

DIAPHRAGM DESIGN MANUAL

THIRD EDITION

Appendix VIII Addendum August 2013

HILTI PIN X-HSN 24

Authored By

Dr. Larry Luttrell, P.E.

Revised and Adapted For

The ASD and LRFD methods

**According to Table D5 of the 2007 Edition of the North American
Specification for the Design of Cold-Formed Steel Structural Members**

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USER INSTRUCTION

August 2013

Dear Specifier,

The SDI DDM03 is updated with this Addenda with Hilti X-HSN 24 fastener data.

The following steps can be followed:

- Replace pages 4-9 and 4-14 in Section IV of DDM03 with pages AVIII-5 and AVIII-6 of this Addenda
- Replace Tables on pages AIV-9, AIV-10 and AIV-13 of DDM03 with the ones on the corresponding pages AVIII-8, AVIII-9 and AVIII-10 in this Addenda;
- Replace Tables on page AV-4 of DDM03 with the ones on the corresponding page AVIII-13 in this Addenda;
- Replace diaphragm load tables on pages AV-49 to AV-52, AV-64, AV-92 to AV-94, and AV-135 to AV-138 of DDM03 with the corresponding diaphragm load tables from this Addenda (pages AVIII-14 to AVIII-25)

Thank you for updating your DDM03,

Steel Deck Institute

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$$\left\{ S_f = \frac{71.9}{1000\sqrt{t}} \right\}, \frac{mm}{kN} \quad (\text{Eq. 4.6-2})$$

where t = base sheet metal thickness, *in.* {*mm*}

Buildex BX-12:

$$Q_f = 59.0t (1-5t), \text{ kip}$$

$$\left\{ Q_f = 10.33t \left(1 - \frac{t}{5.08} \right) \right\}, \text{ kN} \quad (\text{Eq. 4.6-3})$$

where t = base sheet metal thickness, *in.* {*mm*}

and

$$S_f = \frac{2.5}{1000\sqrt{t}}, \frac{in.}{kip}$$

$$\left\{ S_f = \frac{71.9}{1000\sqrt{t}} \right\}, \frac{mm}{kN} \quad (\text{Eq. 4.6-4})$$

where t = base sheet metal thickness, *in.* {*mm*}

Hilti ENP2 and ENPH2

[Applicable for 1/4 *in.* {6 *mm*} and thicker support steel]

$$Q_f = 61.1t (1-4t), \text{ kip}$$

$$\left\{ Q_f = 10.7t \left(1 - \frac{t}{6.35} \right) \right\}, \text{ kN} \quad (\text{Eq. 4.6-5})$$

where t = base sheet metal thickness, *in.* {*mm*}

and

$$S_f = \frac{1.25}{1000\sqrt{t}}, \frac{in.}{kip}$$

$$\left\{ S_f = \frac{36.0}{1000\sqrt{t}} \right\}, \frac{mm}{kN} \quad (\text{Eq. 4.6-6})$$

where t = base sheet metal thickness, *in.* {*mm*}

Hilti ENP2K, X-EDN19, X-EDNK22 or X-HSN 24

[Applicable for 1/8 *in.* {3 *mm*} through 3/8 *in.* {10 *mm*} support steel]

$$Q_f = 52.0t (1-t), \text{ kip}$$

$$\left\{ Q_f = 9.11t \left(1 - \frac{t}{25.4} \right) \right\}, \text{ kN} \quad (\text{Eq. 4.6-7})$$

where t = base sheet metal thickness, *in.* {*mm*}

and

$$S_f = \frac{1.25}{1000\sqrt{t}}, \frac{in.}{kip}$$

$$\left\{ S_f = \frac{36.0}{1000\sqrt{t}} \right\}, \frac{mm}{kN} \quad (\text{Eq. 4.6-8})$$

4.9.3 POWER DRIVEN FASTENERS

Provisions for power driven fasteners have been developed by the fastener manufacturers.

Buildex BX-12 / BX-14

The general equation for nominal resistance of these pins in tension is

$$T_{nov} = 1.5 t d_w F_u$$

where t is the thickness of the deck sheet in contact with fastener head, in.

d_w is the lesser of the actual diameter of the fastener washer (0.562) or 1/2 in.

F_u is the ultimate strength of the deck sheet, ksi

Hilti ENP2 / ENPH2 / ENP2K

The general equation for these pins in tension is

$$T_{nov} = 1.7 t d_w F_u$$

where t is the thickness of the deck sheet, in.

d_w is the lesser of the actual diameter of the fastener washer (0.591) or 1/2 in.

F_u is the ultimate strength of the deck sheet, ksi

Hilti X-EDN19 / X-EDNK22 / X-HSN 24

The general equation for these pins in tension is

$$T_{nov} = 1.7 t d_w F_u$$

where t is the thickness of the deck sheet, in.

d_w is the lesser of the actual diameter of the fastener washer (0.474) or 1/2 in.

F_u is the ultimate strength of the deck sheet, ksi

Pneutek SDK61-, SDK63-, K64-, and K66- series

The general equation for nominal resistance of these pins in tension is

$$T_{nov} = 32.2 D_h t^2 F_u$$

where D_h is the diameter of the head of the pin, in.

t is the thickness of the deck sheet, in.

F_u is the ultimate strength of the deck sheet, ksi

4.9.4 RESISTANCE FACTORS / SAFETY FACTORS

The tension strengths from Section 4.9 must be modified by resistance factors (ϕ factors) per the "Load and Resistance Factor Design" (LRFD) or by safety factors (Ω factors) per the "Allowable Stress Design" (ASD).

The resistance factor for welded construction subject to tension is $\phi_u = 0.6$ and the resistance factor for screws or power-driven fasteners subject to tension is $\phi_u = 0.5$.

The safety factor for welded construction subject to tension is $\Omega_u = 2.5$ and for screws or power-driven fasteners subject to tension is $\Omega_u = 3.0$.

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Table IV - TYPICAL FASTENER VALUES - NOMINAL SHEAR STRENGTH (Q_f & Q_s) & FLEXIBILITY (S_f & S_s)

| SUPPORT FASTENER NOMINAL SHEAR STRENGTH | | | | | | | |
|---|---|------|------|------|------|------|------|
| TYPE OF SUPPORT FASTENER | Q _f , lbf / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 5/8" puddle weld or equivalent | | | | 1739 | 2088 | 2710 | 3346 |
| 3/4" puddle weld or equivalent | | | | 2104 | 2531 | 3297 | 4086 |
| 16 gauge weld washer with 3/8" hole — E70XX | 1199 | 1552 | 2371 | | | | |
| Buildex, ElcoTextron, Hilti or Simpson Strong-Tie #12 or #14 Srews | 652 | 859 | 1325 | 1016 | 1233 | 1633 | 2060 |
| Buildex BX-12 | 594 | 769 | 1147 | 1484 | 1734 | 2134 | 2473 |
| Buildex BX-14 | 629 | 814 | 1215 | 1572 | 1837 | 2260 | 2620 |
| Pneutek SDK61-series (0.113" to 0.155" support steel) | 642 | 807 | 1173 | 1527 | 1828 | 2360 | 2896 |
| Pneutek SDK63-series (0.155" to 0.25" support steel) | 725 | 912 | 1325 | 1711 | 1973 | 2403 | 2812 |
| Pneutek K64-series (0.187" to 0.312" support steel) | 729 | 916 | 1332 | 1699 | 2209 | 2985 | 3686 |
| Pneutek K66-series (0.281" & greater support steel) | 621 | 780 | 1134 | 1814 | 2251 | 3101 | 4076 |
| Hilti X-ENP-19L15 (0.25" min. support steel) | 822 | 984 | 1306 | 1603 | 1933 | 2529 | 3149 |
| Hilti ENP2 or ENPH2 (0.25" minimum support steel) | 856 | 1015 | 1321 | 1590 | 1874 | 2347 | 2780 |
| Hilti ENP2K, X-EDN19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel) | 763 | 914 | 1213 | 1489 | 1795 | 2348 | 2924 |

| SUPPORT FASTENER FLEXIBILITY | | | | | | | |
|---|---|--------|--------|--------|--------|--------|--------|
| TYPE OF SUPPORT FASTENER | S _f , in./Kip / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 5/8" puddle weld or equivalent | | | | 0.0067 | 0.0061 | 0.0053 | 0.0047 |
| 3/4" puddle weld or equivalent | | | | 0.0067 | 0.0061 | 0.0053 | 0.0047 |
| 16 gauge weld washer with 3/8" hole — E70XX | 0.0094 | 0.0086 | 0.0074 | | | | |
| Buildex, ElcoTextron, Hilti or Simpson Strong-Tie #12 or #14 Srews | 0.0107 | 0.0097 | 0.0084 | 0.0076 | 0.0069 | 0.0060 | 0.0053 |
| Buildex BX-12 | 0.0205 | 0.0187 | 0.0162 | 0.0146 | 0.0132 | 0.0115 | 0.0102 |
| Buildex BX-14 | 0.0205 | 0.0187 | 0.0162 | 0.0146 | 0.0132 | 0.0115 | 0.0102 |
| Pneutek SDK61-series (0.113" to 0.155" support steel) | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| Pneutek SDK63-series (0.155" to 0.25" support steel) | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| Pneutek K64-series (0.187" to 0.312" support steel) | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| Pneutek K66-series (0.281" & greater support steel) | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| Hilti X-ENP-19L15 (0.25" min. support steel) | 0.0061 | 0.0056 | 0.0049 | 0.0044 | 0.0040 | 0.0034 | 0.0031 |
| Hilti ENP2 or ENPH2 (0.25" minimum support steel) | 0.0102 | 0.0093 | 0.0081 | 0.0073 | 0.0066 | 0.0057 | 0.0051 |
| Hilti ENP2K, X-EDN19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel) | 0.0102 | 0.0093 | 0.0081 | 0.0073 | 0.0066 | 0.0057 | 0.0051 |

| SIDE-LAP FASTENER NOMINAL SHEAR STRENGTH | | | | | | | |
|---|---|-----|-----|------|------|------|------|
| TYPE OF SIDE-LAP FASTENER | Q _s , lbf / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 5/8" puddle weld or 1.5" long fillet weld | | | | 1304 | 1566 | 2033 | 2510 |
| #8 screws | 280 | 337 | 449 | 555 | 673 | 891 | 1124 |
| #10 screws | 320 | 384 | 513 | 633 | 769 | 1018 | 1284 |
| #12 screws | 362 | 435 | 580 | 716 | 869 | 1151 | 1452 |
| #14 screws | 424 | 510 | 681 | 840 | 1020 | 1350 | 1703 |

| SIDE-LAP FASTENER FLEXIBILITY | | | | | | | |
|---|--|--------|--------|--------|--------|--------|--------|
| TYPE OF SIDE-LAP FASTENER | S _s , in/Kip / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 5/8" puddle weld or 1.5" long fillet weld | | | | 0.0073 | 0.0066 | 0.0057 | 0.0051 |
| #8 screws | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| #10 screws | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| #12 screws | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |
| #14 screws | 0.0246 | 0.0224 | 0.0194 | 0.0175 | 0.0159 | 0.0138 | 0.0123 |

Table IV-M - TYPICAL FASTENER VALUES - NOMINAL SHEAR STRENGTH (Q_f & Q_s) & FLEXIBILITY (S_f & S_s)

| SUPPORT FASTENER NOMINAL SHEAR STRENGTH | | | | | | | |
|--|--|------|-------|------|-------|-------|-------|
| TYPE OF SUPPORT FASTENER | Q _f , kN / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 16 mm puddle weld or equivalent | | | | 7.80 | 9.27 | 12.11 | 14.83 |
| 19 mm puddle weld or equivalent | | | | 9.33 | 11.11 | 14.57 | 17.90 |
| 1.5 mm weld washer with 10 mm hole — E70XX | 5.50 | 6.96 | 10.55 | | | | |
| Buildex, ElcoTextron, Hilti or Simpson Strong-Tie #12 or #14 Srews | 2.92 | 3.76 | 5.79 | 4.56 | 5.48 | 7.30 | 9.13 |
| Buildex BX-12 | 2.66 | 3.37 | 5.02 | 6.60 | 7.65 | 9.47 | 10.92 |
| Buildex BX-14 | 2.80 | 3.56 | 5.30 | 6.97 | 8.07 | 9.99 | 11.52 |
| Pneutek SDK61-series (3 mm to 4 mm support steel) | 2.87 | 3.54 | 5.13 | 6.81 | 8.07 | 10.49 | 12.77 |
| Pneutek SDK63-series (4 mm to 6 mm support steel) | 3.24 | 4.00 | 5.80 | 7.63 | 8.72 | 10.68 | 12.42 |
| Pneutek K64-series (5 mm to 8 mm support steel) | 3.26 | 4.02 | 5.83 | 7.59 | 9.73 | 13.27 | 16.26 |
| Pneutek K66-series (7 mm & greater support steel) | 2.77 | 3.42 | 4.96 | 8.07 | 9.89 | 13.73 | 17.85 |
| Hilti X-ENP-19L15 (6mm min. support steel) | 3.69 | 4.36 | 5.78 | 7.18 | 8.57 | 11.29 | 13.93 |
| Hilti ENP2 or ENPH2 (6 mm minimum support steel) | 3.82 | 4.47 | 5.81 | 7.08 | 8.27 | 10.41 | 12.26 |
| Hilti ENP2K, X-EDN19, X-EDNK22 or X-HSN 24 (3 mm to 10 mm support steel) | 3.41 | 4.03 | 5.34 | 6.63 | 7.91 | 10.42 | 12.86 |

| SUPPORT FASTENER FLEXIBILITY | | | | | | | |
|---|---|--------|--------|--------|--------|--------|--------|
| TYPE OF SUPPORT FASTENER | S _f , mm/kN / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 16 mm puddle weld or equivalent | | | | 0.0382 | 0.0349 | 0.0302 | 0.0270 |
| 19 mm puddle weld or equivalent | | | | 0.0382 | 0.0349 | 0.0302 | 0.0270 |
| 1.5 mm weld washer with 10 mm hole — E70XX | 0.0537 | 0.0493 | 0.0427 | | | | |
| Buildex, ElcoTextron, Hilti or Simpson Strong-Tie #12 or #14 Srews | 0.0607 | 0.0558 | 0.0483 | 0.0432 | 0.0394 | 0.0341 | 0.0305 |
| Buildex BX-12 | 0.1166 | 0.1072 | 0.0928 | 0.0830 | 0.0758 | 0.0656 | 0.0587 |
| Buildex BX-14 | 0.1166 | 0.1072 | 0.0928 | 0.0830 | 0.0758 | 0.0656 | 0.0587 |
| Pneutek SDK61-series (3 mm to 4 mm support steel) | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| Pneutek SDK63-series (4 mm to 6 mm support steel) | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| Pneutek K64-series (5 mm to 8 mm support steel) | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| Pneutek K66-series (7 mm & greater support steel) | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| Hilti X-ENP-19L15 (6mm min. support steel) | 0.0350 | 0.0322 | 0.0279 | 0.0249 | 0.0227 | 0.0197 | 0.0176 |
| Hilti ENP2 or ENPH2 (6 mm minimum support steel) | 0.0584 | 0.0537 | 0.0465 | 0.0416 | 0.0379 | 0.0329 | 0.0294 |
| Hilti ENP2K, X-EDN19, X-EDNK22 or X-HSN 24 (3 mm to 10 mm. support steel) | 0.0584 | 0.0537 | 0.0465 | 0.0416 | 0.0379 | 0.0329 | 0.0294 |

| SIDE-LAP FASTENER NOMINAL SHEAR STRENGTH | | | | | | | |
|--|--|------|------|------|------|------|------|
| TYPE OF SIDE-LAP FASTENER | Q _s , kN / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 16 mm puddle weld or 38 mm fillet weld | | | | 5.85 | 6.95 | 9.08 | 11.1 |
| #8 screws | 1.25 | 1.48 | 1.97 | 2.47 | 2.96 | 3.95 | 4.94 |
| #10 screws | 1.43 | 1.69 | 2.26 | 2.82 | 3.38 | 4.51 | 5.64 |
| #12 screws | 1.62 | 1.91 | 2.55 | 3.19 | 3.83 | 5.10 | 6.38 |
| #14 screws | 1.90 | 2.24 | 2.99 | 3.74 | 4.49 | 5.99 | 7.48 |

| SIDE-LAP FASTENER FLEXIBILITY | | | | | | | |
|--|---|--------|--------|--------|--------|--------|--------|
| TYPE OF SIDE-LAP FASTENER | S _s , mm/kN / Deck Thickness No. | | | | | | |
| | 28 | 26 | 24 | 22 | 20 | 18 | 16 |
| 16 mm puddle weld or 38 mm fillet weld | | | | 0.0416 | 0.0379 | 0.0329 | 0.0294 |
| #8 screws | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| #10 screws | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| #12 screws | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |
| #14 screws | 0.1400 | 0.1286 | 0.1114 | 0.0997 | 0.0910 | 0.0788 | 0.0705 |

Table IX - HILTI FASTENER IN TENSION

| Deck Thickness in. | T_n , lbf ⁽¹⁾ | | |
|-----------------------|---|-------------------------------|--------------|
| | Hilti Fastener Type / Fastener Washer Diameter, in. | | |
| | ENP2 / ENPH2 / ENP2K | X-EDN19 / X-EDNK22 / X-HSN 24 | X-ENP-19L15 |
| | 0.591 | 0.474 | 0.591 |
| 0.0295 | 1128 | 1070 | 1128 |
| 0.0358 | 1369 | 1298 | 1369 |
| 0.0474 | 1813 | 1719 | 1813 |
| 0.0598 | 2287 | 2168 | 2287 |

⁽¹⁾ $T_{nov} = 1.7 t d_w F_u$ per this manual, page 4-14, section 4.9.3

Table IX-M - HILTI FASTENER IN TENSION

| Deck Thickness in. | T_n , kN | | |
|-----------------------|--|-------------------------------|-------------|
| | Hilti Fastener Type / Fastener Washer Diameter, mm | | |
| | ENP2 / ENPH2 / ENP2K | X-EDN19 / X-EDNK22 / X-HSN 24 | X-ENP-19L15 |
| | 15 | 12 | 15 |
| 0.75 | 5.02 | 4.76 | 5.02 |
| 0.91 | 6.09 | 5.77 | 6.09 |
| 1.20 | 8.06 | 7.65 | 8.06 |
| 1.52 | 10.17 | 9.65 | 10.17 |

Table X & X-M - FASTENER PATTERN FACTORS

| Deck Profile | Fastener Pattern | β | | β | |
|--------------|------------------|------------------|-----------------|----------------------|-----------------|
| | | Welds | | Mechanical Fasteners | |
| | | ft ⁻¹ | m ⁻¹ | ft ⁻¹ | m ⁻¹ |
| WR, IR, NR | 36/7 | 1.900 | 6.234 | 2.000 | 6.565 |
| | 36/5 | 1.233 | 4.046 | 1.333 | 4.376 |
| | 36/4 | 0.900 | 2.953 | 1.000 | 3.282 |
| | 36/3 | 0.567 | 1.859 | 0.667 | 2.188 |
| WR, IR, NR | 30/6 | 1.880 | 6.168 | 2.000 | 6.562 |
| | 30/4 | 1.080 | 3.543 | 1.200 | 3.937 |
| | 30/3 | 0.680 | 2.231 | 0.800 | 2.625 |
| DR | 24/4 | 1.350 | 4.429 | 1.500 | 4.918 |

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LOAD TABLES

THE LOAD TABLES ARE SHOWING NOMINAL STRENGTH VALUES. THE VALUES MUST NOT BE USED WITHOUT APPLYING THE PROPER SAFETY OR RESISTANCE FACTOR.

LRFD

The values of the load tables must be multiplied by a resistance factor (number smaller than or equal to 0.70) when comparing to forces evaluated using Load and Resistance Factor Design.

ASD

The values of the load tables must be divided by a safety factor (number larger than or equal to 2.35) when comparing to forces evaluated using Allowable Stress Design.

The following load tables are for typical panel configurations and connector types. Specific design applications may dictate an arrangement, not listed, which would require the designer to make direct use of the strength and stiffness formulas shown in Sections 1 through 5.

The tables are arranged showing the fastener types, safety factor and resistance factor at the top along with the fastener patterns as defined in Appendix IV. For each steel base sheet metal design thickness given, nominal shear strengths are listed under the specific span lengths. The column "SIDE-LAP CONN./SPAN" shows the number of connectors between structural supports at the sheet edge. For example, "5" would represent six even spaces or stitch fasteners at 12 in. on center within a 6 ft deck span.

Nominal diaphragm shears due to panel buckling are tabulated at the bottom of the pages to check whether the panel buckling governs over connector strength for diaphragm design. The asterisk (*) in the strength table indicates the potential of panel buckling governing over connector strength under a certain type of lateral load. The tables were done in this manner because of the different safety or resistance factors that apply to connector strength and panel buckling.

For roof deck and composite floor deck, the steel yield point is taken at 33 ksi; form deck yield strength is taken at 80 ksi. Structural concrete strength is 3000 psi, and the densities are 145 pcf and 110 pcf for normal weight and light weight concrete respectively. Though design tables show side-lap stitch welds for all thickness listed, they are not recommended for design thickness of 0.0295 in. and less.

The Dxx-values are the warping constants for the particular connector pattern and panel profile. They may be substituted directly into the G' stiffness equation in Appendix IV. Dxx-values, K2-, K3-, and K4-values are listed in Appendix IV. K1-values are found with the appropriate load table.

The tables for structural concrete filled deck are for 1.5 in., 2 in. and 3 in. composite deck attached with a 3/4 pattern. The values would not appreciably change for 24 in. wide deck attached with a 2/3 pattern. The concrete thickness above the deck is 2.5 in. as a minimum.

The load tables for 9/16 in. form decks are shown with structural concrete fill of minimum 2.5 in. cover or with insulating concrete assembled as Type I and Type II attached at a basic 3/4 pattern. Type I decks have 2.5 in. of insulating concrete above the deck. Type II decks have insulating concrete poured to the top of the steel deck; Next, rigid insulating boards of expanded polystyrene, having about 2% of the area containing holes, are embedded into the insulating concrete with the excess concrete moving into the holes (rigid insulating boards should be held 3 ft away from diaphragm shear resisting lines); Finally a topping layer of 2 in. or more of insulating concrete is placed above the rigid insulating board. The strength of the insulating concrete is taken as $f'_c = 125 \text{ psi}$.

There may be shaded values or no values on portions of a load table. The shaded values do not comply with the minimum spacing for side-lap connections and shall not be used except with properly spaced side-lap connections. The shaded areas will be the rows for 0 side-lap connection and are shown for reference. A conservative approach to get nominal shear for diaphragms with button punched side-laps is to use the values from the 0 side-lap connection rows.

TABLE OF CONTENTS FOR DIAPHRAGM LOAD TABLES

STANDARD ROOF DECK

| DECK TYPE | SIDE-LAP CONNECTION | FASTENING PATTERN | FRAME FASTENER | | | | | | | | | | |
|------------------|---------------------|--------------------------------------|----------------------|------------------------|----------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|---------------------------------|
| | | | WELDS | | SCREWS | BUILDEX | | PNEUTEK | | | | HILTI | |
| | | | 3/4" P.W. | 5/8" P.W. | #12 | BX-12 | BX-14 | SDK61-SERIES | SDK63-SERIES | K64-SERIES | K66-SERIES | ENP2 ENPH2 | ENP2K X-EDN19 X-EDNK22 X-HSN 24 |
| 1 1/2" ROOF DECK | WELDS | 36/9 36/7 36/5 36/4 36/3 | AV-5 thru AV-8 | AV-9 thru AV-12 | | | | | | | | | |
| | | 30/6 30/4 30/3 | | | | | | | | | | | |
| | #10 SCREWS | 36/9 36/7 36/5 36/4 36/3 | | AV-13 thru AV-16 | AVII-10 thru AVII-13 | AV-21 thru AV-24 | AV-25 thru AV-28 | AV-29 thru AV-32 | AV-33 thru AV-36 | AV-37 thru AV-40 | AV-41 thru AV-44 | AV-45 thru AV-48 | AVIII-14 thru AVIII-17 |
| | | 30/6 30/4 30/3 | | | | | | | | | | | |
| 3" ROOF DECK | WELDS | 24/4 | AV-53 | AV-54 | | | | | | | | | |
| | #10 SCREWS | 24/4 | | AV-55 | AVII-14 | AV-57 | AV-58 | AV-59 | AV-60 | AV-61 | AV-62 | AV-63 | AVIII-18 |

STANDARD FORM DECK (Side-lap Connection #10 Screws)

| DECK TYPE | TYPE OF FILL | FASTENING PATTERN | FRAME FASTENER | | | | | | | | | | |
|--------------------------|--------------|--|----------------------------|----------------------------|-------------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|----------------------------------|
| | | | WELDS | | SCREWS | BUILDEX | | PNEUTEK | | | | HILTI | |
| | | | 3/4" P.W. with weld washer | 5/8" P.W. with weld washer | #12 | BX-12 | BX-14 | SDK61-SERIES | SDK63-SERIES | K64-SERIES | K66-SERIES | ENP2 ENPH2 | ENP2K X-EDN19 X-EDNK22 X-HSN 24 |
| 9/16" x 2 1/2" FORM DECK | WITHOUT FILL | 35/8 35/7 35/6 35/5 30/7 30/5 30/4 | | AV-65 AV-66 AV-67 | AVII-15 AVII-16 AVII-17 | AV-71 AV-72 AV-73 | AV-74 AV-75 AV-76 | AV-77 AV-78 AV-79 | AV-80 AV-81 AV-82 | AV-83 AV-84 AV-85 | AV-86 AV-87 AV-88 | AV-89 AV-90 AV-91 | AVIII-19 AVIII-20 AVIII-21 |
| | | N.W. & L.W. CONCRETE | 30/4 | | | | | | | | | | |
| | | TYPE I & II INSULATING CONCRETE | 30/4 | | | | | | | | | | |
| | | | | | | | | | | | | | |

STANDARD COMPOSITE DECK (Support Fastener Pattern 36/4)

| DECK TYPE | SIDE-LAP CONNECT. | TYPE OF CONCRETE | FRAME FASTENER | | | | | | | | | | |
|----------------------|-------------------|---------------------------------------|----------------|-------------------------|----------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|---------------------------------|
| | | | WELDS | | SCREWS | BUILDEX | | PNEUTEK | | | | HILTI | |
| | | | 3/4" P.W. | 5/8" P.W. | #12 | BX-12 | BX-14 | SDK61-SERIES | SDK63-SERIES | K64-SERIES | K66-SERIES | ENP2 ENPH2 | ENP2K X-EDN19 X-EDNK22 X-HSN 24 |
| 1 1/2" x 6" | WELDS | NONE (MULTIPLE FASTENER LAYOUT) | | AV-95 thru AV-98 | | | | | | | | | |
| | | NORMAL WEIGHT CONCRETE (2 1/2" COVER) | | | | | | | | | | | |
| 2" x 12" 3" x 12" | #10 SCREWS | LIGHT WEIGHT CONCRETE (2 1/2" COVER) | | AV-99 thru AV-102 | AVII-18 thru AVII-21 | AV-107 thru AV-110 | AV-111 thru AV-114 | AV-115 thru AV-118 | AV-119 thru AV-122 | AV-123 thru AV-126 | AV-127 thru AV-130 | AV-131 thru AV-134 | AVII-22 thru AVII-25 |

1.5 (WR, IR, NR)

t = design thickness = 0.0295"

SUPPORT FASTENING: Hilti ENP2K, X-EDN19, X-EDN22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50
 ϕ (WIND): 0.70 Ω (WIND): 2.35
 ϕ (Other): 0.65 Ω (Other): 2.50

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | |
|-----------------|---------------------|-----------------------------|------|------|------|------|--------|--------|--------|--------|-------|
| | | SPAN, FT | | | | | | | | | |
| | | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | K1 |
| 36/9 | 0 | 1520 | 1340 | 1190 | 1055 | 940 | 850 | 775 | 710 | 655 | 0.352 |
| | 1 | 1670 | 1475 | 1320 | 1190 | 1070 | 965 | 880 | | | 0.291 |
| | 2 | 1805 | 1605 | 1440 | 1305 | 1190 | 1080 | 985 | 905 | 835 | 0.248 |
| | 3 | 1930 | 1730 | 1560 | 1415 | 1295 | 1190 | 1090 | 1000 | 925 * | 0.217 |
| | 4 | 2050 | 1840 | 1670 | 1520 | 1395 | 1285 | 1190 * | 1100 * | 1015 * | 0.192 |
| | 5 | 2155 | 1950 | 1770 | 1620 | 1490 | 1375 | 1275 * | 1190 * | 1105 * | 0.172 |
| | 6 | 2250 | 2050 | 1870 | 1715 | 1580 | 1465 * | 1360 * | 1270 * | 1190 * | 0.156 |
| 36/7 | 0 | 975 | 845 | 735 | 650 | 580 | 525 | 480 | 440 | 405 | 0.528 |
| | 1 | 1145 | 1000 | 890 | 790 | 710 | 640 | 585 | | | 0.402 |
| | 2 | 1305 | 1150 | 1025 | 920 | 835 | 755 | 690 | 635 | 585 | 0.325 |
| | 3 | 1450 | 1285 | 1150 | 1040 | 945 | 870 | 795 | 730 | 675 | 0.272 |
| | 4 | 1585 | 1415 | 1270 | 1150 | 1050 | 965 | 895 | 830 | 765 | 0.235 |
| | 5 | 1710 | 1530 | 1385 | 1260 | 1155 | 1060 | 985 | 915 | 855 | 0.206 |
| | 6 | 1820 | 1640 | 1490 | 1360 | 1250 | 1155 | 1070 | 1000 | 935 * | 0.184 |
| 36/5 | 0 | 860 | 755 | 675 | 600 | 535 | 485 | 440 | 405 | 375 | 0.633 |
| | 1 | 1005 | 895 | 800 | 725 | 660 | 600 | 545 | | | 0.461 |
| | 2 | 1130 | 1015 | 915 | 835 | 765 | 705 | 650 | 600 | 555 | 0.362 |
| | 3 | 1240 | 1125 | 1020 | 935 | 860 | 795 | 740 | 690 | 645 | 0.298 |
| | 4 | 1335 | 1220 | 1115 | 1025 | 950 | 880 | 820 | 765 | 720 | 0.253 |
| | 5 | 1415 | 1300 | 1200 | 1110 | 1030 | 960 | 895 | 840 | 790 | 0.220 |
| | 6 | 1480 | 1375 | 1275 | 1185 | 1105 | 1035 | 970 | 910 | 860 | 0.195 |
| 36/4 | 0 | 660 | 580 | 515 | 455 | 405 | 365 | 330 | 305 | 280 | 0.792 |
| | 1 | 800 | 715 | 640 | 580 | 530 | 480 | 435 | | | 0.539 |
| | 2 | 915 | 825 | 750 | 685 | 630 | 580 | 540 | 500 | 460 | 0.409 |
| | 3 | 1010 | 920 | 845 | 780 | 720 | 670 | 620 | 580 | 545 | 0.329 |
| | 4 | 1085 | 1000 | 925 | 860 | 800 | 745 | 700 | 655 | 615 | 0.275 |
| | 5 | 1145 | 1070 | 995 | 930 | 870 | 815 | 765 | 725 | 680 | 0.237 |
| | 6 | 1195 | 1125 | 1055 | 995 | 935 | 880 | 830 | 785 | 745 | 0.208 |
| 30/6 | 0 | 885 | 760 | 660 | 580 | 520 | 470 | 425 | 390 | 360 | 0.704 |
| | 1 | 1065 | 925 | 815 | 720 | 645 | 585 | 535 | | | 0.522 |
| | 2 | 1230 | 1080 | 960 | 860 | 775 | 700 | 640 | 585 | 540 | 0.415 |
| | 3 | 1380 | 1220 | 1090 | 980 | 895 | 815 | 745 | 685 | 630 | 0.345 |
| | 4 | 1520 | 1350 | 1215 | 1095 | 1000 | 920 | 850 | 780 | 725 | 0.295 |
| | 5 | 1650 | 1475 | 1330 | 1210 | 1105 | 1015 | 940 | 875 | 815 | 0.257 |
| | 6 | 1765 | 1590 | 1440 | 1310 | 1205 | 1110 | 1030 | 960 | 895 * | 0.228 |
| 30/4 | 0 | 805 | 710 | 630 | 565 | 505 | 455 | 415 | 380 | 350 | 0.792 |
| | 1 | 945 | 840 | 755 | 685 | 625 | 570 | 520 | | | 0.569 |
| | 2 | 1065 | 955 | 865 | 790 | 725 | 670 | 620 | 575 | 530 | 0.444 |
| | 3 | 1165 | 1060 | 965 | 885 | 820 | 755 | 705 | 660 | 615 | 0.365 |
| | 4 | 1250 | 1145 | 1055 | 975 | 905 | 840 | 785 | 735 | 690 | 0.309 |
| | 5 | 1320 | 1220 | 1135 | 1055 | 980 | 915 | 860 | 805 | 760 | 0.268 |
| | 6 | 1380 | 1285 | 1200 | 1125 | 1050 | 985 | 925 | 875 | 825 | 0.237 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

ϕ (Buckling): 0.80 Ω (Buckling): 2.00

| DECK PROFILE | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | |
|--------------|------------------------|---|------|------|------|------|------|------|------|------|
| | | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 |
| NR | 0.099 | 4130 | 3035 | 2320 | 1835 | 1485 | 1225 | 1030 | 880 | 755 |
| IR | 0.108 | 4410 | 3240 | 2480 | 1960 | 1585 | 1310 | 1100 | 935 | 810 |
| WR | 0.152 | 5695 | 4185 | 3205 | 2530 | 2050 | 1695 | 1420 | 1210 | 1045 |

NOTE:

ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]

LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

1.5 (WR, IR, NR)

t = design thickness = 0.0358"

SUPPORT FASTENING: Hilti ENP2K, X-EDN19, X-EDN22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

φ (EQ): 0.65 Ω (EQ): 2.50
 φ (WIND): 0.70 Ω (WIND): 2.35
 φ (Other): 0.65 Ω (Other): 2.50

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | |
|-----------------|---------------------|-----------------------------|------|------|------|------|--------|--------|--------|--------|-------|
| | | SPAN, FT | | | | | | | | | |
| | | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | K1 |
| 36/9 | 0 | 1435 | 1280 | 1145 | 1035 | 940 | 860 | 795 | 735 | 685 | 0.388 |
| | 1 | 1590 | 1435 | 1300 | 1175 | 1070 | | | | | 0.321 |
| | 2 | 1740 | 1575 | 1440 | 1315 | 1195 | 1100 | 1015 | 940 | 880 | 0.274 |
| | 3 | 1880 | 1710 | 1565 | 1440 | 1325 | 1215 | 1125 | 1045 | 975 * | 0.239 |
| | 4 | 2015 | 1835 | 1685 | 1550 | 1440 | 1335 | 1235 * | 1145 * | 1070 * | 0.211 |
| | 5 | 2140 | 1955 | 1800 | 1660 | 1545 | 1440 * | 1345 * | 1250 * | 1165 * | 0.190 |
| | 6 | 2260 | 2070 | 1910 | 1770 | 1645 | 1535 * | 1440 * | 1350 * | 1260 * | 0.172 |
| 36/7 | 0 | 890 | 790 | 705 | 640 | 580 | 535 | 490 | 455 | 425 | 0.581 |
| | 1 | 1070 | 960 | 860 | 775 | 710 | | | | | 0.443 |
| | 2 | 1235 | 1110 | 1010 | 915 | 835 | 770 | 710 | 660 | 620 | 0.358 |
| | 3 | 1390 | 1255 | 1145 | 1050 | 965 | 890 | 820 | 765 | 715 | 0.300 |
| | 4 | 1535 | 1390 | 1270 | 1170 | 1080 | 1005 | 930 | 865 | 810 | 0.258 |
| | 5 | 1675 | 1525 | 1395 | 1285 | 1190 | 1105 | 1035 | 970 | 905 | 0.227 |
| | 6 | 1800 | 1645 | 1510 | 1395 | 1295 | 1210 | 1130 | 1060 * | 1000 * | 0.202 |
| 36/5 | 0 | 815 | 730 | 650 | 590 | 535 | 490 | 455 | 420 | 390 | 0.698 |
| | 1 | 965 | 875 | 795 | 730 | 665 | | | | | 0.507 |
| | 2 | 1105 | 1005 | 920 | 850 | 785 | 730 | 675 | 625 | 585 | 0.399 |
| | 3 | 1235 | 1130 | 1040 | 960 | 890 | 830 | 780 | 730 | 680 | 0.328 |
| | 4 | 1350 | 1240 | 1145 | 1065 | 990 | 925 | 870 | 820 | 775 | 0.279 |
| | 5 | 1450 | 1345 | 1245 | 1160 | 1085 | 1015 | 955 | 900 | 855 | 0.243 |
| | 6 | 1540 | 1435 | 1340 | 1250 | 1170 | 1100 | 1040 | 980 | 930 | 0.215 |
| 36/4 | 0 | 625 | 550 | 495 | 445 | 405 | 370 | 340 | 315 | 295 | 0.872 |
| | 1 | 775 | 700 | 640 | 585 | 530 | | | | | 0.594 |
| | 2 | 905 | 830 | 760 | 700 | 650 | 605 | 560 | 520 | 485 | 0.450 |
| | 3 | 1020 | 940 | 870 | 805 | 750 | 705 | 660 | 620 | 580 | 0.362 |
| | 4 | 1120 | 1040 | 965 | 900 | 845 | 790 | 745 | 705 | 665 | 0.303 |
| | 5 | 1205 | 1125 | 1055 | 990 | 930 | 875 | 825 | 780 | 740 | 0.261 |
| | 6 | 1275 | 1200 | 1130 | 1065 | 1005 | 950 | 900 | 855 | 810 | 0.229 |
| 30/6 | 0 | 800 | 705 | 630 | 570 | 520 | 475 | 440 | 405 | 380 | 0.775 |
| | 1 | 990 | 875 | 785 | 710 | 645 | | | | | 0.575 |
| | 2 | 1155 | 1040 | 940 | 850 | 775 | 710 | 660 | 610 | 570 | 0.458 |
| | 3 | 1315 | 1185 | 1080 | 990 | 905 | 830 | 770 | 715 | 670 | 0.380 |
| | 4 | 1465 | 1325 | 1210 | 1110 | 1025 | 950 | 880 | 815 | 765 | 0.325 |
| | 5 | 1610 | 1460 | 1335 | 1230 | 1135 | 1060 | 990 | 920 | 860 | 0.283 |
| | 6 | 1740 | 1585 | 1455 | 1345 | 1245 | 1160 | 1085 | 1020 | 955 * | 0.251 |
| 30/4 | 0 | 760 | 685 | 610 | 550 | 505 | 460 | 425 | 395 | 365 | 0.872 |
| | 1 | 910 | 825 | 755 | 690 | 630 | | | | | 0.627 |
| | 2 | 1045 | 955 | 875 | 810 | 750 | 700 | 645 | 600 | 560 | 0.490 |
| | 3 | 1170 | 1070 | 990 | 915 | 850 | 795 | 745 | 700 | 655 | 0.402 |
| | 4 | 1275 | 1180 | 1090 | 1015 | 945 | 885 | 835 | 785 | 745 | 0.340 |
| | 5 | 1370 | 1275 | 1185 | 1105 | 1035 | 975 | 915 | 865 | 820 | 0.295 |
| | 6 | 1450 | 1355 | 1270 | 1190 | 1120 | 1055 | 995 | 945 | 895 | 0.261 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

φ (Buckling): 0.80 Ω (Buckling): 2.00

| DECK PROFILE | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | | |
|--------------|------------------------|---|------|------|------|------|------|------|------|------|--|
| | | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | |
| NR | 0.128 | 3255 | 2570 | 2085 | 1720 | 1445 | 1230 | 1060 | 925 | 810 | |
| IR | 0.139 | 3465 | 2735 | 2215 | 1830 | 1540 | 1310 | 1130 | 985 | 865 | |
| WR | 0.198 | 4515 | 3570 | 2890 | 2390 | 2005 | 1710 | 1475 | 1285 | 1125 | |

NOTE:

ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]

LRFD Required Strength (Factored Applied Load) <= Minimum [φ (EQ or WIND) x Nominal Shear Strength, φ (Buckling) x Nominal Buckling Strength S_n]

1.5 (WR, IR, NR)

t = design thickness = 0.0474"

SUPPORT FASTENING: Hilti ENP2K, X-EDN19, X-EDN22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50
 ϕ (WIND): 0.70 Ω (WIND): 2.35
 ϕ (Other): 0.65 Ω (Other): 2.50

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | |
|-----------------|---------------------|-----------------------------|------|------|------|------|--------|--------|--------|--------|-------|
| | | SPAN, FT | | | | | | | | | |
| | | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | K1 |
| 36/9 | 0 | 1510 | 1365 | 1245 | 1140 | 1055 | 975 | 910 | 850 | 800 | 0.446 |
| | 1 | 1715 | 1550 | 1415 | | | | | | | 0.369 |
| | 2 | 1885 | 1730 | 1585 | 1455 | 1345 | 1250 | 1165 | 1090 | 1025 | 0.315 |
| | 3 | 2050 | 1885 | 1745 | 1610 | 1490 | 1385 | 1290 | 1210 | 1140 | 0.274 |
| | 4 | 2210 | 2040 | 1890 | 1760 | 1635 | 1520 | 1420 | 1330 * | 1250 * | 0.243 |
| | 5 | 2360 | 2185 | 2025 | 1890 | 1770 | 1655 | 1545 * | 1450 * | 1365 * | 0.218 |
| | 6 | 2510 | 2325 | 2160 | 2020 | 1890 | 1780 * | 1675 * | 1570 * | 1480 * | 0.198 |
| 36/7 | 0 | 930 | 840 | 765 | 705 | 650 | 605 | 565 | 530 | 495 | 0.669 |
| | 1 | 1135 | 1025 | 935 | | | | | | | 0.510 |
| | 2 | 1325 | 1210 | 1105 | 1020 | 940 | 875 | 820 | 770 | 720 | 0.412 |
| | 3 | 1500 | 1375 | 1270 | 1175 | 1085 | 1010 | 945 | 885 | 835 | 0.345 |
| | 4 | 1670 | 1535 | 1420 | 1320 | 1235 | 1145 | 1075 | 1005 | 950 | 0.297 |
| | 5 | 1835 | 1690 | 1565 | 1455 | 1360 | 1280 | 1200 | 1125 | 1060 | 0.261 |
| | 6 | 1990 | 1835 | 1705 | 1590 | 1485 | 1395 | 1315 | 1245 | 1175 | 0.233 |
| 36/5 | 0 | 860 | 775 | 710 | 650 | 600 | 560 | 520 | 485 | 455 | 0.803 |
| | 1 | 1045 | 960 | 880 | | | | | | | 0.584 |
| | 2 | 1210 | 1115 | 1030 | 960 | 890 | 830 | 775 | 725 | 685 | 0.459 |
| | 3 | 1365 | 1260 | 1170 | 1090 | 1025 | 960 | 900 | 845 | 795 | 0.378 |
| | 4 | 1505 | 1400 | 1300 | 1220 | 1145 | 1075 | 1015 | 960 | 910 | 0.321 |
| | 5 | 1640 | 1525 | 1425 | 1335 | 1255 | 1185 | 1120 | 1065 | 1010 | 0.279 |
| | 6 | 1760 | 1645 | 1540 | 1450 | 1365 | 1290 | 1225 | 1160 | 1105 | 0.247 |
| 36/4 | 0 | 650 | 590 | 535 | 490 | 450 | 420 | 390 | 365 | 340 | 1.004 |
| | 1 | 840 | 770 | 705 | | | | | | | 0.683 |
| | 2 | 1000 | 920 | 855 | 800 | 745 | 690 | 645 | 605 | 570 | 0.518 |
| | 3 | 1140 | 1060 | 990 | 925 | 865 | 815 | 770 | 725 | 680 | 0.417 |
| | 4 | 1270 | 1185 | 1110 | 1040 | 980 | 925 | 875 | 830 | 790 | 0.349 |
| | 5 | 1385 | 1300 | 1220 | 1150 | 1085 | 1025 | 975 | 925 | 880 | 0.300 |
| | 6 | 1485 | 1400 | 1320 | 1250 | 1185 | 1125 | 1065 | 1015 | 970 | 0.263 |
| 30/6 | 0 | 830 | 750 | 685 | 630 | 580 | 540 | 505 | 470 | 440 | 0.892 |
| | 1 | 1035 | 935 | 855 | | | | | | | 0.662 |
| | 2 | 1240 | 1120 | 1025 | 940 | 870 | 810 | 755 | 710 | 670 | 0.526 |
| | 3 | 1420 | 1300 | 1195 | 1100 | 1015 | 945 | 885 | 830 | 780 | 0.437 |
| | 4 | 1590 | 1460 | 1350 | 1255 | 1165 | 1080 | 1010 | 950 | 895 | 0.373 |
| | 5 | 1755 | 1615 | 1495 | 1390 | 1300 | 1220 | 1140 | 1070 | 1005 | 0.326 |
| | 6 | 1915 | 1765 | 1640 | 1525 | 1430 | 1340 | 1265 | 1190 | 1120 | 0.289 |
| 30/4 | 0 | 805 | 730 | 665 | 610 | 565 | 525 | 485 | 455 | 430 | 1.004 |
| | 1 | 990 | 910 | 835 | | | | | | | 0.722 |
| | 2 | 1150 | 1060 | 985 | 915 | 855 | 795 | 740 | 695 | 655 | 0.563 |
| | 3 | 1300 | 1200 | 1120 | 1045 | 980 | 920 | 870 | 815 | 765 | 0.462 |
| | 4 | 1435 | 1335 | 1245 | 1165 | 1095 | 1035 | 975 | 925 | 880 | 0.392 |
| | 5 | 1560 | 1455 | 1365 | 1280 | 1205 | 1140 | 1080 | 1025 | 975 | 0.340 |
| | 6 | 1670 | 1565 | 1475 | 1390 | 1310 | 1240 | 1175 | 1120 | 1065 | 0.300 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

ϕ (Buckling): 0.80 Ω (Buckling): 2.00

| DECK PROFILE | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | |
|--------------|------------------------|---|------|------|------|------|------|------|------|------|
| | | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| NR | 0.181 | 3335 | 2755 | 2315 | 1970 | 1700 | 1480 | 1300 | 1155 | 1030 |
| IR | 0.196 | 3540 | 2925 | 2460 | 2095 | 1805 | 1570 | 1380 | 1225 | 1090 |
| WR | 0.284 | 4675 | 3865 | 3245 | 2765 | 2385 | 2075 | 1825 | 1615 | 1440 |

NOTE:

ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]

LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

1.5 (WR, IR, NR)

t = design thickness = 0.0598"

SUPPORT FASTENING: Hilti ENP2K, X-EDN19, X-EDN22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

φ (EQ): 0.65 Ω (EQ): 2.50
 φ (WIND): 0.70 Ω (WIND): 2.35
 φ (Other): 0.65 Ω (Other): 2.50

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | |
|-----------------|---------------------|-----------------------------|------|------|------|--------|--------|--------|--------|--------|-------|
| | | SPAN, FT | | | | | | | | | |
| | | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 9.5 | 10.0 | K1 |
| 36/9 | 0 | 1560 | 1435 | 1325 | 1230 | 1145 | 1075 | 1005 | 950 | 895 | 0.501 |
| | 1 | 1775 | | | | | | | | | 0.415 |
| | 2 | 1990 | 1830 | 1690 | 1570 | 1465 | 1375 | 1295 | | | 0.354 |
| | 3 | 2180 | 2025 | 1875 | 1740 | 1625 | 1525 | 1435 | 1355 | 1280 | 0.308 |
| | 4 | 2360 | 2200 | 2055 | 1915 | 1790 | 1675 | 1580 | 1490 * | 1410 * | 0.273 |
| | 5 | 2535 | 2365 | 2215 | 2080 | 1950 | 1830 | 1720 * | 1625 * | 1540 * | 0.245 |
| | 6 | 2705 | 2525 | 2365 | 2225 | 2100 * | 1980 * | 1865 * | 1760 * | 1665 * | 0.223 |
| 36/7 | 0 | 960 | 885 | 815 | 760 | 710 | 665 | 625 | 590 | 555 | 0.751 |
| | 1 | 1175 | | | | | | | | | 0.573 |
| | 2 | 1390 | 1280 | 1185 | 1100 | 1030 | 965 | 910 | | | 0.462 |
| | 3 | 1590 | 1475 | 1365 | 1275 | 1190 | 1115 | 1050 | 995 | 940 | 0.388 |
| | 4 | 1780 | 1655 | 1545 | 1445 | 1350 | 1270 | 1195 | 1130 | 1070 | 0.334 |
| | 5 | 1960 | 1825 | 1705 | 1600 | 1510 | 1420 | 1335 | 1265 | 1200 | 0.293 |
| | 6 | 2135 | 1990 | 1865 | 1750 | 1650 | 1560 | 1480 | 1400 | 1325 | 0.261 |
| 36/5 | 0 | 890 | 815 | 755 | 700 | 655 | 610 | 575 | 545 | 515 | 0.902 |
| | 1 | 1100 | | | | | | | | | 0.656 |
| | 2 | 1290 | 1200 | 1120 | 1045 | 975 | 915 | 860 | | | 0.515 |
| | 3 | 1465 | 1365 | 1280 | 1200 | 1135 | 1065 | 1005 | 950 | 900 | 0.424 |
| | 4 | 1630 | 1525 | 1430 | 1345 | 1270 | 1205 | 1145 | 1085 | 1025 | 0.361 |
| | 5 | 1785 | 1675 | 1575 | 1485 | 1405 | 1330 | 1265 | 1205 | 1150 | 0.314 |
| | 6 | 1930 | 1815 | 1710 | 1615 | 1530 | 1455 | 1385 | 1320 | 1260 | 0.277 |
| 36/4 | 0 | 675 | 615 | 570 | 530 | 490 | 460 | 430 | 405 | 385 | 1.127 |
| | 1 | 885 | | | | | | | | | 0.768 |
| | 2 | 1070 | 1000 | 935 | 870 | 815 | 760 | 715 | | | 0.582 |
| | 3 | 1235 | 1155 | 1085 | 1025 | 965 | 915 | 860 | 810 | 770 | 0.468 |
| | 4 | 1390 | 1305 | 1230 | 1160 | 1095 | 1040 | 990 | 945 | 895 | 0.392 |
| | 5 | 1530 | 1440 | 1360 | 1285 | 1220 | 1160 | 1105 | 1055 | 1010 | 0.337 |
| | 6 | 1655 | 1565 | 1480 | 1405 | 1340 | 1275 | 1215 | 1165 | 1115 | 0.296 |
| 30/6 | 0 | 860 | 790 | 730 | 680 | 630 | 590 | 555 | 525 | 495 | 1.002 |
| | 1 | 1075 | | | | | | | | | 0.744 |
| | 2 | 1290 | 1185 | 1095 | 1020 | 955 | 895 | 840 | | | 0.591 |
| | 3 | 1500 | 1380 | 1280 | 1190 | 1115 | 1045 | 985 | 930 | 880 | 0.491 |
| | 4 | 1690 | 1570 | 1465 | 1365 | 1275 | 1195 | 1125 | 1065 | 1010 | 0.419 |
| | 5 | 1875 | 1745 | 1630 | 1530 | 1435 | 1345 | 1270 | 1200 | 1140 | 0.366 |
| | 6 | 2055 | 1915 | 1790 | 1680 | 1585 | 1495 | 1415 | 1335 | 1265 | 0.325 |
| 30/4 | 0 | 835 | 765 | 710 | 655 | 615 | 575 | 540 | 510 | 480 | 1.127 |
| | 1 | 1050 | | | | | | | | | 0.811 |
| | 2 | 1230 | 1145 | 1070 | 1000 | 935 | 875 | 825 | | | 0.633 |
| | 3 | 1400 | 1305 | 1225 | 1155 | 1090 | 1025 | 965 | 915 | 865 | 0.519 |
| | 4 | 1560 | 1460 | 1370 | 1295 | 1225 | 1160 | 1100 | 1050 | 995 | 0.440 |
| | 5 | 1705 | 1605 | 1510 | 1430 | 1350 | 1285 | 1220 | 1165 | 1110 | 0.382 |
| | 6 | 1845 | 1740 | 1640 | 1555 | 1475 | 1400 | 1335 | 1275 | 1220 | 0.337 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

φ (Buckling): 0.80 Ω (Buckling): 2.00

| DECK PROFILE | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | |
|--------------|------------------------|---|------|------|------|------|------|------|------|------|
| | | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | 9.5 | 10.0 |
| NR | 0.226 | 3255 | 2775 | 2390 | 2085 | 1830 | 1620 | 1445 | 1300 | 1170 |
| IR | 0.245 | 3460 | 2950 | 2540 | 2215 | 1945 | 1725 | 1535 | 1380 | 1245 |
| WR | 0.355 | 4570 | 3895 | 3355 | 2925 | 2570 | 2275 | 2030 | 1820 | 1645 |

NOTE:

ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]

LRFD Required Strength (Factored Applied Load) <= Minimum [φ (EQ or WIND) x Nominal Shear Strength, φ (Buckling) x Nominal Buckling Strength S_n]

3.0 DR SUPPORT FASTENING: Hilti ENP2K, X-EDN19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel) ϕ (Buckling): 0.80 Ω (Buckling): 2.00 ϕ (EQ): 0.65 Ω (EQ): 2.50
 SIDE-LAP FASTENING: #10 screws ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (WIND): 0.70 Ω (WIND): 2.35

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF t = design thickness = 0.0295 in. | | | | | | | | | |
|-----------------|--------------------------|---|------|------|------|------|------|------|------|------|-------|
| | | SPAN, FT | | | | | | | | | |
| | | 8.0 | 8.5 | 9.0 | 9.5 | 10.0 | 10.5 | 11.0 | 11.5 | 12.0 | K1 |
| 24/4 | 0 | 240 | 225 | 210 | 200 | 190 | 180 | 175 | 165 | 160 | 1.188 |
| | 2 | 395 | 375 | 355 | | | | | | | 0.613 |
| | 3 | 475 | 450 | 425 | 400 | 380 | 365 | 345 | 330 | 315 | 0.494 |
| | 4 | 555 | 525 | 495 | 470 | 445 | 425 | 405 | 385 | 370 | 0.413 |
| | 5 | 635 | 595 | 565 | 535 | 510 | 485 | 460 | 440 | 425 | 0.355 |
| | 6 | 710 | 670 | 635 | 600 | 570 | 545 | 520 | 495 | 475 | 0.312 |
| | 7 | 780 | 735 | 700 | 665 | 635 | 605 | 575 | 550 | 530 | 0.277 |
| | 8 | 840 | 800 | 760 | 725 | 690 | 660 | 635 | 605 | 580 | 0.250 |
| | 9 | 905 | 860 | 820 | 780 | 745 | 715 | 685 | 655 | 630 | 0.228 |
| | 10 | 965 | 915 | 875 | 835 | 800 | 765 | 735 | 705 | 680 | 0.209 |
| | 11 | 1020 | 970 | 925 | 885 | 850 | 815 | 780 | 750 | 725 | 0.193 |
| | I (in ⁴ / ft) | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF | | | | | | | | | |
| | 0.551 | 2035 | 1800 | 1605 | 1440 | 1300 | 1180 | 1075 | 985 | 905 | |

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF t = design thickness = 0.0358 in. | | | | | | | | | |
|-----------------|---------------------|---|--|------|------|------|------|------|------|------|-------|
| | | SPAN, FT | | | | | | | | | |
| | | 9.0 | 9.5 | 10.0 | 10.5 | 11.0 | 11.5 | 12.0 | 12.5 | 13.0 | K1 |
| 24/4 | 0 | 255 | 240 | 230 | 220 | 210 | 200 | 190 | 185 | 175 | 1.309 |
| | 2 | 425 | | | | | | | | | 0.675 |
| | 3 | 510 | 485 | 460 | 440 | 420 | 400 | 385 | | | 0.544 |
| | 4 | 595 | 565 | 540 | 510 | 490 | 470 | 450 | 430 | 415 | 0.455 |
| | 5 | 685 | 645 | 615 | 585 | 560 | 535 | 510 | 490 | 475 | 0.391 |
| | 6 | 770 | 730 | 690 | 660 | 630 | 600 | 575 | 555 | 530 | 0.343 |
| | 7 | 850 | 810 | 770 | 730 | 700 | 670 | 640 | 615 | 590 | 0.306 |
| | 8 | 920 | 875 | 835 | 800 | 770 | 735 | 705 | 675 | 650 | 0.275 |
| | 9 | 990 | 945 | 900 | 865 | 830 | 795 | 765 | 735 | 710 | 0.251 |
| | 10 | 1055 | 1010 | 965 | 925 | 890 | 855 | 820 | 790 | 765 | 0.230 |
| | 12 | 1185 | 1135 | 1085 | 1045 | 1005 | 965 | 930 | 895 | 865 | 0.197 |
| | | I (in ⁴ / ft) | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF | | | | | | | | |
| | 0.714 | 2260 | 2025 | 1830 | 1660 | 1510 | 1380 | 1270 | 1170 | 1080 | |

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF t = design thickness = 0.0474 in. | | | | | | | | | | |
|-----------------|---------------------|---|--|------|------|------|------|------|------|------|-------|--|
| | | SPAN, FT | | | | | | | | | | |
| | | 10.0 | 10.5 | 11.0 | 11.5 | 12.0 | 12.5 | 13.0 | 13.5 | 14.0 | K1 | |
| 24/4 | 0 | 300 | 285 | 275 | 260 | 250 | 240 | 230 | 225 | 215 | 1.506 | |
| | 3 | 605 | 580 | 550 | 525 | 505 | | | | | 0.626 | |
| | 4 | 710 | 675 | 645 | 615 | 590 | 565 | 545 | 525 | 505 | 0.524 | |
| | 5 | 810 | 770 | 735 | 705 | 675 | 650 | 625 | 600 | 580 | 0.450 | |
| | 6 | 910 | 870 | 830 | 795 | 760 | 730 | 700 | 675 | 650 | 0.395 | |
| | 7 | 1015 | 965 | 920 | 880 | 845 | 810 | 780 | 750 | 725 | 0.352 | |
| | 8 | 1105 | 1055 | 1010 | 970 | 930 | 890 | 860 | 825 | 795 | 0.317 | |
| | 9 | 1190 | 1140 | 1090 | 1050 | 1010 | 970 | 935 | 900 | 870 | 0.288 | |
| | 10 | 1275 | 1220 | 1170 | 1125 | 1085 | 1045 | 1005 | 970 | 940 | 0.265 | |
| | 11 | 1355 | 1300 | 1250 | 1200 | 1155 | 1115 | 1075 | 1040 | 1005 | 0.245 | |
| | 13 | 1510 | 1450 | 1395 | 1345 | 1295 | 1250 | 1210 | 1170 | 1130 | 0.212 | |
| | | I (in ⁴ / ft) | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF | | | | | | | | | |
| | | 1.036 | 2985 | 2710 | 2465 | 2255 | 2075 | 1910 | 1765 | 1635 | 1520 | |

| FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF t = design thickness = 0.0598 in. | | | | | | | | | | |
|-----------------|---------------------|---|--|------|------|------|------|------|------|------|-------|--|
| | | SPAN, FT | | | | | | | | | | |
| | | 11.0 | 11.5 | 12.0 | 12.5 | 13.0 | 13.5 | 14.0 | 14.5 | 15.0 | K1 | |
| 24/4 | 0 | 340 | 325 | 315 | 300 | 290 | 280 | 270 | 260 | 250 | 1.691 | |
| | 3 | 690 | 660 | 635 | | | | | | | 0.703 | |
| | 4 | 810 | 775 | 740 | 710 | 685 | 660 | 635 | 615 | 590 | 0.588 | |
| | 5 | 925 | 885 | 845 | 815 | 780 | 755 | 725 | 700 | 680 | 0.506 | |
| | 6 | 1040 | 995 | 955 | 915 | 880 | 850 | 820 | 790 | 765 | 0.444 | |
| | 7 | 1160 | 1110 | 1060 | 1020 | 980 | 945 | 910 | 880 | 850 | 0.395 | |
| | 8 | 1270 | 1220 | 1170 | 1120 | 1080 | 1040 | 1000 | 965 | 935 | 0.356 | |
| | 9 | 1370 | 1320 | 1270 | 1220 | 1175 | 1135 | 1095 | 1055 | 1020 | 0.324 | |
| | 10 | 1470 | 1415 | 1360 | 1310 | 1265 | 1220 | 1180 | 1145 | 1105 | 0.297 | |
| | 11 | 1565 | 1505 | 1450 | 1400 | 1350 | 1305 | 1265 | 1225 | 1185 | 0.275 | |
| | 13 | 1750 | 1690 | 1625 | 1570 | 1515 | 1470 | 1420 | 1375 | 1335 | 0.238 | |
| | | I (in ⁴ / ft) | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF | | | | | | | | | |
| | | 1.295 | 3475 | 3175 | 2920 | 2690 | 2485 | 2305 | 2145 | 2000 | 1865 | |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING.
 THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.
 NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

9/16" x 2 1/2" FORM DECK

t = design thickness = 0.0149"

SUPPORT FASTENING: Hilti ENP2K, X-EDIV19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | K1 |
|---------------------------------|-----------------|---------------------|-----------------------------|------|------|-------|-------|-------|-------|-------|
| | | | SPAN, FT | | | | | | | |
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | |
| NO FILL (BARE DECK) | 35/8 | 0 | 1265 | 980 | 785 | 650 | 555 | 480 * | 425 * | 0.338 |
| | | 1 | 1370 | 1100 | 900 | 755 | 645 * | 560 * | 495 * | 0.265 |
| | | 2 | 1455 | 1200 | 1000 | 845 * | 730 * | 640 * | 565 * | 0.218 |
| | | 3 | 1515 | 1285 | 1090 | 930 * | 810 * | 710 * | 635 * | 0.185 |
| | 35/7 | 0 | 1160 | 925 | 755 | 630 | 540 | 470 * | 415 * | 0.360 |
| | | 1 | 1245 | 1030 | 855 | 725 | 625 * | 545 * | 485 * | 0.279 |
| | | 2 | 1310 | 1110 | 945 | 810 | 705 * | 620 * | 555 * | 0.227 |
| | | 3 | 1355 | 1180 | 1020 | 885 * | 775 * | 690 * | 615 * | 0.192 |
| | 35/5 | 0 | 825 | 680 | 565 | 480 | 415 | 360 | 320 * | 0.491 |
| | | 1 | 885 | 760 | 655 | 565 | 490 | 435 * | 390 * | 0.351 |
| | | 2 | 925 | 820 | 720 | 635 | 560 | 500 * | 450 * | 0.274 |
| | | 3 | 955 | 865 | 775 | 690 | 620 * | 560 * | 505 * | 0.224 |
| | 30/7 | 0 | 1200 | 915 | 725 | 600 | 505 | 440 * | 385 * | 0.450 |
| | | 1 | 1320 | 1045 | 845 | 705 | 600 * | 520 * | 460 * | 0.343 |
| | | 2 | 1415 | 1150 | 950 | 800 | 685 * | 600 * | 530 * | 0.277 |
| | | 3 | 1485 | 1245 | 1045 | 890 * | 770 * | 675 * | 600 * | 0.232 |
| | 30/5 | 0 | 880 | 695 | 565 | 470 | 400 | 350 | 310 | 0.600 |
| | | 1 | 970 | 800 | 665 | 565 | 485 | 425 * | 380 * | 0.424 |
| | | 2 | 1030 | 880 | 755 | 650 | 565 | 500 * | 445 * | 0.327 |
| | | 3 | 1070 | 945 | 825 | 720 | 635 * | 565 * | 505 * | 0.267 |
| | 30/4 | 0 | 710 | 580 | 480 | 405 | 350 | 305 | 270 | 0.675 |
| | | 1 | 775 | 665 | 570 | 490 | 430 | 380 | 335 * | 0.460 |
| | | 2 | 815 | 725 | 635 | 560 | 495 | 445 * | 400 * | 0.349 |
| | | 3 | 840 | 765 | 690 | 620 | 555 | 500 * | 455 * | 0.281 |
| 2 1/2" NW CONC. (ABOVE DECK) | 0 | 6035 | 5660 | 5470 | 5355 | 5280 | 5230 | 5185 | 0.675 | |
| | 1 | 6355 | 5870 | 5630 | 5485 | 5390 | 5320 | 5265 | 0.460 | |
| | 2 | 6675 | 6085 | 5790 | 5615 | 5495 | 5410 | 5345 | 0.349 | |
| | 3 | 6995 | 6300 | 5950 | 5740 | 5600 | 5500 | 5425 | 0.281 | |
| 2 1/2" LW CONC. (ABOVE DECK) | 0 | 4370 | 3995 | 3805 | 3695 | 3620 | 3565 | 3525 | 0.675 | |
| | 1 | 4690 | 4210 | 3965 | 3820 | 3725 | 3655 | 3605 | 0.460 | |
| | 2 | 5010 | 4420 | 4125 | 3950 | 3830 | 3745 | 3685 | 0.349 | |
| | 3 | 5330 | 4635 | 4285 | 4075 | 3940 | 3840 | 3765 | 0.281 | |
| TYPE I INSUL. FILL | 0 | 1580 | 1200 | 1015 | 900 | 825 | 770 | 730 | 0.675 | |
| | 1 | 1900 | 1415 | 1175 | 1030 | 930 | 860 | 810 | 0.460 | |
| | 2 | 2220 | 1630 | 1335 | 1155 | 1040 | 955 | 890 | 0.349 | |
| | 3 | 2540 | 1840 | 1495 | 1285 | 1145 | 1045 | 970 | 0.281 | |
| TYPE II INSUL. FILL | 0 | 1845 | 1470 | 1280 | 1170 | 1095 | 1040 | 1000 | 0.675 | |
| | 1 | 2165 | 1685 | 1440 | 1295 | 1200 | 1130 | 1080 | 0.460 | |
| | 2 | 2485 | 1895 | 1600 | 1425 | 1305 | 1220 | 1160 | 0.349 | |
| | 3 | 2805 | 2110 | 1760 | 1550 | 1415 | 1315 | 1240 | 0.281 | |
| | | 4 | 3125 | 2325 | 1920 | 1680 | 1520 | 1405 | 0.235 | |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.
 WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

ϕ (Buckling): 0.80 Ω (Buckling): 2.00

| TYPE OF FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | |
|--------------|-----------------|------------------------|---|------|------|-----|-----|-----|-----|
| | | | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |
| NO FILL | ALL | 0.011 | 4465 | 1985 | 1115 | 715 | 495 | 365 | 275 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

9/16" x 2 1/2" FORM DECK

t = design thickness = 0.0179"

SUPPORT FASTENING: Hilti ENP2K, X-EDM19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | K1 |
|---------------------------------|-----------------|---------------------|-----------------------------|------|--------|--------|-------|-------|-------|-------|
| | | | SPAN, FT | | | | | | | |
| | | | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | |
| NO FILL (BARE DECK) | 35/8 | 0 | 1175 | 945 | 780 | 665 | 575 * | 510 * | 455 * | 0.370 |
| | | 1 | 1320 | 1075 | 900 | 770 * | 675 * | 595 * | 535 * | 0.291 |
| | | 2 | 1440 | 1195 | 1015 | 875 * | 765 * | 680 * | 610 * | 0.239 |
| | | 3 | 1540 | 1305 | 1115 * | 970 * | 855 * | 760 * | 685 * | 0.203 |
| | 35/7 | 4 | 1625 | 1400 | 1210 * | 1060 * | 935 * | 840 * | 755 * | 0.177 |
| | | 0 | 1110 | 905 | 755 | 645 | 565 * | 500 * | 445 * | 0.395 |
| | | 1 | 1235 | 1025 | 870 | 750 * | 655 * | 580 * | 525 * | 0.306 |
| | | 2 | 1335 | 1130 | 970 | 845 * | 745 * | 665 * | 595 * | 0.249 |
| | 35/5 | 3 | 1415 | 1220 | 1060 | 930 * | 825 * | 740 * | 670 * | 0.210 |
| | | 4 | 1480 | 1300 | 1145 * | 1010 * | 905 * | 810 * | 735 * | 0.182 |
| | | 0 | 815 | 680 | 575 | 495 | 435 | 385 | 345 * | 0.538 |
| | | 1 | 915 | 780 | 675 | 590 | 520 | 465 * | 420 * | 0.385 |
| | 30/7 | 2 | 985 | 865 | 760 | 670 | 600 * | 540 * | 490 * | 0.300 |
| | | 3 | 1035 | 930 | 830 | 745 * | 670 * | 605 * | 550 * | 0.245 |
| | | 4 | 1075 | 980 | 890 | 805 * | 730 * | 665 * | 610 * | 0.208 |
| | | 0 | 1095 | 870 | 715 | 605 | 525 | 465 * | 410 * | 0.493 |
| | 30/5 | 1 | 1250 | 1010 | 840 | 720 | 625 * | 550 * | 495 * | 0.376 |
| | | 2 | 1380 | 1140 | 960 | 825 * | 720 * | 640 * | 570 * | 0.304 |
| | | 3 | 1490 | 1250 | 1065 * | 920 * | 810 * | 720 * | 645 * | 0.255 |
| | | 4 | 1585 | 1350 | 1165 * | 1015 * | 895 * | 800 * | 720 * | 0.219 |
| | 30/4 | 0 | 835 | 675 | 565 | 480 | 415 | 370 | 330 * | 0.658 |
| | | 1 | 960 | 800 | 675 | 585 | 510 | 455 * | 405 * | 0.464 |
| | | 2 | 1055 | 900 | 775 | 675 | 600 * | 535 * | 480 * | 0.359 |
| | | 3 | 1130 | 985 | 865 | 760 * | 680 * | 610 * | 550 * | 0.292 |
| 2 1/2" NW CONC. (ABOVE DECK) | 4 | 1190 | 1055 | 940 | 835 * | 750 * | 680 * | 615 * | 0.247 | |
| | 0 | 695 | 575 | 485 | 420 | 365 | 325 | 290 | 0.740 | |
| | 1 | 795 | 680 | 590 | 515 | 455 | 405 | 365 * | 0.504 | |
| | 2 | 865 | 765 | 670 | 595 | 530 | 480 * | 435 * | 0.382 | |
| 2 1/2" LW CONC. (ABOVE DECK) | 3 | 915 | 825 | 740 | 665 | 600 * | 545 * | 495 * | 0.308 | |
| | 4 | 955 | 875 | 795 | 725 | 660 * | 605 * | 555 * | 0.257 | |
| | 0 | 5810 | 5580 | 5445 | 5355 | 5290 | 5245 | 5205 | 0.740 | |
| | 1 | 6065 | 5775 | 5600 | 5485 | 5400 | 5340 | 5290 | 0.504 | |
| TYPE I INSUL. FILL | 2 | 6320 | 5965 | 5755 | 5610 | 5510 | 5435 | 5375 | 0.382 | |
| | 3 | 6575 | 6160 | 5910 | 5740 | 5620 | 5530 | 5460 | 0.308 | |
| | 4 | 6835 | 6350 | 6060 | 5870 | 5730 | 5625 | 5545 | 0.257 | |
| | 0 | 4145 | 3920 | 3785 | 3690 | 3630 | 3580 | 3540 | 0.740 | |
| TYPE II INSUL. FILL | 1 | 4400 | 4110 | 3935 | 3820 | 3740 | 3675 | 3625 | 0.504 | |
| | 2 | 4655 | 4305 | 4090 | 3950 | 3845 | 3770 | 3715 | 0.382 | |
| | 3 | 4915 | 4495 | 4245 | 4075 | 3955 | 3870 | 3800 | 0.308 | |
| | 4 | 5170 | 4685 | 4400 | 4205 | 4065 | 3965 | 3885 | 0.257 | |
| TYPE I INSUL. FILL | 0 | 1350 | 1125 | 990 | 900 | 835 | 785 | 750 | 0.740 | |
| | 1 | 1605 | 1315 | 1145 | 1025 | 945 | 880 | 835 | 0.504 | |
| | 2 | 1865 | 1510 | 1295 | 1155 | 1055 | 980 | 920 | 0.382 | |
| | 3 | 2120 | 1700 | 1450 | 1285 | 1165 | 1075 | 1005 | 0.308 | |
| TYPE II INSUL. FILL | 4 | 2375 | 1895 | 1605 | 1410 | 1275 | 1170 | 1090 | 0.257 | |
| | 0 | 1620 | 1395 | 1260 | 1165 | 1105 | 1055 | 1015 | 0.740 | |
| | 1 | 1875 | 1585 | 1410 | 1295 | 1215 | 1150 | 1100 | 0.504 | |
| | 2 | 2130 | 1780 | 1565 | 1425 | 1320 | 1245 | 1190 | 0.382 | |
| TYPE II INSUL. FILL | 3 | 2390 | 1970 | 1720 | 1550 | 1430 | 1345 | 1275 | 0.308 | |
| | 4 | 2645 | 2160 | 1875 | 1680 | 1540 | 1440 | 1360 | 0.257 | |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

ϕ (Buckling): 0.80 Ω (Buckling): 2.00

| TYPE OF FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | |
|--------------|-----------------|------------------------|---|------|-----|-----|-----|-----|-----|
| | | | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 |
| NO FILL | ALL | 0.013 | 2580 | 1450 | 930 | 645 | 470 | 360 | 285 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

9/16" x 2 1/2" FORM DECK

t = design thickness = 0.0239"

SUPPORT FASTENING: Hilti ENP2K, X-EDIV19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | K1 |
|---------------------------------|-----------------|---------------------|-----------------------------|------|--------|--------|--------|--------|-------|-------|
| | | | SPAN, FT | | | | | | | |
| | | | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 | 5.0 | |
| NO FILL (BARE DECK) | 35/8 | 0 | 1250 | 1035 | 880 | 765 | 675 * | 605 * | 540 * | 0.428 |
| | | 1 | 1430 | 1200 | 1025 | 895 * | 790 * | 710 * | 640 * | 0.336 |
| | | 2 | 1590 | 1345 | 1160 * | 1015 * | 905 * | 810 * | 735 * | 0.276 |
| | | 3 | 1735 | 1485 | 1290 * | 1135 * | 1010 * | 910 * | 825 * | 0.235 |
| | 35/7 | 4 | 1860 | 1610 | 1410 * | 1245 * | 1115 * | 1005 * | 915 * | 0.204 |
| | | 0 | 1200 | 1005 | 860 | 745 | 660 * | 590 * | 535 * | 0.456 |
| | | 1 | 1365 | 1155 | 995 | 870 * | 775 * | 695 * | 630 * | 0.353 |
| | | 2 | 1505 | 1290 | 1120 | 990 * | 880 * | 795 * | 720 * | 0.288 |
| | 35/5 | 3 | 1625 | 1410 | 1240 * | 1100 * | 985 * | 890 * | 810 * | 0.243 |
| | | 4 | 1730 | 1520 | 1345 * | 1200 * | 1080 * | 980 * | 895 * | 0.210 |
| | | 0 | 900 | 760 | 655 | 575 | 510 | 460 | 415 * | 0.622 |
| | | 1 | 1040 | 895 | 780 | 690 | 615 | 555 * | 505 * | 0.445 |
| | 30/7 | 2 | 1150 | 1010 | 890 | 795 | 715 * | 650 * | 595 * | 0.346 |
| | | 3 | 1235 | 1105 | 990 | 890 * | 805 * | 735 * | 675 * | 0.284 |
| | | 4 | 1305 | 1180 | 1070 | 975 * | 885 * | 815 * | 750 * | 0.240 |
| | | 0 | 1155 | 950 | 805 | 700 | 615 | 545 * | 490 * | 0.570 |
| | 30/5 | 1 | 1345 | 1120 | 955 | 830 * | 735 * | 655 * | 595 * | 0.434 |
| | | 2 | 1515 | 1275 | 1095 | 955 * | 845 * | 760 * | 690 * | 0.351 |
| | | 3 | 1665 | 1415 | 1225 * | 1075 * | 960 * | 860 * | 780 * | 0.294 |
| | | 4 | 1795 | 1550 | 1350 * | 1190 * | 1065 * | 960 * | 870 * | 0.253 |
| | 30/4 | 0 | 895 | 745 | 635 | 555 | 490 | 435 | 390 | 0.760 |
| | | 1 | 1060 | 900 | 775 | 680 | 600 | 540 * | 490 * | 0.537 |
| | | 2 | 1200 | 1030 | 900 | 795 | 710 * | 640 * | 580 * | 0.415 |
| | | 3 | 1310 | 1150 | 1015 | 900 * | 810 * | 735 * | 670 * | 0.338 |
| 2 1/2" NW CONC. (ABOVE DECK) | 4 | 1405 | 1250 | 1115 | 1000 * | 900 * | 820 * | 750 * | 0.285 | |
| | 0 | 765 | 645 | 555 | 485 | 430 | 385 | 345 | 0.855 | |
| | 1 | 905 | 780 | 680 | 600 | 535 | 485 | 440 * | 0.582 | |
| | 2 | 1015 | 895 | 790 | 705 | 635 * | 575 * | 525 * | 0.441 | |
| 2 1/2" LW CONC. (ABOVE DECK) | 3 | 1095 | 985 | 885 | 800 | 725 * | 660 * | 605 * | 0.355 | |
| | 4 | 1160 | 1060 | 965 | 880 * | 805 * | 740 * | 680 * | 0.297 | |
| | 0 | 5805 | 5625 | 5505 | 5420 | 5355 | 5305 | 5265 | 0.855 | |
| | 1 | 6060 | 5830 | 5675 | 5565 | 5480 | 5420 | 5365 | 0.582 | |
| TYPE I INSUL. FILL | 2 | 6315 | 6035 | 5845 | 5710 | 5610 | 5530 | 5470 | 0.441 | |
| | 3 | 6575 | 6240 | 6015 | 5860 | 5740 | 5645 | 5570 | 0.355 | |
| | 4 | 6830 | 6445 | 6190 | 6005 | 5865 | 5760 | 5675 | 0.297 | |
| | 0 | 4140 | 3960 | 3840 | 3755 | 3690 | 3640 | 3600 | 0.855 | |
| TYPE II INSUL. FILL | 1 | 4395 | 4165 | 4010 | 3900 | 3820 | 3755 | 3705 | 0.582 | |
| | 2 | 4655 | 4370 | 4180 | 4050 | 3945 | 3870 | 3805 | 0.441 | |
| | 3 | 4910 | 4575 | 4355 | 4195 | 4075 | 3980 | 3910 | 0.355 | |
| | 4 | 5165 | 4780 | 4525 | 4340 | 4205 | 4095 | 4010 | 0.297 | |
| TYPE I INSUL. FILL | 0 | 1345 | 1165 | 1045 | 960 | 895 | 845 | 805 | 0.855 | |
| | 1 | 1605 | 1370 | 1220 | 1110 | 1025 | 960 | 910 | 0.582 | |
| | 2 | 1860 | 1575 | 1390 | 1255 | 1155 | 1075 | 1010 | 0.441 | |
| | 3 | 2115 | 1780 | 1560 | 1400 | 1280 | 1190 | 1115 | 0.355 | |
| TYPE II INSUL. FILL | 4 | 2375 | 1990 | 1730 | 1550 | 1410 | 1305 | 1215 | 0.297 | |
| | 0 | 1615 | 1435 | 1315 | 1230 | 1165 | 1115 | 1075 | 0.855 | |
| | 1 | 1870 | 1640 | 1485 | 1375 | 1295 | 1230 | 1180 | 0.582 | |
| | 2 | 2130 | 1845 | 1655 | 1525 | 1420 | 1345 | 1280 | 0.441 | |
| TYPE II INSUL. FILL | 3 | 2385 | 2050 | 1830 | 1670 | 1550 | 1455 | 1385 | 0.355 | |
| | 4 | 2640 | 2255 | 2000 | 1815 | 1680 | 1570 | 1485 | 0.297 | |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

ϕ (Buckling): 0.80 Ω (Buckling): 2.00

| TYPE OF FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | |
|--------------|-----------------|------------------------|---|------|-----|-----|-----|-----|-----|
| | | | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 | 4.5 |
| NO FILL | ALL | 0.017 | 2205 | 1410 | 980 | 720 | 550 | 435 | 350 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

COMPOSITE DECK

t = design thickness = 0.0295"

SUPPORT FASTENING: Hilti ENP2K, X-EDIV19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | | K1 |
|---------------------------------------|-----------------|---------------------|-----------------------------|------|------|------|------|------|-------|-------|-------|-------|-------|
| | | | SPAN, FT | | | | | | | | | | |
| | | | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | |
| 1 1/2" x 6" NO FILL (BARE DECK) | 36/4 | 0 | 515 | 405 | 330 | 280 | 240 | 210 | 190 | 175 | 160 | 145 | 0.792 |
| | | 1 | 640 | 530 | 435 | | | | | | | | 0.539 |
| | | 2 | 750 | 630 | 540 | 460 | 400 | 355 | | | | | 0.409 |
| | | 3 | 845 | 720 | 620 | 545 | 475 | 425 | 380 | 345 | 315 | | 0.329 |
| | | 4 | 925 | 800 | 700 | 615 | 550 | 495 | 445 | 405 | 370 | 340 | 0.275 |
| | | 5 | 995 | 870 | 765 | 680 | 610 | 555 | 505 | 460 | 425 | 390 * | 0.237 |
| | | 6 | 1055 | 935 | 830 | 745 | 670 | 610 | 555 | 515 | 475 * | 440 * | 0.208 |
| | | 8 | 1150 | 1040 | 940 | 850 | 775 | 710 | 655 * | 605 * | 560 * | 525 * | 0.167 |
| 2" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 505 | 395 | 320 | 275 | 240 | 210 | 190 | 175 | 160 | 145 | 0.792 |
| | | 1 | 640 | 520 | 425 | | | | | | | | 0.539 |
| | | 2 | 750 | 630 | 530 | 455 | 395 | 355 | | | | | 0.409 |
| | | 3 | 845 | 720 | 620 | 545 | 475 | 425 | 380 | 345 | 315 | | 0.329 |
| | | 4 | 925 | 800 | 700 | 615 | 550 | 495 | 445 | 405 | 370 | 340 | 0.275 |
| | | 5 | 995 | 870 | 765 | 680 | 610 | 555 | 505 | 460 | 425 | 390 * | 0.237 |
| | | 6 | 1055 | 935 | 830 | 745 | 670 | 610 | 555 | 515 | 475 * | 440 * | 0.208 |
| | | 8 | 1150 | 1040 | 940 | 850 | 775 | 710 | 655 * | 605 * | 560 * | 525 * | 0.167 |
| 3" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 480 | 380 | 320 | 275 | 240 | 210 | 190 | 175 | 160 | 145 | 0.792 |
| | | 1 | 640 | 510 | 425 | | | | | | | | 0.539 |
| | | 2 | 750 | 630 | 530 | 455 | 395 | 355 | | | | | 0.409 |
| | | 3 | 845 | 720 | 620 | 545 | 475 | 425 | 380 | 345 | 315 | | 0.329 |
| | | 4 | 925 | 800 | 700 | 615 | 550 | 495 | 445 | 405 | 370 | 340 | 0.275 |
| | | 5 | 995 | 870 | 765 | 680 | 610 | 555 | 505 | 460 | 425 | 390 * | 0.237 |
| | | 6 | 1055 | 935 | 830 | 745 | 670 | 610 | 555 | 515 | 475 * | 440 * | 0.208 |
| | | 8 | 1150 | 1040 | 940 | 850 | 775 | 710 | 655 * | 605 * | 560 * | 525 * | 0.167 |
| 2 1/2" NW CONC. (ABOVE DECK) | 36/4 | 0 | 5455 | 5345 | 5270 | 5220 | 5180 | 5150 | 5125 | 5105 | 5090 | 5075 | 0.792 |
| | | 1 | 5615 | 5470 | 5380 | | | | | | | | 0.539 |
| | | 2 | 5775 | 5600 | 5485 | 5400 | 5340 | 5290 | | | | | 0.409 |
| | | 3 | 5930 | 5725 | 5590 | 5490 | 5420 | 5360 | 5315 | 5280 | 5245 | | 0.329 |
| | | 4 | 6090 | 5850 | 5695 | 5580 | 5495 | 5430 | 5380 | 5335 | 5300 | 5270 | 0.275 |
| | | 5 | 6250 | 5980 | 5800 | 5670 | 5575 | 5500 | 5440 | 5395 | 5350 | 5320 | 0.237 |
| | | 6 | 6405 | 6105 | 5905 | 5765 | 5655 | 5570 | 5505 | 5450 | 5405 | 5365 | 0.208 |
| | | 8 | 6725 | 6360 | 6115 | 5945 | 5815 | 5715 | 5630 | 5565 | 5510 | 5465 | 0.167 |
| 2 1/2" LW CONC. (ABOVE DECK) | 36/4 | 0 | 3790 | 3680 | 3610 | 3555 | 3515 | 3485 | 3460 | 3440 | 3425 | 3410 | 0.792 |
| | | 1 | 3950 | 3810 | 3715 | | | | | | | | 0.539 |
| | | 2 | 4110 | 3935 | 3820 | 3735 | 3675 | 3625 | | | | | 0.409 |
| | | 3 | 4265 | 4060 | 3925 | 3825 | 3755 | 3695 | 3650 | 3615 | 3585 | | 0.329 |
| | | 4 | 4425 | 4190 | 4030 | 3920 | 3835 | 3765 | 3715 | 3670 | 3635 | 3605 | 0.275 |
| | | 5 | 4585 | 4315 | 4135 | 4010 | 3910 | 3840 | 3780 | 3730 | 3690 | 3655 | 0.237 |
| | | 6 | 4740 | 4440 | 4240 | 4100 | 3990 | 3910 | 3840 | 3785 | 3740 | 3705 | 0.208 |
| | | 8 | 5060 | 4695 | 4455 | 4280 | 4150 | 4050 | 3970 | 3900 | 3845 | 3800 | 0.167 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

REFER TO THE 0 SIDE-LAP CONNECTION ROWS FOR DESIGN SHEAR OF DIAPHRAGMS WITH BUTTON PUNCHED SIDE-LAPS.

ϕ (Buckling): 0.80

Ω (Buckling): 2.00

| TYPE OF DECK NO FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | | |
|-------------------------|--------------------|---------------------------|---|------|------|------|------|------|------|------|------|------|
| | | | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 |
| 1 1/2" x 6" | 36/4 | 0.165 | 3405 | 2180 | 1515 | 1110 | 850 | 670 | 545 | 450 | 375 | 320 |
| 2" x 12" | 24/3 & 36/4 | 0.338 | 6115 | 3910 | 2715 | 1995 | 1525 | 1205 | 975 | 805 | 675 | 575 |
| 3" x 12" | 24/3 & 36/4 | 0.797 | 11290 | 7225 | 5015 | 3685 | 2820 | 2230 | 1805 | 1490 | 1255 | 1065 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

COMPOSITE DECK

t = design thickness = 0.0358"

SUPPORT FASTENING: Hilti ENP2K, X-EDIV19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | | K1 |
|---------------------------------------|-----------------|---------------------|-----------------------------|------|------|------|------|------|------|-------|-------|-------|-------|
| | | | SPAN, FT | | | | | | | | | | |
| | | | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | |
| 1 1/2" x 6" NO FILL (BARE DECK) | 36/4 | 0 | 625 | 495 | 405 | 340 | 295 | 255 | 230 | 210 | 190 | 175 | 0.872 |
| | | 1 | 775 | 640 | 530 | | | | | | | | 0.594 |
| | | 2 | 905 | 760 | 650 | 560 | 485 | 425 | | | | | 0.450 |
| | | 3 | 1020 | 870 | 750 | 660 | 580 | 510 | 460 | 420 | 385 | | 0.362 |
| | | 4 | 1120 | 965 | 845 | 745 | 665 | 600 | 540 | 490 | 450 | 415 | 0.303 |
| | | 5 | 1205 | 1055 | 930 | 825 | 740 | 670 | 610 | 560 | 510 | 475 | 0.261 |
| | | 6 | 1275 | 1130 | 1005 | 900 | 810 | 735 | 675 | 620 | 575 | 530 * | 0.229 |
| | | 8 | 1390 | 1255 | 1135 | 1030 | 940 | 860 | 790 | 730 * | 680 * | 635 * | 0.184 |
| 2" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 615 | 480 | 390 | 330 | 290 | 255 | 230 | 210 | 190 | 175 | 0.872 |
| | | 1 | 775 | 635 | 520 | | | | | | | | 0.594 |
| | | 2 | 905 | 760 | 645 | 550 | 480 | 425 | | | | | 0.450 |
| | | 3 | 1020 | 870 | 750 | 660 | 575 | 510 | 460 | 420 | 385 | | 0.362 |
| | | 4 | 1120 | 965 | 845 | 745 | 665 | 595 | 540 | 490 | 450 | 415 | 0.303 |
| | | 5 | 1205 | 1055 | 930 | 825 | 740 | 670 | 610 | 560 | 510 | 475 | 0.261 |
| | | 6 | 1275 | 1130 | 1005 | 900 | 810 | 735 | 675 | 620 | 575 | 530 * | 0.229 |
| | | 8 | 1390 | 1255 | 1135 | 1030 | 940 | 860 | 790 | 730 * | 680 * | 635 * | 0.184 |
| 3" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 585 | 460 | 385 | 330 | 290 | 255 | 230 | 210 | 190 | 175 | 0.872 |
| | | 1 | 775 | 615 | 510 | | | | | | | | 0.594 |
| | | 2 | 905 | 760 | 640 | 550 | 480 | 425 | | | | | 0.450 |
| | | 3 | 1020 | 870 | 750 | 660 | 575 | 510 | 460 | 420 | 385 | | 0.362 |
| | | 4 | 1120 | 965 | 845 | 745 | 665 | 595 | 540 | 490 | 450 | 415 | 0.303 |
| | | 5 | 1205 | 1055 | 930 | 825 | 740 | 670 | 610 | 560 | 510 | 475 | 0.261 |
| | | 6 | 1275 | 1130 | 1005 | 900 | 810 | 735 | 675 | 620 | 575 | 530 * | 0.229 |
| | | 8 | 1390 | 1255 | 1135 | 1030 | 940 | 860 | 790 | 730 * | 680 * | 635 * | 0.184 |
| 2 1/2" NW CONC. (ABOVE DECK) | 36/4 | 0 | 5570 | 5435 | 5350 | 5285 | 5235 | 5200 | 5170 | 5145 | 5125 | 5110 | 0.872 |
| | | 1 | 5760 | 5590 | 5475 | | | | | | | | 0.594 |
| | | 2 | 5955 | 5745 | 5605 | 5505 | 5430 | 5370 | | | | | 0.450 |
| | | 3 | 6145 | 5900 | 5730 | 5615 | 5525 | 5455 | 5400 | 5355 | 5320 | | 0.362 |
| | | 4 | 6340 | 6050 | 5860 | 5725 | 5620 | 5540 | 5480 | 5425 | 5380 | 5345 | 0.303 |
| | | 5 | 6530 | 6205 | 5990 | 5835 | 5715 | 5625 | 5555 | 5495 | 5445 | 5405 | 0.261 |
| | | 6 | 6725 | 6360 | 6115 | 5945 | 5815 | 5710 | 5630 | 5565 | 5510 | 5465 | 0.229 |
| | | 8 | 7105 | 6665 | 6375 | 6165 | 6005 | 5885 | 5785 | 5705 | 5640 | 5580 | 0.184 |
| 2 1/2" LW CONC. (ABOVE DECK) | 36/4 | 0 | 3905 | 3775 | 3685 | 3620 | 3575 | 3535 | 3505 | 3480 | 3460 | 3445 | 0.872 |
| | | 1 | 4100 | 3925 | 3810 | | | | | | | | 0.594 |
| | | 2 | 4290 | 4080 | 3940 | 3840 | 3765 | 3705 | | | | | 0.450 |
| | | 3 | 4480 | 4235 | 4070 | 3950 | 3860 | 3790 | 3735 | 3690 | 3655 | | 0.362 |
| | | 4 | 4675 | 4390 | 4195 | 4060 | 3960 | 3880 | 3815 | 3760 | 3720 | 3680 | 0.303 |
| | | 5 | 4865 | 4540 | 4325 | 4170 | 4055 | 3965 | 3890 | 3830 | 3785 | 3740 | 0.261 |
| | | 6 | 5060 | 4695 | 4455 | 4280 | 4150 | 4050 | 3970 | 3900 | 3845 | 3800 | 0.229 |
| | | 8 | 5445 | 5005 | 4710 | 4500 | 4340 | 4220 | 4120 | 4040 | 3975 | 3920 | 0.184 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

REFER TO THE 0 SIDE-LAP CONNECTION ROWS FOR DESIGN SHEAR OF DIAPHRAGMS WITH BUTTON PUNCHED SIDE-LAPS.

ϕ (Buckling): 0.80

Ω (Buckling): 2.00

| TYPE OF DECK NO FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | | |
|----------------------|-----------------|------------------------|---|------|------|------|------|------|------|------|------|------|
| | | | 4.0 | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 |
| 1 1/2" x 6" | 36/4 | 0.212 | 4755 | 3040 | 2110 | 1550 | 1185 | 935 | 760 | 625 | 525 | 450 |
| 2" x 12" | 24/3 & 36/4 | 0.420 | 8320 | 5325 | 3695 | 2715 | 2080 | 1640 | 1330 | 1100 | 925 | 785 |
| 3" x 12" | 24/3 & 36/4 | 0.993 | 15395 | 9855 | 6840 | 5025 | 3850 | 3040 | 2460 | 2035 | 1710 | 1455 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

COMPOSITE DECK

t = design thickness = 0.0474"

SUPPORT FASTENING: Hilti ENP2K, X-EDN19, X-EDN22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | | K1 |
|---------------------------------------|-----------------|---------------------|-----------------------------|------|------|------|------|------|------|------|------|-------|-------|
| | | | SPAN, FT | | | | | | | | | | |
| | | | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | |
| 1 1/2" x 6" NO FILL (BARE DECK) | 36/4 | 0 | 650 | 535 | 450 | 390 | 340 | 305 | 275 | 250 | 230 | 215 | 1.004 |
| | | 1 | 840 | 705 | | | | | | | | | 0.683 |
| | | 2 | 1000 | 855 | 745 | 645 | 570 | | | | | | 0.518 |
| | | 3 | 1140 | 990 | 865 | 770 | 680 | 610 | 550 | 505 | | | 0.417 |
| | | 4 | 1270 | 1110 | 980 | 875 | 790 | 710 | 645 | 590 | 545 | 505 | 0.349 |
| | | 5 | 1385 | 1220 | 1085 | 975 | 880 | 805 | 735 | 675 | 625 | 580 | 0.300 |
| | | 6 | 1485 | 1320 | 1185 | 1065 | 970 | 890 | 815 | 755 | 700 | 650 | 0.263 |
| | | 8 | 1650 | 1495 | 1355 | 1235 | 1130 | 1040 | 965 | 895 | 835 | 785 * | 0.211 |
| 2" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 635 | 520 | 435 | 375 | 335 | 300 | 275 | 250 | 230 | 215 | 1.004 |
| | | 1 | 840 | 690 | | | | | | | | | 0.683 |
| | | 2 | 1000 | 855 | 730 | 630 | 560 | | | | | | 0.518 |
| | | 3 | 1140 | 990 | 865 | 760 | 675 | 605 | 550 | 505 | | | 0.417 |
| | | 4 | 1270 | 1110 | 980 | 875 | 785 | 710 | 645 | 590 | 545 | 505 | 0.349 |
| | | 5 | 1385 | 1220 | 1085 | 975 | 880 | 805 | 735 | 675 | 625 | 580 | 0.300 |
| | | 6 | 1485 | 1320 | 1185 | 1065 | 970 | 890 | 815 | 755 | 700 | 650 | 0.263 |
| | | 8 | 1650 | 1495 | 1355 | 1235 | 1130 | 1040 | 965 | 895 | 835 | 785 * | 0.211 |
| 3" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 605 | 500 | 430 | 375 | 335 | 300 | 275 | 250 | 230 | 215 | 1.004 |
| | | 1 | 810 | 670 | | | | | | | | | 0.683 |
| | | 2 | 1000 | 840 | 720 | 630 | 560 | | | | | | 0.518 |
| | | 3 | 1140 | 990 | 865 | 760 | 675 | 605 | 550 | 505 | | | 0.417 |
| | | 4 | 1270 | 1110 | 980 | 875 | 785 | 710 | 645 | 590 | 545 | 505 | 0.349 |
| | | 5 | 1385 | 1220 | 1085 | 975 | 880 | 805 | 735 | 675 | 625 | 580 | 0.300 |
| | | 6 | 1485 | 1320 | 1185 | 1065 | 970 | 890 | 815 | 755 | 700 | 650 | 0.263 |
| | | 8 | 1650 | 1495 | 1355 | 1235 | 1130 | 1040 | 965 | 895 | 835 | 785 * | 0.211 |
| 2 1/2" NW CONC. (ABOVE DECK) | 36/4 | 0 | 5600 | 5485 | 5400 | 5340 | 5290 | 5250 | 5220 | 5195 | 5170 | 5155 | 1.004 |
| | | 1 | 5805 | 5655 | | | | | | | | | 0.683 |
| | | 2 | 6010 | 5825 | 5690 | 5595 | 5515 | | | | | | 0.518 |
| | | 3 | 6210 | 5995 | 5840 | 5720 | 5630 | 5560 | 5500 | 5450 | | | 0.417 |
| | | 4 | 6415 | 6165 | 5985 | 5850 | 5745 | 5660 | 5590 | 5535 | 5485 | 5445 | 0.349 |
| | | 5 | 6620 | 6335 | 6130 | 5975 | 5855 | 5760 | 5685 | 5620 | 5565 | 5515 | 0.300 |
| | | 6 | 6820 | 6500 | 6275 | 6105 | 5970 | 5865 | 5775 | 5705 | 5640 | 5590 | 0.263 |
| | | 8 | 7230 | 6840 | 6565 | 6355 | 6195 | 6065 | 5960 | 5875 | 5800 | 5735 | 0.211 |
| 2 1/2" LW CONC. (ABOVE DECK) | 36/4 | 0 | 3935 | 3820 | 3740 | 3675 | 3625 | 3590 | 3555 | 3530 | 3510 | 3490 | 1.004 |
| | | 1 | 4140 | 3990 | | | | | | | | | 0.683 |
| | | 2 | 4345 | 4160 | 4030 | 3930 | 3855 | | | | | | 0.518 |
| | | 3 | 4545 | 4330 | 4175 | 4055 | 3965 | 3895 | 3835 | 3785 | | | 0.417 |
| | | 4 | 4750 | 4500 | 4320 | 4185 | 4080 | 3995 | 3925 | 3870 | 3820 | 3780 | 0.349 |
| | | 5 | 4955 | 4670 | 4465 | 4310 | 4195 | 4095 | 4020 | 3955 | 3900 | 3855 | 0.300 |
| | | 6 | 5160 | 4840 | 4610 | 4440 | 4305 | 4200 | 4110 | 4040 | 3980 | 3925 | 0.263 |
| | | 8 | 5565 | 5180 | 4900 | 4695 | 4530 | 4405 | 4295 | 4210 | 4135 | 4070 | 0.211 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

REFER TO THE 0 SIDE-LAP CONNECTION ROWS FOR DESIGN SHEAR OF DIAPHRAGMS WITH BUTTON PUNCHED SIDE-LAPS.

ϕ (Buckling): 0.80

Ω (Buckling): 2.00

| TYPE OF DECK NO FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | | |
|-------------------------|--------------------|---------------------------|---|-------|------|------|------|------|------|------|------|------|
| | | | 5.0 | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 |
| 1 1/2" x 6" | 36/4 | 0.308 | 4970 | 3450 | 2535 | 1940 | 1530 | 1240 | 1025 | 860 | 735 | 630 |
| 2" x 12" | 24/3 & 36/4 | 0.560 | 8155 | 5665 | 4160 | 3185 | 2515 | 2035 | 1685 | 1415 | 1205 | 1040 |
| 3" x 12" | 24/3 & 36/4 | 1.324 | 15090 | 10480 | 7700 | 5895 | 4655 | 3770 | 3115 | 2620 | 2230 | 1925 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]

COMPOSITE DECK

t = design thickness = 0.0598"

SUPPORT FASTENING: Hilti ENP2K, X-EDV19, X-EDNK22 or X-HSN 24 (0.125" to 0.375" support steel)

SIDE-LAP FASTENING: #10 screws

ϕ (EQ): 0.65 Ω (EQ): 2.50 ϕ (FILLED, EQ): 0.50 Ω (FILLED, EQ): 3.25
 ϕ (WIND): 0.70 Ω (WIND): 2.35 ϕ (FILLED, WIND): 0.50 Ω (FILLED, WIND): 3.25
 ϕ (Other): 0.65 Ω (Other): 2.50 ϕ (FILLED, Other): 0.50 Ω (FILLED, Other): 3.25

| TYPE OF FILL | FASTENER LAYOUT | SIDE-LAP CONN./SPAN | NOMINAL SHEAR STRENGTH, PLF | | | | | | | | | | K1 |
|---------------------------------------|-----------------|---------------------|-----------------------------|------|------|------|------|------|------|------|------|------|-------|
| | | | SPAN, FT | | | | | | | | | | |
| | | | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 | |
| 1 1/2" x 6" NO FILL (BARE DECK) | 36/4 | 0 | 675 | 570 | 490 | 430 | 385 | 345 | 315 | 290 | 270 | 250 | 1.127 |
| | | 1 | 885 | | | | | | | | | | 0.768 |
| | | 2 | 1070 | 935 | 815 | 715 | | | | | | | 0.582 |
| | | 3 | 1235 | 1085 | 965 | 860 | 770 | 695 | 635 | | | | 0.468 |
| | | 4 | 1390 | 1230 | 1095 | 990 | 895 | 810 | 740 | 685 | 635 | 590 | 0.392 |
| | | 5 | 1530 | 1360 | 1220 | 1105 | 1010 | 925 | 845 | 780 | 725 | 680 | 0.337 |
| | | 6 | 1655 | 1480 | 1340 | 1215 | 1115 | 1025 | 950 | 880 | 820 | 765 | 0.296 |
| | | 8 | 1870 | 1700 | 1550 | 1420 | 1305 | 1210 | 1125 | 1050 | 985 | 925* | 0.237 |
| 2" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 655 | 555 | 475 | 415 | 375 | 340 | 315 | 290 | 270 | 250 | 1.127 |
| | | 1 | 870 | | | | | | | | | | 0.768 |
| | | 2 | 1070 | 920 | 795 | 700 | | | | | | | 0.582 |
| | | 3 | 1235 | 1085 | 955 | 845 | 760 | 690 | 635 | | | | 0.468 |
| | | 4 | 1390 | 1230 | 1095 | 985 | 890 | 810 | 740 | 685 | 635 | 590 | 0.392 |
| | | 5 | 1530 | 1360 | 1220 | 1105 | 1010 | 925 | 845 | 780 | 725 | 680 | 0.337 |
| | | 6 | 1655 | 1480 | 1340 | 1215 | 1115 | 1025 | 950 | 880 | 820 | 765 | 0.296 |
| | | 8 | 1870 | 1700 | 1550 | 1420 | 1305 | 1210 | 1125 | 1050 | 985 | 925* | 0.237 |
| 3" x 12" NO FILL (BARE DECK) | 36/4 | 0 | 625 | 535 | 470 | 415 | 375 | 340 | 315 | 290 | 270 | 250 | 1.127 |
| | | 1 | 840 | | | | | | | | | | 0.768 |
| | | 2 | 1055 | 905 | 790 | 700 | | | | | | | 0.582 |
| | | 3 | 1235 | 1085 | 950 | 845 | 760 | 690 | 635 | | | | 0.468 |
| | | 4 | 1390 | 1230 | 1095 | 985 | 890 | 810 | 740 | 685 | 635 | 590 | 0.392 |
| | | 5 | 1530 | 1360 | 1220 | 1105 | 1010 | 925 | 845 | 780 | 725 | 680 | 0.337 |
| | | 6 | 1655 | 1480 | 1340 | 1215 | 1115 | 1025 | 950 | 880 | 820 | 765 | 0.296 |
| | | 8 | 1870 | 1700 | 1550 | 1420 | 1305 | 1210 | 1125 | 1050 | 985 | 925* | 0.237 |
| 2 1/2" NW CONC. (ABOVE DECK) | 36/4 | 0 | 5625 | 5525 | 5445 | 5385 | 5340 | 5300 | 5265 | 5240 | 5215 | 5195 | 1.127 |
| | | 1 | 5840 | | | | | | | | | | 0.768 |
| | | 2 | 6055 | 5890 | 5765 | 5670 | | | | | | | 0.582 |
| | | 3 | 6270 | 6075 | 5930 | 5815 | 5725 | 5650 | 5585 | | | | 0.468 |
| | | 4 | 6485 | 6255 | 6090 | 5955 | 5850 | 5765 | 5695 | 5635 | 5580 | 5535 | 0.392 |
| | | 5 | 6695 | 6440 | 6250 | 6100 | 5980 | 5880 | 5800 | 5730 | 5670 | 5620 | 0.337 |
| | | 6 | 6910 | 6625 | 6410 | 6240 | 6110 | 6000 | 5910 | 5830 | 5765 | 5705 | 0.296 |
| | | 8 | 7340 | 6990 | 6730 | 6525 | 6365 | 6230 | 6120 | 6030 | 5950 | 5880 | 0.237 |
| 2 1/2" LW CONC. (ABOVE DECK) | 36/4 | 0 | 3965 | 3860 | 3780 | 3720 | 3675 | 3635 | 3600 | 3575 | 3550 | 3530 | 1.127 |
| | | 1 | 4175 | | | | | | | | | | 0.768 |
| | | 2 | 4390 | 4225 | 4105 | 4005 | | | | | | | 0.582 |
| | | 3 | 4605 | 4410 | 4265 | 4150 | 4060 | 3985 | 3925 | | | | 0.468 |
| | | 4 | 4820 | 4595 | 4425 | 4295 | 4190 | 4100 | 4030 | 3970 | 3915 | 3870 | 0.392 |
| | | 5 | 5035 | 4775 | 4585 | 4435 | 4315 | 4220 | 4135 | 4070 | 4010 | 3955 | 0.337 |
| | | 6 | 5245 | 4960 | 4745 | 4580 | 4445 | 4335 | 4245 | 4165 | 4100 | 4045 | 0.296 |
| | | 8 | 5675 | 5325 | 5065 | 4865 | 4700 | 4570 | 4460 | 4365 | 4285 | 4215 | 0.237 |

* NOMINAL SHEAR SHOWN ABOVE MAY BE LIMITED BY SHEAR BUCKLING. SEE TABLE BELOW.

THE SHADED VALUES DO NOT COMPLY WITH THE MINIMUM SPACING REQUIREMENTS FOR SIDE-LAP CONNECTIONS AND SHALL NOT BE USED EXCEPT WITH PROPERLY SPACED SIDE-LAP CONNECTIONS.

WHEN FILLED DIAPHRAGMS ARE USED, IT MAY BE NECESSARY TO INCREASE THE NUMBER, OR STRENGTH, OF THE PERIMETER CONNECTIONS TO DEVELOP THE VALUES SHOWN IN THE TABLE. CHECK SECTION 5.4.

REFER TO THE 0 SIDE-LAP CONNECTION ROWS FOR DESIGN SHEAR OF DIAPHRAGMS WITH BUTTON PUNCHED SIDE-LAPS.

ϕ (Buckling): 0.80

Ω (Buckling): 2.00

| TYPE OF DECK NO FILL | FASTENER LAYOUT | I in ⁴ / ft | NOMINAL SHEAR DUE TO PANEL BUCKLING (S _n), PLF / SPAN, FT | | | | | | | | | |
|-------------------------|--------------------|---------------------------|---|-------|------|------|------|------|------|------|------|------|
| | | | 6.0 | 7.0 | 8.0 | 9.0 | 10.0 | 11.0 | 12.0 | 13.0 | 14.0 | 15.0 |
| 1 1/2" x 6" | 36/4 | 0.400 | 5000 | 3670 | 2810 | 2220 | 1800 | 1485 | 1250 | 1065 | 915 | 800 |
| 2" x 12" | 24/3 & 36/4 | 0.700 | 7970 | 5855 | 4480 | 3540 | 2870 | 2370 | 1990 | 1695 | 1460 | 1275 |
| 3" x 12" | 24/3 & 36/4 | 1.666 | 14820 | 10890 | 8335 | 6585 | 5335 | 4410 | 3705 | 3155 | 2720 | 2370 |

NOTE: ASD Required Strength (Service Applied Load) <= Minimum [Nominal Shear Strength / Ω (EQ or WIND), Nominal Buckling Strength S_n / Ω (Buckling)]
 LRFD Required Strength (Factored Applied Load) <= Minimum [ϕ (EQ or WIND) x Nominal Shear Strength, ϕ (Buckling) x Nominal Buckling Strength S_n]