

DIAPHRAGM DESIGN MANUAL

FOURTH EDITION

ERRATA #2 - JUNE 19, 2016

The correct designation of Hilti fasteners in Section 12 (all locations) is Hilti X-ENP-19 L15.
It is incorrectly indicated to be Hilti X-ENP-19 L5.

TABLE OF CONTENTS

ROOF DECK

Deck Type	Side-Lap Connection	Fastening Pattern	Frame Fastener									
			5/8 in. Arc Spot Welds	No. 12 Screws	Pneutek				Hilti			Simpson
					SDK61 Series	SDK63 Series	K64 Series	K66 Series	ENP2 ENPH2	ENP2K X-ENDK22 X-EDN19 X-HSN24	X-ENP-19 L15	XL
1-1/2" Roof Deck	No. 10 Screws	36/9 36/7 36/5 36/4	12-5 thru 12-8	12-9 thru 12-12	12-13 thru 12-16	12-17 thru 12-20	12-21 thru 12-24	12-25 thru 12-28	12-29 thru 12-32	12-33 thru 12-36	12-37 thru 12-40	12-41 thru 12-48
		30/6 30/4										
3" Roof Deck	No. 10 Screws	24/4	12-49	12-50	12-51	12-52	12-53	12-54	12-55	12-56	12-57	12-58, 12-59

FORM DECK (Side-Lap Connection: No. 10 Screws)

Deck Type	Side-Lap Connection	Fastening Pattern	Frame Fastener									
			Weld with Weld Washer	No. 12 Screws	Pneutek				Hilti			
					SDK61 Series	SDK63 Series	K64 Series	K66 Series	ENP2 ENPH2	ENP2K X-ENDK22 X-EDN19 X-HSN24	X-ENP-19 L15	
9/16" x 2-1/2" Form Deck	Without Fill	35/8 35/7 35/5	12-60 thru 12-62	12-63 thru 12-65	12-66 thru 12-68	12-69 thru 12-71	12-72 thru 12-74	12-75 thru 12-77	12-78 thru 12-80	12-81 thru 12-83	12-84 thru 12-86	
		30/7 30/5 30/4										
	NW & LW Concrete	30/4										
	Type I Insulating Fill	30/4										

COMPOSITE DECK (Support Fastener Pattern: 36/4)

Deck Type	Side-Lap Connection	Type of Fill	Frame Fastener									
			5/8 in. Arc Spot Welds	No. 12 Screws	Pneutek				Hilti			
					SDK61 Series	SDK63 Series	K64 Series	K66 Series	ENP2 ENPH2	ENP2K X-ENDK22 X-EDN19 X-HSN24	X-ENP-19 L15	
1-1/2" x 6" 2" x 12" 3" x 12"	Welds	None NW Concrete LW Concrete	12-87 thru 12-90	12-91 thru 12-94	12-95 thru 12-98	12-99 thru 12-102	12-103 thru 12-106	12-107 thru 12-110	12-111 thru 12-114	12-115 thru 12-118	12-119 thru 12-122	
		None NW Concrete LW Concrete										
	No. 10 Screws											

1.5(WR, IR, NR)22

Design thickness = 0.0295 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti, Simpson Strong-Tie or Triangle #10 screws
0.250 in. and thicker Support Steel

F_u= 45 ksi

F_y= 33 ksi

Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50
Wind	0.70	2.35
Other	0.65	2.50

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ /ft
		Span, ft.									
		3	3.5	4	4.5	5	5.5	6	6.5	7	
36/9	0	1635	1440	1280	1135	1010					0.211
	1	1785	1575	1410	1270	1140	1030	935			0.188
	2	1920	1710	1530	1385	1265	1145	1040	955	880	0.169
	3	2050	1830	1650	1495	1370	1260	1145	1055	970	0.154
	4	2170	1945	1760	1605	1470	1355	1250	1150	1060	0.141
	5	2280	2055	1865	1705	1565	1445	1340	1245	1155	0.130
36/7	0	1045	910	790	700	625					0.317
	1	1220	1065	945	840	750	680	620			0.267
	2	1380	1210	1080	970	875	795	725	665	615	0.230
	3	1530	1350	1205	1090	990	910	830	765	705	0.203
	4	1665	1480	1330	1205	1100	1010	930	860	795	0.181
	5	1790	1605	1445	1315	1200	1105	1025	950	885	0.163
36/5	0	925	815	725	645	575					0.380
	1	1070	950	850	770	700	635	580			0.310
	2	1200	1075	970	880	805	740	685	630	580	0.262
	3	1310	1185	1075	980	900	830	770	720	670	0.227
	4	1405	1280	1170	1075	995	920	855	800	750	0.200
	5	1490	1370	1260	1165	1075	1000	935	875	820	0.179
36/4	0	705	620	550	485	435					0.475
	1	850	755	680	615	560	505	460			0.371
	2	965	870	790	720	660	610	565	520	480	0.304
	3	1065	970	885	815	750	695	650	605	570	0.258
	4	1145	1055	970	900	835	775	725	680	640	0.224
	5	1210	1125	1045	975	910	850	800	750	705	0.197
30/6	0	950	815	705	625	555					0.422
	1	1130	985	865	765	685	620	565			0.349
	2	1295	1135	1010	905	810	735	670	615	565	0.298
	3	1450	1280	1140	1025	935	850	775	710	660	0.260
	4	1595	1415	1265	1145	1040	955	880	810	750	0.230
	5	1725	1540	1385	1255	1145	1055	975	905	840	0.207
30/4	0	865	760	675	605	540					0.475
	1	1005	895	800	725	660	600	550			0.385
	2	1125	1010	915	835	765	705	650	600	555	0.323
	3	1230	1115	1015	930	860	795	735	690	645	0.279
	4	1315	1205	1110	1020	945	875	820	765	720	0.245
	5	1390	1285	1190	1100	1025	955	895	840	790	0.219
6	1455	1355	1260	1175	1100	1030	965	905	855	0.197	

¹ Nominal shear strength shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		3	3.5	4	4.5	5	5.5	6	6.5	7
NR	0.114	11246	8263	6326	4998	4049	3346	2812	2396	2066
IR	0.125	12191	8956	6857	5418	4389	3627	3048	2597	2239
WR	0.173	15500	11388	8719	6889	5580	4612	3875	3302	2847

² Design Strengths:

ASD Required strength (Service Applied Load) ≤ Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) ≤ Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

ROOF DECK

1.5(WR, IR, NR)20

Design thickness = 0.0358 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti, Simpson Strong-Tie or Triangle #10 screws
0.250 in. and thicker Support Steel

$F_u = 45$ ksi

$F_y = 33$ ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.65	2.50
Wind	0.70	2.35
Other	0.65	2.50

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf} , plf ^{1,2}									K_1 1/ft
		Span, ft.									
		4	4.5	5	5.5	6	6.5	7	7.5	8	
36/9	0	1545	1375	1230							0.233
	1	1700	1535	1385	1250	1140					0.207
	2	1850	1675	1525	1390	1265	1160	1075	995	930	0.186
	3	1990	1810	1650	1520	1395	1280	1185	1100	1025	0.169
	4	2125	1935	1775	1635	1515	1400	1295	1200	1120	0.155
	5	2255	2060	1890	1745	1620	1510	1400	1305	1215	0.143
36/7	0	955	845	755							0.349
	1	1140	1015	910	825	750					0.294
	2	1305	1170	1065	965	880	810	745	695	650	0.254
	3	1460	1315	1200	1100	1005	925	855	795	745	0.223
	4	1610	1455	1330	1220	1125	1045	965	900	840	0.199
	5	1750	1590	1455	1335	1235	1150	1075	1000	935	0.180
36/5	0	875	780	700							0.419
	1	1025	930	845	770	705					0.342
	2	1170	1060	970	895	825	765	705	655	610	0.289
	3	1300	1185	1090	1005	935	870	815	760	710	0.250
	4	1415	1300	1200	1110	1035	965	905	850	805	0.220
	5	1520	1405	1300	1210	1130	1060	995	935	885	0.197
36/4	0	670	590	530							0.523
	1	820	740	680	615	560					0.408
	2	955	870	800	735	685	630	585	540	505	0.335
	3	1070	985	910	845	785	735	685	645	600	0.284
	4	1175	1085	1010	940	880	825	775	730	690	0.246
	5	1265	1180	1100	1030	965	910	855	810	765	0.217
30/6	0	855	755	675							0.465
	1	1050	930	830	750	685					0.385
	2	1220	1095	985	890	815	745	690	640	600	0.328
	3	1380	1240	1130	1030	940	865	800	745	695	0.286
	4	1530	1385	1260	1155	1070	985	910	845	790	0.254
	5	1675	1520	1390	1275	1180	1095	1020	950	885	0.228
30/4	0	815	735	655							0.523
	1	970	875	800	730	665					0.424
	2	1105	1005	920	850	790	730	675	625	585	0.356
	3	1230	1125	1035	960	890	830	780	730	680	0.307
	4	1340	1235	1140	1060	990	925	870	820	775	0.270
	5	1440	1335	1240	1155	1080	1015	955	900	850	0.241
6	1525	1420	1330	1245	1165	1095	1035	980	925	0.217	

¹ Nominal shear strength shown above may be limited by shear buckling. See table below.

	ϕ_{db}	Ω_{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S_{nb} , plf ²								
		Span, ft								
		4	4.5	5	5.5	6	6.5	7	7.5	8
NR	0.138	8467	6690	5419	4478	3763	3206	2765	2408	2117
IR	0.151	9177	7251	5873	4854	4079	3475	2997	2610	2294
WR	0.210	11665	9216	7465	6170	5184	4417	3809	3318	2916

² Design Strengths:

ASD Required strength (Service Applied Load) $\leq \text{Min} \{S_{nf} / \Omega_{df}, S_{nb} / \Omega_{db}\}$

LRFD Required strength (Factored Applied Load) $\leq \text{Min} \{\phi_{df} S_{nf}, \phi_{db} S_{nb}\}$

1.5(WR, IR, NR)18

Design thickness = 0.0474 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti, Simpson Strong-Tie or Triangle #10 screws
0.250 in. and thicker Support Steel

F_u= 45 ksi

F_y= 33 ksi

Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50
Wind	0.70	2.35
Other	0.65	2.50

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft
		Span, ft.									
		5	5.5	6	6.5	7	7.5	8	8.5	9	
36/9	0	1625									0.268
	1	1825	1650	1505							0.238
	2	2000	1835	1675	1540	1420	1320	1230	1155	1085	0.214
	3	2170	1995	1845	1695	1570	1455	1360	1275	1195	0.195
	4	2330	2145	1990	1850	1715	1590	1485	1395	1310	0.178
	5	2485	2295	2130	1985	1855	1730	1615	1515	1425	0.165
36/7	0	1000									0.401
	1	1200	1090	995							0.338
	2	1395	1275	1160	1070	990	920	860	805	760	0.292
	3	1575	1445	1330	1225	1135	1055	985	925	870	0.257
	4	1745	1605	1480	1375	1280	1190	1115	1045	985	0.229
	5	1910	1760	1630	1515	1415	1325	1240	1165	1095	0.207
36/5	0	925									0.482
	1	1110	1020	930							0.393
	2	1275	1175	1085	1010	935	870	810	760	715	0.332
	3	1430	1320	1225	1145	1070	1005	940	880	830	0.288
	4	1575	1460	1360	1270	1190	1120	1060	1000	940	0.254
	5	1710	1595	1485	1390	1310	1235	1165	1105	1050	0.227
36/4	0	700									0.602
	1	890	815	745							0.470
	2	1050	970	900	835	775	720	670	630	590	0.385
	3	1195	1110	1030	965	905	850	800	750	705	0.327
	4	1325	1235	1155	1085	1020	960	910	860	820	0.283
	5	1445	1355	1270	1195	1125	1065	1010	960	915	0.250
30/6	0	895									0.535
	1	1095	990	905							0.443
	2	1300	1175	1075	990	915	850	795	745	700	0.378
	3	1485	1360	1245	1145	1060	985	920	865	815	0.329
	4	1660	1520	1405	1300	1205	1120	1050	985	925	0.292
	5	1825	1680	1555	1445	1350	1255	1175	1105	1040	0.262
30/4	0	865									0.602
	1	1050	965	885							0.488
	2	1210	1115	1035	965	895	830	775	730	685	0.410
	3	1360	1260	1170	1095	1025	965	905	850	800	0.354
	4	1500	1395	1300	1215	1145	1075	1015	965	910	0.311
	5	1630	1520	1420	1335	1255	1185	1120	1065	1010	0.277
6	1745	1635	1535	1445	1360	1290	1220	1160	1105	0.250	

¹ Nominal shear strength shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		5	5.5	6	6.5	7	7.5	8	8.5	9
NR	0.184	8280	6843	5750	4900	4225	3680	3234	2865	2556
IR	0.201	8964	7408	6225	5304	4573	3984	3501	3102	2767
WR	0.279	11390	9413	7909	6739	5811	5062	4449	3941	3515

² Design Strengths:

ASD Required strength (Service Applied Load) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) <= Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

ROOF DECK

1.5(WR, IR, NR)16

Design thickness = 0.0598 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti, Simpson Strong-Tie or Triangle #10 screws
0.250 in. and thicker Support Steel

F_u= 45 ksi

F_y= 33 ksi

Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50
Wind	0.70	2.35
Other	0.65	2.50

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft
		Span, ft.									
		6	6.5	7	7.5	8	8.5	9	9.5	10	
36/9	1	1890									0.267
	2	2105	1935	1790	1665	1550	1455	1370			0.240
	3	2305	2135	1975	1835	1715	1605	1510	1425	1350	0.219
	4	2485	2315	2155	2005	1875	1755	1655	1560	1475	0.200
	5	2660	2480	2320	2175	2035	1910	1795	1695	1605	0.185
	6	2830	2645	2475	2330	2195	2060	1940	1830	1735	0.172
	7	2995	2800	2625	2475	2335	2210	2080	1965	1860	0.160
36/7	1	1245									0.380
	2	1460	1345	1245	1155	1080	1015	955			0.328
	3	1665	1540	1425	1330	1240	1165	1095	1035	980	0.289
	4	1855	1725	1610	1500	1400	1315	1240	1170	1110	0.258
	5	2040	1895	1775	1665	1565	1465	1385	1305	1240	0.233
	6	2220	2065	1935	1815	1710	1615	1525	1440	1365	0.212
	7	2390	2230	2090	1965	1850	1750	1660	1575	1495	0.195
36/5	1	1170									0.442
	2	1360	1265	1175	1095	1025	960	905			0.373
	3	1535	1430	1340	1260	1185	1110	1045	990	935	0.323
	4	1705	1590	1495	1405	1325	1255	1190	1125	1065	0.285
	5	1860	1745	1640	1545	1460	1385	1315	1250	1190	0.255
	6	2010	1890	1780	1680	1590	1510	1435	1365	1305	0.230
	7	2150	2025	1910	1810	1715	1630	1550	1480	1415	0.210
36/4	1	935									0.528
	2	1125	1045	975	910	850	795	745			0.433
	3	1290	1205	1130	1065	1005	945	890	840	795	0.367
	4	1445	1355	1275	1205	1140	1080	1025	975	925	0.318
	5	1590	1495	1410	1335	1265	1200	1145	1090	1045	0.281
	6	1720	1625	1540	1460	1385	1320	1255	1200	1150	0.252
	7	1840	1745	1655	1575	1500	1430	1365	1305	1250	0.228
30/6	1	1135									0.498
	2	1350	1245	1150	1070	1000	935	880			0.424
	3	1565	1440	1335	1240	1160	1090	1025	970	915	0.370
	4	1760	1635	1515	1410	1320	1240	1170	1105	1045	0.328
	5	1945	1810	1690	1585	1480	1390	1310	1240	1175	0.294
	6	2130	1980	1850	1740	1635	1540	1455	1375	1300	0.267
	7	2305	2145	2010	1890	1780	1685	1595	1510	1430	0.245
30/4	1	1110									0.548
	2	1295	1205	1125	1045	980	920	865			0.460
	3	1465	1370	1280	1205	1135	1070	1005	950	900	0.397
	4	1630	1525	1430	1350	1275	1205	1145	1085	1030	0.349
	5	1780	1670	1570	1485	1405	1330	1265	1205	1150	0.311
	6	1920	1810	1705	1615	1530	1455	1385	1320	1260	0.281
	7	2055	1940	1835	1735	1650	1570	1495	1430	1365	0.256

¹ Nominal shear strength shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		6	6.5	7	7.5	8	8.5	9	9.5	10
NR	0.233	8173	6964	6005	5231	4597	4072	3632	3260	2942
IR	0.254	8841	7533	6495	5658	4973	4405	3929	3527	3183
WR	0.353	11224	9564	8247	7184	6314	5593	4989	4477	4041

² Design Strengths:

ASD Required strength (Service Applied Load) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) <= Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

FORM DECK

9/16" x 2-1/2" x 26 Ga.

Design thickness = 0.0179 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti,

Simpson Strong-Tie or Triangle #10 screws

Support thickness: 0.250 in. and thicker

F_u = 62 ksi

F_y = 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	φ _{df}	Ω _{df}	Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft
			Span, ft.									
			1.5	2	2.5	3	3.5	4	4.5	5	5.5	
No Fill (Bare Deck)	35/8	0	1305	1045	865	735	635	560	500	450		0.370
		1	1445	1180	985	845	735	650	580	525	475	0.291
		2	1570	1300	1100	945	825	735	660	595	545	0.239
		3	1675	1410	1205	1045	915	815	735	665	610	0.203
	35/7	4	1765	1510	1300	1135	1000	895	805	735	670	0.177
		0	1230	1005	835	715	625	550	495	445		0.395
		1	1355	1125	950	820	715	635	570	515	470	0.306
		2	1455	1230	1055	915	805	715	645	585	535	0.249
	35/5	3	1545	1325	1150	1005	890	795	715	650	600	0.210
		4	1615	1410	1235	1085	965	870	785	715	660	0.182
		0	905	750	635	545	480	425	380	345		0.538
		1	1005	855	735	640	565	505	455	415	380	0.385
	30/7	2	1075	940	825	725	645	580	525	480	440	0.300
		3	1135	1010	895	800	720	650	590	540	500	0.245
		4	1175	1065	960	865	785	710	650	600	555	0.208
		0	1215	965	795	670	580	510	455	405		0.493
	30/5	1	1370	1105	920	785	680	600	535	485	440	0.376
		2	1505	1235	1040	890	775	685	615	555	510	0.304
		3	1620	1350	1145	990	865	770	690	625	575	0.255
		4	1720	1455	1250	1085	955	850	765	695	635	0.219
	30/4	0	925	750	620	530	460	405	360	325		0.658
		1	1050	870	735	635	555	490	440	400	365	0.464
		2	1150	980	840	730	645	575	515	470	430	0.359
		3	1230	1070	930	815	725	650	585	535	490	0.292
	2-1/2" NW Conc. (Above Deck)	4	1295	1145	1010	895	800	720	655	600	550	0.247
		0	770	640	535	460	405	355	320	285		0.740
		1	875	745	640	555	490	440	395	360	330	0.504
		2	945	830	725	640	570	515	465	425	390	0.382
2-1/2" LW Conc. (Above Deck)	3	1000	895	800	715	640	580	530	485	445	0.308	
	4	1040	950	860	775	705	645	590	540	500	0.257	
	0	5905	5655	5505	5405	5330	5280	5235	5205		0.740	
	1	6160	5845	5660	5530	5440	5375	5320	5280	5245	0.504	
Type I Insul. Fill	2	6420	6040	5810	5660	5550	5470	5405	5355	5315	0.382	
	3	6535	6230	5965	5790	5660	5565	5495	5435	5385	0.308	
	4	6535	6425	6120	5915	5770	5665	5580	5510	5455	0.257	
	0	4465	4215	4065	3965	3890	3840	3795	3765		0.740	
Type I Insul. Fill	1	4615	4405	4215	4090	4000	3935	3880	3840	3805	0.504	
	2	4615	4600	4370	4220	4110	4030	3965	3915	3875	0.382	
	3	4615	4615	4525	4350	4220	4125	4050	3995	3945	0.308	
	4	4615	4615	4615	4475	4330	4220	4140	4070	4015	0.257	
Type I Insul. Fill	0	1450	1195	1045	945	875	820	780	745		0.740	
	1	1705	1390	1200	1075	985	915	865	825	790	0.504	
	2	1960	1580	1355	1205	1095	1015	950	900	860	0.382	
	3	2215	1775	1510	1330	1205	1110	1035	975	930	0.308	
Type I Insul. Fill	4	2475	1965	1660	1460	1315	1205	1120	1055	1000	0.257	

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		1.5	2	2.5	3	3.5	4	4.5	5	5.5
9/16	0.013	6270	3525	2255	1565	1150	880	695	560	465

² Design Strengths:

ASD Required strength (Service Applied Load) ≤ Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) ≤ Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

9/16" x 2-1/2" x 24 Ga.

Design thickness = 0.0239 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti,

Simpson Strong-Tie or Triangle #10 screws

Support thickness: 0.250 in. and thicker

F_u = 62 ksi

F_y = 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft	
			Span, ft.										
			2	2.5	3	3.5	4	4.5	5	5.5	6		
No Fill (Bare Deck)	35/8	0	1360	1125	955	830	730	655	590			0.428	
		1	1540	1290	1100	960	850	760	685	625	575	0.336	
		2	1700	1440	1240	1085	960	860	780	715	655	0.276	
		3	1850	1580	1365	1200	1070	960	875	800	735	0.235	
	35/7	4	1975	1705	1490	1315	1175	1060	965	885	815	0.204	
		0	1305	1090	930	810	715	640	580			0.456	
		1	1470	1240	1070	935	830	745	675	615	565	0.353	
		2	1610	1380	1195	1055	940	845	765	700	645	0.288	
	35/5	3	1735	1505	1315	1165	1040	940	855	785	725	0.243	
		4	1845	1615	1425	1270	1140	1030	940	865	800	0.210	
		0	980	830	715	625	555	495	450			0.622	
		1	1115	960	840	740	660	595	540	495	455	0.445	
	30/7	2	1230	1075	950	845	760	690	630	575	535	0.346	
		3	1320	1175	1050	940	850	775	710	655	605	0.284	
		4	1395	1260	1135	1030	935	855	785	730	675	0.240	
		0	1255	1035	875	760	665	595	530			0.570	
	30/5	1	1445	1200	1025	890	785	700	635	575	525	0.434	
		2	1615	1360	1165	1015	900	805	730	665	610	0.351	
		3	1770	1505	1300	1140	1010	910	825	755	695	0.294	
		4	1910	1640	1425	1255	1120	1005	915	840	770	0.253	
	30/4	0	975	810	690	600	530	475	425			0.760	
		1	1140	965	830	725	645	580	525	480	435	0.537	
		2	1280	1100	955	845	750	675	615	565	520	0.415	
		3	1400	1220	1070	950	855	770	705	645	595	0.338	
30/4	4	1495	1325	1175	1050	945	860	785	725	670	0.285		
	0	830	700	600	525	465	415	375			0.855		
	1	970	835	730	640	575	515	470	430	395	0.582		
	2	1085	950	840	750	675	610	555	510	470	0.441		
2-1/2" NW Conc. (Above Deck)	30/4	3	1170	1045	935	845	765	695	635	590	545	0.355	
		4	1240	1125	1020	925	845	775	715	660	615	0.297	
		0	5880	5685	5555	5460	5390	5335	5295			0.855	
		1	6135	5890	5725	5610	5520	5450	5395	5350	5315	0.582	
2-1/2" LW Conc. (Above Deck)	30/4	2	6395	6095	5895	5755	5650	5565	5500	5445	5400	0.441	
		3	6535	6300	6070	5900	5775	5680	5600	5540	5485	0.355	
		4	6535	6505	6240	6050	5905	5795	5705	5630	5570	0.297	
		0	4440	4245	4115	4020	3950	3895	3855			0.855	
Type I Insul. Fill	30/4	1	4615	4450	4285	4170	4080	4010	3955	3910	3875	0.582	
		2	4615	4615	4455	4315	4210	4125	4060	4005	3960	0.441	
		3	4615	4615	4615	4460	4335	4240	4160	4095	4045	0.355	
		4	4615	4615	4615	4605	4465	4355	4265	4190	4130	0.297	
Type I Insul. Fill	30/4	0	1425	1230	1095	1005	935	880	835			0.855	
		1	1680	1435	1270	1150	1065	995	940	895	855	0.582	
		2	1935	1640	1440	1295	1190	1110	1040	985	940	0.441	
		3	2195	1845	1610	1445	1320	1220	1145	1080	1030	0.355	
Type I Insul. Fill	30/4	4	2450	2050	1780	1590	1445	1335	1245	1175	1115	0.297	

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	ϕ_{db}	Ω_{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		2	2.5	3	3.5	4	4.5	5	5.5	6
9/16	0.017	5355	3425	2380	1745	1335	1055	855	705	595

² Design Strengths:

ASD Required strength (Service Applied Load) <= Min {S_{nf} / Ω_{df} , S_{nb} / Ω_{db} }

LRFD Required strength (Factored Applied Load) <= Min { ϕ_{df} S_{nf}, ϕ_{db} S_{nb}}

FORM DECK

9/16" x 2-1/2" x 22 Ga.

Design thickness = 0.0295 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti,

Simpson Strong-Tie or Triangle #10 screws

Support thickness: 0.250 in. and thicker

F_u = 62 ksi

F_y = 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	φ _{df}	Ω _{df}	Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft
			Span, ft.									
			2	2.5	3	3.5	4	4.5	5	5.5	6	
No Fill (Bare Deck)	35/8	0	1650	1365	1160	1010	890	795	715			0.285
		1	1875	1565	1340	1165	1030	925	835	765	700	0.245
		2	2075	1755	1510	1320	1170	1050	955	870	800	0.215
		3	2250	1925	1670	1465	1305	1175	1065	975	900	0.191
	35/7	4	2410	2080	1820	1605	1435	1295	1175	1080	995	0.172
		0	1585	1325	1130	985	870	780	705			0.304
		1	1785	1510	1300	1140	1010	905	820	750	690	0.259
		2	1960	1680	1460	1285	1145	1030	935	855	790	0.225
	35/5	3	2115	1835	1605	1420	1270	1145	1045	960	885	0.199
		4	2245	1970	1740	1550	1390	1260	1150	1055	975	0.179
		0	1190	1005	865	755	670	605	545			0.415
		1	1360	1170	1020	900	805	725	660	605	555	0.335
	30/7	2	1495	1310	1160	1030	925	840	765	705	650	0.281
		3	1610	1430	1280	1150	1040	945	865	800	740	0.242
		4	1700	1535	1385	1255	1145	1045	960	890	825	0.212
		0	1525	1255	1065	920	810	720	650			0.380
	30/5	1	1760	1460	1245	1085	955	855	775	705	645	0.320
		2	1970	1655	1420	1240	1100	985	890	815	750	0.276
		3	2160	1835	1585	1390	1235	1110	1005	920	845	0.243
		4	2330	2000	1740	1535	1365	1230	1120	1025	945	0.217
	30/4	0	1180	985	840	730	645	575	515			0.507
		1	1385	1175	1010	885	785	705	640	585	535	0.405
		2	1560	1340	1165	1030	915	825	750	685	635	0.338
		3	1705	1485	1310	1160	1040	940	860	790	730	0.290
2-1/2" NW Conc. (Above Deck)	4	1825	1615	1435	1285	1160	1050	960	885	820	0.253	
	0	1010	850	730	640	565	505	460			0.570	
	1	1185	1020	885	785	700	630	570	525	485	0.445	
	2	1320	1160	1025	915	820	745	680	625	575	0.365	
2-1/2" LW Conc. (Above Deck)	3	1430	1275	1145	1030	930	850	780	720	665	0.309	
	4	1510	1370	1245	1130	1030	945	870	805	750	0.268	
	0	6090	5855	5695	5580	5495	5430	5375			0.570	
	1	6405	6105	5905	5760	5655	5570	5505	5450	5405	0.445	
Type I Insul. Fill	30/4	2	6535	6360	6115	5945	5815	5710	5630	5565	5510	0.365
		3	6535	6535	6330	6125	5970	5850	5755	5680	5615	0.309
		4	6535	6535	6535	6305	6130	5995	5885	5795	5720	0.268
		0	4615	4410	4255	4140	4055	3990	3935			0.570
Type I Insul. Fill	30/4	1	4615	4615	4465	4320	4215	4130	4065	4010	3965	0.445
		2	4615	4615	4615	4505	4370	4270	4190	4125	4070	0.365
		3	4615	4615	4615	4615	4530	4410	4315	4240	4175	0.309
		4	4615	4615	4615	4615	4615	4555	4445	4355	4280	0.268
Type I Insul. Fill	30/4	0	1635	1395	1235	1125	1040	975	920			0.570
		1	1950	1650	1450	1305	1195	1115	1045	990	945	0.445
		2	2265	1900	1660	1485	1355	1255	1175	1105	1050	0.365
		3	2585	2155	1870	1665	1515	1395	1300	1220	1160	0.309
Type I Insul. Fill	30/4	4	2900	2410	2080	1850	1670	1535	1425	1340	1265	0.268

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		2	2.5	3	3.5	4	4.5	5	5.5	6
9/16	0.021	7350	4705	3265	2400	1835	1450	1175	970	815

² Design Strengths:

ASD Required strength (Service Applied Load) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) <= Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

Design thickness = 0.0295 in.
 Support fastening: Hilti X-ENP-19 L15
 Side-lap fastening: Buildex, Elco, Hilti,
 Simpson Strong-Tie or Triangle #10 screws
 0.125 in. to 0.375 in. Support Steel

F_u = 52 ksi
 F_y = 40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	φ _{df}	Ω _{df}	Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft	
			Span, ft.										
			4	5	6	7	8	9	10	11	12		
1-1/2" x 6" No Fill (Bare Deck)	36/4	0	550	435									0.475
		1	680	560	460								0.371
		2	790	660	565	480	415	365					0.304
		3	885	750	650	570	495	435	395	355	325		0.258
		4	970	835	725	640	570	505	455	415	380		0.224
		5	1045	910	800	705	635	570	520	470	435		0.197
		6	1110	975	865	770	695	630	575	525	485		0.177
		8	1210	1090	980	885	800	730	675	620	575		0.146
2" x 12" No Fill (Bare Deck)	36/4	0	540	420									0.475
		1	680	545	445								0.371
		2	790	660	555	470	415	365					0.304
		3	885	750	650	560	490	435	395	355	325		0.258
		4	970	835	725	640	570	505	455	415	380		0.224
		5	1045	910	800	705	635	570	520	470	435		0.197
		6	1110	975	865	770	695	630	575	525	485		0.177
		8	1210	1090	980	885	800	730	675	620	575		0.146
3" x 12" No Fill (Bare Deck)	36/4	0	515	410									0.475
		1	670	535	445								0.371
		2	790	660	550	470	415	365					0.304
		3	885	750	650	560	490	435	395	355	325		0.258
		4	970	835	725	640	570	505	455	415	380		0.224
		5	1045	910	800	705	635	570	520	470	435		0.197
		6	1110	975	865	770	695	630	575	525	485		0.177
		8	1210	1090	980	885	800	730	675	620	575		0.146
2-1/2" NW Conc. (Above Deck)	36/4	0	5495	5375									0.475
		1	5655	5505	5405								0.371
		2	5810	5630	5510	5420	5355	5305					0.304
		3	5970	5755	5615	5515	5435	5375	5330	5290	5260		0.258
		4	6130	5885	5720	5605	5515	5445	5395	5350	5310		0.224
		5	6285	6010	5825	5695	5595	5520	5455	5405	5365		0.197
		6	6445	6135	5930	5785	5675	5590	5520	5465	5415		0.177
		8	6535	6390	6140	5965	5830	5730	5645	5580	5520		0.146
2-1/2" LW Conc. (Above Deck)	36/4	0	4055	3935									0.475
		1	4215	4065	3965								0.371
		2	4370	4190	4070	3980	3915	3865					0.304
		3	4530	4315	4175	4070	3995	3935	3890	3850	3820		0.258
		4	4615	4445	4280	4165	4075	4005	3950	3910	3870		0.224
		5	4615	4570	4385	4255	4155	4075	4015	3965	3925		0.197
		6	4615	4615	4490	4345	4235	4150	4080	4025	3975		0.177
		8	4615	4615	4615	4525	4390	4290	4205	4140	4080		0.146

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		4	5	6	7	8	9	10	11	12
1-1/2" x 6"	0.173	8715	5575	3870	2845	2175	1720	1390	1150	965
2" x 12"	0.296	13440	8600	5970	4385	3360	2655	2150	1775	1490
3" x 12"	0.735	25800	16515	11465	8425	6450	5095	4125	3410	2865

² Design Strengths:

ASD Required strength (Service Applied Load) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) <= Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

COMPOSITE DECK

Design thickness = 0.0358 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti,

Simpson Strong-Tie or Triangle #10 screws

0.125 in. to 0.375 in. Support Steel

F_u = 52 ksi

F_y = 40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	φ _{df}	Ω _{df}	Loading	φ _{df}	Ω _{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S _{nf} , plf ^{1,2}									K ₁ 1/ft	
			Span, ft.										
			4	5	6	7	8	9	10	11	12		
1-1/2" x 6" No Fill (Bare Deck)	36/4	0	670	530								0.523	
		1	820	680	560							0.408	
		2	955	800	685	585	505	445				0.335	
		3	1070	910	785	685	600	530	475	430	395	0.284	
		4	1175	1010	880	775	690	615	555	500	460	420	0.246
		5	1265	1100	965	855	765	695	630	570	525	480	0.217
		6	1340	1180	1045	930	840	760	695	640	590	550	0.195
		8	1465	1315	1185	1070	970	885	815	750	700	660	0.161
2" x 12" No Fill (Bare Deck)	36/4	0	655	515								0.523	
		1	820	665	545							0.408	
		2	955	800	675	570	500	445				0.335	
		3	1070	910	785	680	595	530	475	430	395	0.284	
		4	1175	1010	880	775	690	615	555	500	460	420	0.246
		5	1265	1100	965	855	765	695	630	570	525	480	0.217
		6	1340	1180	1045	930	840	760	695	640	590	550	0.195
		8	1465	1315	1185	1070	970	885	815	750	700	660	0.161
3" x 12" No Fill (Bare Deck)	36/4	0	630	495								0.523	
		1	820	645	540							0.408	
		2	955	800	665	570	500	445				0.335	
		3	1070	910	785	680	595	530	475	430	395	0.284	
		4	1175	1010	880	775	690	615	555	500	460	420	0.246
		5	1265	1100	965	855	765	695	630	570	525	480	0.217
		6	1340	1180	1045	930	840	760	695	640	590	550	0.195
		8	1465	1315	1185	1070	970	885	815	750	700	660	0.161
2-1/2" NW Conc. (Above Deck)	36/4	0	5620	5475								0.523	
		1	5810	5630	5505							0.408	
		2	6000	5780	5635	5530	5450	5390				0.335	
		3	6195	5935	5765	5640	5550	5475	5420	5370	5335	0.284	
		4	6385	6090	5890	5750	5645	5560	5495	5440	5395	5355	0.246
		5	6535	6245	6020	5860	5740	5645	5575	5510	5460	5420	0.217
		6	6535	6395	6150	5970	5835	5730	5650	5580	5525	5480	0.195
		8	6535	6535	6405	6190	6030	5905	5805	5720	5655	5610	0.161
2-1/2" LW Conc. (Above Deck)	36/4	0	4175	4035								0.523	
		1	4370	4190	4065							0.408	
		2	4560	4340	4195	4090	4010	3950				0.335	
		3	4615	4495	4325	4200	4110	4035	3980	3930	3890	0.284	
		4	4615	4615	4450	4310	4205	4120	4055	4000	3955	3915	0.246
		5	4615	4615	4580	4420	4300	4205	4130	4070	4020	3975	0.217
		6	4615	4615	4615	4530	4395	4290	4210	4140	4085	4040	0.195
		8	4615	4615	4615	4615	4590	4465	4365	4280	4215	4155	0.161

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	φ _{db}	Ω _{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S _{nb} , plf ²								
		Span, ft								
		4	5	6	7	8	9	10	11	12
1-1/2" x 6"	0.210	11660	7465	5180	3805	2915	2300	1865	1540	1295
2" x 12"	0.377	18610	11910	8270	6075	4650	3675	2975	2460	2065
3" x 12"	0.932	35640	22810	15840	11635	8910	7040	5700	4710	3960

² Design Strengths:

ASD Required strength (Service Applied Load) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

LRFD Required strength (Factored Applied Load) <= Min {φ_{df}S_{nf}, φ_{db}S_{nb}}

Design thickness = 0.0474 in.
 Support fastening: Hilti X-ENP-19 L15
 Side-lap fastening: Buildex, Elco, Hilti,
 Simpson Strong-Tie or Triangle #10 screws
 0.125 in. to 0.375 in. Support Steel

$F_u = 52$ ksi
 $F_y = 40$ ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf} , plf ^{1,2}									K_1 1/ft
			Span, ft.									
			5	6	7	8	9	10	11	12	13	
1-1/2" x 6" No Fill (Bare Deck)	36/4	0	700									0.602
		1	890	745								0.470
		2	1050	900	775	670	590					0.385
		3	1195	1030	905	800	705	630	570	520		0.327
		4	1325	1155	1020	910	820	730	660	605	560	0.283
		5	1445	1270	1125	1010	915	830	755	690	640	0.250
		6	1550	1375	1225	1105	1000	915	840	775	715	0.224
		8	1730	1555	1405	1280	1170	1075	990	920	855	0.185
2" x 12" No Fill (Bare Deck)	36/4	0	680									0.602
		1	885	725								0.470
		2	1050	895	760	655	585					0.385
		3	1195	1030	905	785	695	625	570	520		0.327
		4	1325	1155	1020	910	810	730	660	605	560	0.283
		5	1445	1270	1125	1010	915	830	755	690	640	0.250
		6	1550	1375	1225	1105	1000	915	840	775	715	0.224
		8	1730	1555	1405	1280	1170	1075	990	920	855	0.185
3" x 12" No Fill (Bare Deck)	36/4	0	650									0.602
		1	855	705								0.470
		2	1050	875	750	655	585					0.385
		3	1195	1030	895	785	695	625	570	520		0.327
		4	1325	1155	1020	910	810	730	660	605	560	0.283
		5	1445	1270	1125	1010	915	830	755	690	640	0.250
		6	1550	1375	1225	1105	1000	915	840	775	715	0.224
		8	1730	1555	1405	1280	1170	1075	990	920	855	0.185
2-1/2" NW Conc. (Above Deck)	36/4	0	5650									0.602
		1	5855	5695								0.470
		2	6060	5865	5730	5625	5545					0.385
		3	6260	6035	5875	5750	5655	5580	5520	5470		0.327
		4	6465	6205	6020	5880	5770	5685	5610	5555	5505	0.283
		5	6535	6375	6165	6005	5885	5785	5705	5640	5580	0.250
		6	6535	6535	6310	6135	5995	5885	5795	5725	5660	0.224
		8	6535	6535	6535	6390	6225	6090	5985	5890	5815	0.185
2-1/2" LW Conc. (Above Deck)	36/4	0	4210									0.602
		1	4415	4255								0.470
		2	4615	4425	4285	4185	4105					0.385
		3	4615	4595	4435	4310	4215	4140	4080	4030		0.327
		4	4615	4615	4580	4440	4330	4245	4170	4115	4065	0.283
		5	4615	4615	4615	4565	4445	4345	4265	4200	4140	0.250
		6	4615	4615	4615	4615	4555	4445	4355	4285	4220	0.224
		8	4615	4615	4615	4615	4615	4615	4540	4450	4375	0.185

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	ϕ_{db}	Ω_{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S_{nb} , plf ²								
		Span, ft								
		5	6	7	8	9	10	11	12	13
1-1/2" x 6"	0.279	11385	7905	5810	4445	3515	2845	2350	1975	1680
2" x 12"	0.500	18190	12630	9280	7105	5610	4545	3755	3155	2690
3" x 12"	1.267	35460	24625	18090	13850	10940	8865	7325	6155	5245

² Design Strengths:

ASD Required strength (Service Applied Load) $\leq \text{Min} \{S_{nf} / \Omega_{df}, S_{nb} / \Omega_{db}\}$

LRFD Required strength (Factored Applied Load) $\leq \text{Min} \{\phi_{df} S_{nf}, \phi_{db} S_{nb}\}$

COMPOSITE DECK

Design thickness = 0.0598 in.

Support fastening: Hilti X-ENP-19 L15

Side-lap fastening: Buildex, Elco, Hilti,

Simpson Strong-Tie or Triangle #10 screws

0.125 in. to 0.375 in. Support Steel

$F_u = 52$ ksi

$F_y = 40$ ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.65	2.50	Seismic	0.50	3.25
Wind	0.70	2.35	Wind	0.50	3.25
Other	0.65	2.50	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf} , plf ^{1,2}									K_1 1/ft	
			Span, ft.										
			6	7	8	9	10	11	12	13	14		
1-1/2" x 6" No Fill (Bare Deck)	36/4	1	935										0.528
		2	1125	975	850	745							0.433
		3	1290	1130	1005	890	795	720	655				0.367
		4	1445	1275	1140	1025	925	835	760	705	655		0.318
		5	1590	1410	1265	1145	1045	950	870	800	745		0.281
		6	1720	1540	1385	1255	1150	1055	975	900	835		0.252
		7	1840	1655	1500	1365	1250	1150	1065	995	930		0.228
		8	1950	1765	1605	1465	1345	1245	1155	1075	1010		0.208
2" x 12" No Fill (Bare Deck)	36/4	1	915										0.528
		2	1125	960	830	730							0.433
		3	1290	1130	990	875	785	715	655				0.367
		4	1445	1275	1140	1015	915	830	760	705	655		0.318
		5	1590	1410	1265	1145	1045	950	870	800	745		0.281
		6	1720	1540	1385	1255	1150	1055	975	900	835		0.252
		7	1840	1655	1500	1365	1250	1150	1065	995	930		0.228
		8	1950	1765	1605	1465	1345	1245	1155	1075	1010		0.208
3" x 12" No Fill (Bare Deck)	36/4	1	885										0.528
		2	1100	940	825	730							0.433
		3	1290	1125	985	875	785	715	655				0.367
		4	1445	1275	1140	1015	915	830	760	705	655		0.318
		5	1590	1410	1265	1145	1045	950	870	800	745		0.281
		6	1720	1540	1385	1255	1150	1055	975	900	835		0.252
		7	1840	1655	1500	1365	1250	1150	1065	995	930		0.228
		8	1950	1765	1605	1465	1345	1245	1155	1075	1010		0.208
2-1/2" NW Conc. (Above Deck)	36/4	1	5895										0.528
		2	6105	5935	5805	5705							0.433
		3	6320	6120	5965	5850	5755	5675	5610				0.367
		4	6535	6300	6125	5990	5880	5795	5720	5655	5600		0.318
		5	6535	6485	6285	6135	6010	5910	5825	5755	5695		0.281
		6	6535	6535	6450	6275	6140	6025	5935	5855	5785		0.252
		7	6535	6535	6535	6420	6265	6145	6040	5950	5875		0.228
		8	6535	6535	6535	6535	6395	6260	6145	6050	5970		0.208
2-1/2" LW Conc. (Above Deck)	36/4	1	4455										0.528
		2	4615	4495	4365	4265							0.433
		3	4615	4615	4525	4410	4315	4235	4170				0.367
		4	4615	4615	4615	4550	4440	4350	4280	4215	4160		0.318
		5	4615	4615	4615	4615	4570	4470	4385	4315	4255		0.281
		6	4615	4615	4615	4615	4615	4585	4490	4415	4345		0.252
		7	4615	4615	4615	4615	4615	4615	4600	4510	4435		0.228
		8	4615	4615	4615	4615	4615	4615	4615	4610	4530		0.208

¹ Nominal shear strength of bare deck shown above may be limited by shear buckling. See table below.

	ϕ_{db}	Ω_{db}
Buckling	0.80	2.00

Deck Profile	I in ⁴ /ft	Nominal Shear Due to Panel Buckling, S_{nb} , plf ²								
		Span, ft								
		6	7	8	9	10	11	12	13	14
1-1/2" x 6"	0.353	11220	8245	6310	4985	4040	3335	2805	2390	2060
2" x 12"	0.632	17915	13160	10075	7960	6445	5330	4475	3815	3290
3" x 12"	1.600	34905	25645	19630	15510	12565	10385	8725	7435	6410

² Design Strengths:

ASD Required strength (Service Applied Load) $\leq \text{Min} \{S_{nf} / \Omega_{df}, S_{nb} / \Omega_{db}\}$

LRFD Required strength (Factored Applied Load) $\leq \text{Min} \{\phi_{df} S_{nf}, \phi_{db} S_{nb}\}$