FACTORS, F, FOR 30 AND 36  
INCH WIDE GALVANIZED B DECK WITH 2-INCH-DEEP LIGHT WEIGHT INSULATING CONCRETE FILL<sup>1,2,3,6,7,8</sup>**

| GAGE | FACTOR | NUMBER OF PUDDLE WELDS PER PANEL END AND AT SUPPORTS <sup>4,5</sup> |                             |
|------|--------|---------------------------------------------------------------------|-----------------------------|
|      |        | 4 OR 5                                                              | 6 OR 7                      |
| 16   | q      | $\frac{5382}{L} + 274$                                              | $\frac{6791}{L} + 275$      |
|      | F      | $\frac{1277}{5382/L + 274}$                                         | $\frac{1283}{6791/L + 275}$ |
| 18   | q      | $\frac{4160}{L} + 299$                                              | $\frac{5314}{L} + 302$      |
|      | F      | $\frac{1483}{4160/L + 299}$                                         | $\frac{1419}{5314/L + 302}$ |
| 20   | q      | $\frac{2799}{L} + 325$                                              | $\frac{3702}{L} + 334$      |
|      | F      | $\frac{1533}{2799/L + 325}$                                         | $\frac{1577}{3702/L + 334}$ |
| 22   | q      | $\frac{2040}{L} + 333$                                              | $\frac{2799}{L} + 348$      |
|      | F      | $\frac{1570}{2040/L + 333}$                                         | $\frac{1645}{2799/L + 348}$ |

<sup>1</sup> "B" Deck – PLB, & HSB, and PLB & B Formlok

<sup>2</sup> Sidelap attachment: Button punch sidelaps of 30" and 36" HSB and B Formlok decks at 36 inches on center. Connect sidelaps of 30" and 36" PLB and PLB Formlok decks at 36 inches on center with Verco sidelap connections (VSC).

<sup>3</sup> L = vertical load span of deck unit in feet.

<sup>4</sup> Minimum span "L" to compute diaphragm shears shall be 6'-0" for all gages.

<sup>5</sup> Four and six puddle welds are used with 30" wide decks. Five and seven puddle welds are used with 36" wide decks.

<sup>6</sup> Fill shall be a minimum of 2-inch depth over the top flange.

<sup>7</sup> The light weight insulating concrete must conform to the specifications set forth in Part 2.1.3 1 to 4 of the report.

<sup>8</sup> The flexibility limitations shown in Table 7 may be used in lieu of a rational analysis of the anticipated deflections.