DIAPHRAGM SHEAR STRENGTH AND STIFFNESS

The following informa tion is based upon the Steel Deck Institute's Fourth Edition of the Diaphragm Design Manual.

The following limiting conditions are taken from this book. "The quality of a diaphragm can be limited by inattention to detail particularly at end and edge terminations."

End Laps

"At interior positions, panels must be sufficiently overlapped to provide adequate distances fro the connector used. A minimum end distance for fasteners used should be one inch requiring an end lap not less than two inches. Within the system, end laps may be staggered or on a continuous line without particular effect on the diaphragm strength. However, greater care must be exercised in making connections through multiple layered of deck at the panel corners on the end lap. If panels are butted at their ends rather than end lapped, as is common with floor decks, then each panel must be individually connected at its ends with the specified pattern."

Side Laps

"The overlapping edges of panels should be in close contact to allow minimum eccentricity of fasteners in the lap. When stitch fasteners connect adjacent panels between supports, equivalent or superior fasteners should be use on the edgemost panel at the diaphragm perimeter. Otherwise shear strength along the first interior sidelap may exceed that along the perimeter member and thus diminish the contribution of the stitich fasteners."

Welds

"Welds should be made by qualified operators following AWS D1.3 specifications. Approximate checks on weld quantity can be made by placing one end of a long panel over support and attaching it only to that support with tow welds six inches apart. The far end of the panel can be moved in the diaphragm plane by the workman until shear distress is noted in the weld. The welds should be sufficient to cause local distortions in the panel around both welds and should show good perimeter contact between welds and the panel. For 22, 20, and 18 gauge panels, the weld should not shear across its contact plane on structural supports else the welding temperature may have been too low for adequate penetration."

Screws

"Screws must be installed using properly calibrated tools to avoid overdriving which can strip the threads at sidelaps or sever the screw when it is placed into heavier substrata."

Longitudinal Edges

"In applications where joist terminate on a shear wall, the edge-most diaphragm panel may not contact the wall. If intermediate stitch fasteners have been required on sidelaps, similar intermediate stitch fasteners must exist at the edge. These can be accompanied by installing a block-like spacer on the wall, to match the joist elevation, and then making connections to the block."

Mixed Panel Lengths

"When decks are installed with multiple spans, occasional shorter panels may be required. In a large diaphragm area, the shear strength can be determined satisfactorily by using the typical three span panel length."

Load Tables

The following load tables are based upon Marlyn's various types of steel deck.

There is a comprehensive section on example problems in DDM04. For this reason we have elected to take our simple design problem out of this catalog. DDM04 gives you a new more straightforward means of computing shear stiffness that is reflected by this catalog.

In some of the light-gage shallow decks, you will notice that as the spans get long the shear strength reaches some maximum value. This is caused from "platelike shear buckling". As the thickness of the deck gets smaller and the spans get longer for shallow decks, buckling can result as the shear strength increases. See Section 2.4 Stability Checks of DDM04.

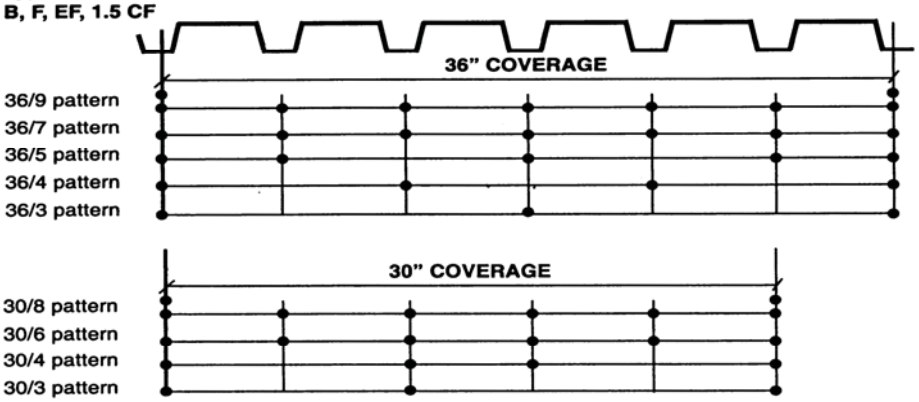
This catalog is not presented as an alternative to the use of the Second Edition of the Diaphragm Design Manual (DDM04), but as an extension to it for our decks. We have given you the shear strength and stiffness of our various decks, but not the backup data behind these calculations. DDM04 does a good job of supplying you that information. We hope that you will contact the SDI about ordering your own copy of DDM04. Steel Deck Institute, P.O. Box 426, Glenshaw, PA 15116.

These tables were derived making the following assumptions:

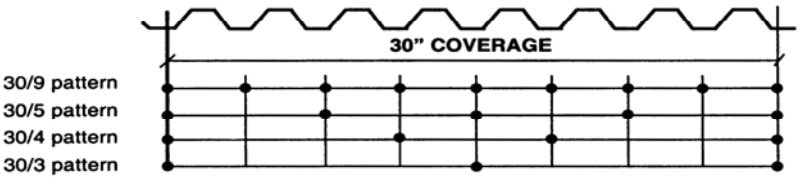
1. The number of fasteners are the same at both end members and interior supports. Example: 30/6 means 30 inch wide deck with 6 fasteners per support. One in each flute.
2. The number of intermediate sidelap stitch connectors is assumed to be the same number of exteme edge fasteners.
3. The values printed have the factor of safety applied. 3.25 for filled diaphragms, 2.75 when any of a bare diaphragm is welded.
4. All values are for a three span condition. Greater values are available for a 1 or 2 span condition since you will have more fasteners to count in the calculation of the strength.
5. Where welds are shown at the support, the Steel Deck Institute recommends using welding washers only on deck thicknesses less than 0.028". These should be 16 gauge with 3/8" hole in them.
6. Lightweight fill should be placed on slot vented deck.
7. For roof deck and composite floor deck the steel yield point is taken at 40ksi. For form deck it is taken as 80ksi.
8. The tables already have considered a stress increase of 1.33 for short-term or wind loading. The values are not to be increased again.
9. The values printed using Marlyn Steel Decks and Type II Fill were derived using Cellular Concrete Fill with 200 psi minimum compressive strength, a layer of Cellular Concrete placed to a level slightly above the corrugation crests. Rigid polystyrene insulation boards up to 4" thick embedded into the concrete and a topping coat of two or more inches of Cellular Concrete to finish the diaphragm.

TYPICAL FASTENER LAYOUTS – SHEAR DIAPHRAGM

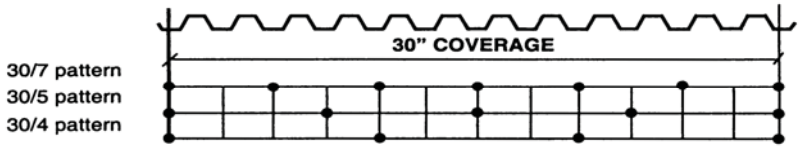
1 1/2" Deck Types: B, F, EF, 1.5 CF



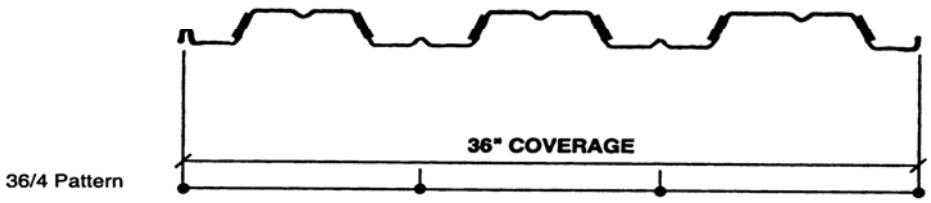
15/16" TYPE HF DECK



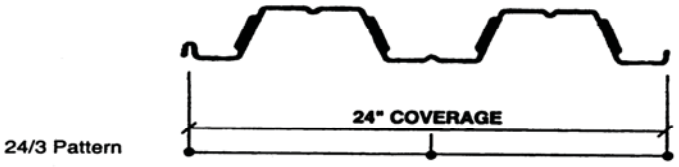
9/16" TYPE SF DECK



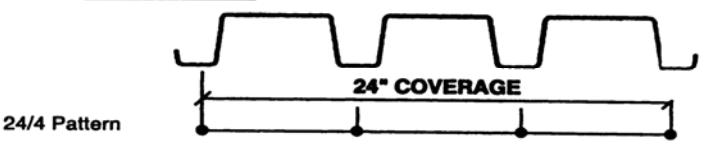
2" TYPE 2.0 CF DECK



3" TYPE 3.0 CF DECK



3" TYPE N DECK



MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0295 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	0	760	600								0.728
		1	885	720	590							0.509
		2	995	825	690	585	505	445				0.391
		3	1100	920	790	670	580	515	460	420	385	0.318
		4	1190	1005	865	755	655	580	520	475	435	0.267
		5	1275	1090	945	830	730	645	580	530	485	0.231
		6	1355	1165	1015	895	800	715	640	585	535	0.203
		8	1490	1300	1150	1020	915	830	755	695	635	0.164
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	0	745	580								0.728
		1	885	700	570							0.509
		2	995	820	670	575	500	445				0.391
		3	1100	920	770	660	575	515	460	420	385	0.318
		4	1190	1005	865	745	650	580	520	475	435	0.267
		5	1275	1090	945	830	730	645	580	530	485	0.231
		6	1355	1165	1015	895	800	715	640	585	535	0.203
		8	1490	1300	1150	1020	915	830	755	695	635	0.164
2 1/2" NW Conc. (Above Deck)	36/4	0	5720	5555								0.728
		1	5870	5675	5545							0.509
		2	6020	5795	5645	5540	5460	5400				0.391
		3	6170	5915	5750	5625	5535	5465	5410	5365	5325	0.318
		4	6320	6040	5850	5715	5610	5535	5470	5420	5375	0.267
		5	6475	6160	5950	5800	5685	5600	5530	5475	5425	0.231
		6	6535	6280	6050	5885	5765	5665	5590	5530	5475	0.203
		8	6535	6520	6250	6060	5915	5800	5710	5635	5575	0.164
2 1/2" LW Conc. (Above Deck)	36/4	0	4280	4115								0.728
		1	4430	4235	4105							0.509
		2	4580	4355	4205	4100	4020	3960				0.391
		3	4615	4475	4310	4185	4095	4025	3970	3925	3885	0.318
		4	4615	4595	4410	4275	4170	4095	4030	3980	3935	0.267
		5	4615	4615	4510	4360	4245	4160	4090	4035	3985	0.231
		6	4615	4615	4610	4445	4320	4225	4150	4085	4035	0.203
		8	4615	4615	4615	4615	4475	4360	4270	4195	4135	0.164

[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
1.5" 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

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0295 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	0	385	300								0.823
		1	500	415	345							0.554
		2	600	505	435	380	330	290				0.417
		3	680	585	510	450	400	360	320	290	270	0.334
		4	750	655	575	515	460	415	380	345	320	0.279
		5	805	715	635	570	515	470	430	395	365	0.240
		6	850	765	690	620	565	515	475	440	405	0.210
		8	920	845	775	710	655	605	560	520	485	0.168
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	0	375	295								0.823
		1	500	415	340							0.554
		2	600	505	435	375	325	290				0.417
		3	680	585	510	450	400	360	320	290	270	0.334
		4	750	655	575	515	460	415	380	345	320	0.279
		5	805	715	635	570	515	470	430	395	365	0.240
		6	850	765	690	620	565	515	475	440	405	0.210
		8	920	845	775	710	655	605	560	520	485	0.168
2 1/2" NW Conc. (Above Deck)	36/4	0	5315	5235								0.823
		1	5465	5355	5280							0.554
		2	5615	5475	5380	5310	5260	5220				0.417
		3	5770	5595	5480	5395	5335	5285	5250	5215	5190	0.334
		4	5920	5715	5580	5485	5410	5355	5310	5270	5240	0.279
		5	6070	5835	5680	5570	5485	5420	5370	5325	5290	0.240
		6	6220	5955	5780	5655	5560	5490	5430	5380	5340	0.210
		8	6520	6200	5980	5830	5710	5620	5550	5490	5440	0.168
2 1/2" LW Conc. (Above Deck)	36/4	0	3875	3795								0.823
		1	4025	3915	3840							0.554
		2	4175	4035	3940	3870	3820	3780				0.417
		3	4330	4155	4040	3955	3895	3845	3810	3775	3750	0.334
		4	4480	4275	4140	4045	3970	3915	3870	3830	3800	0.279
		5	4615	4395	4240	4130	4045	3980	3930	3885	3850	0.240
		6	4615	4515	4340	4215	4120	4050	3990	3940	3900	0.210
		8	4615	4615	4540	4385	4270	4180	4110	4050	4000	0.168

[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
1.5" 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 $\{S_{nf} / \Omega_{df}, S_{nb} / \Omega_{db}\}$

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0358 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	0	1045	825								0.802
		1	1205	985	810							0.561
		2	1355	1125	945	800	690	605				0.431
		3	1495	1250	1070	915	790	695	625	570	520	0.350
		4	1620	1370	1180	1030	895	785	705	640	590	0.294
		5	1735	1480	1280	1125	995	875	785	715	655	0.254
		6	1840	1580	1375	1215	1085	965	870	790	725	0.224
		8	2020	1765	1555	1385	1240	1125	1025	935	855	0.180
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	0	1025	805								0.802
		1	1205	965	790							0.561
		2	1355	1125	920	780	680	605				0.431
		3	1495	1250	1055	895	785	695	625	570	520	0.350
		4	1620	1370	1180	1010	885	785	705	640	590	0.294
		5	1735	1480	1280	1125	985	875	785	715	655	0.254
		6	1840	1580	1375	1215	1085	965	870	790	725	0.224
		8	2020	1765	1555	1385	1240	1125	1025	935	855	0.180
2 1/2" NW Conc. (Above Deck)	36/4	0	6020	5795								0.802
		1	6220	5955	5780							0.561
		2	6420	6120	5915	5770	5660	5575				0.431
		3	6535	6280	6050	5885	5765	5665	5590	5530	5475	0.350
		4	6535	6440	6185	6000	5865	5755	5670	5600	5545	0.294
		5	6535	6535	6320	6115	5965	5845	5750	5675	5610	0.254
		6	6535	6535	6455	6230	6065	5935	5830	5750	5675	0.224
		8	6535	6535	6535	6460	6265	6115	5995	5895	5810	0.180
2 1/2" LW Conc. (Above Deck)	36/4	0	4580	4355								0.802
		1	4615	4515	4340							0.561
		2	4615	4615	4475	4330	4220	4135				0.431
		3	4615	4615	4610	4445	4320	4225	4150	4090	4035	0.350
		4	4615	4615	4615	4560	4425	4315	4230	4160	4105	0.294
		5	4615	4615	4615	4615	4525	4405	4310	4235	4170	0.254
		6	4615	4615	4615	4615	4615	4495	4390	4305	4235	0.224
		8	4615	4615	4615	4615	4615	4615	4555	4455	4370	0.180

[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
1.5" 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

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi
F_y= 50 ksi

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0358 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	0	470	370								0.907
		1	625	520	435							0.610
		2	750	635	550	480	420	370				0.459
		3	855	740	645	570	510	460	415	375	345	0.368
		4	940	825	730	650	585	530	485	445	410	0.307
		5	1005	900	805	725	655	600	550	505	470	0.264
		6	1060	960	870	790	720	660	610	565	525	0.231
		8	1140	1055	975	900	830	770	715	665	625	0.185
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	0	460	360								0.907
		1	625	520	425							0.610
		2	750	635	550	475	415	370				0.459
		3	855	740	645	570	510	460	415	375	345	0.368
		4	940	825	730	650	585	530	485	445	410	0.307
		5	1005	900	805	725	655	600	550	505	470	0.264
		6	1060	960	870	790	720	660	610	565	525	0.231
		8	1140	1055	975	900	830	770	715	665	625	0.185
2 1/2" NW Conc. (Above Deck)	36/4	0	5405	5305								0.907
		1	5605	5465	5370							0.610
		2	5810	5625	5505	5420	5355	5305				0.459
		3	6010	5790	5640	5535	5455	5395	5345	5305	5270	0.368
		4	6210	5950	5775	5650	5555	5485	5425	5380	5340	0.307
		5	6410	6110	5910	5765	5655	5575	5505	5450	5405	0.264
		6	6535	6270	6045	5880	5760	5665	5585	5525	5470	0.231
		8	6535	6535	6310	6110	5960	5840	5750	5670	5605	0.185
2 1/2" LW Conc. (Above Deck)	36/4	0	3965	3865								0.907
		1	4165	4025	3930							0.610
		2	4365	4185	4065	3980	3915	3865				0.459
		3	4570	4345	4200	4095	4015	3955	3905	3865	3830	0.368
		4	4615	4510	4335	4210	4115	4045	3985	3935	3900	0.307
		5	4615	4615	4470	4325	4215	4135	4065	4010	3965	0.264
		6	4615	4615	4605	4440	4315	4220	4145	4085	4030	0.231
		8	4615	4615	4615	4615	4520	4400	4305	4230	4165	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 4	5	6	7	8	9	10	11	12
1.5" 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 {$\phi_{df} S_{nf}$, $\phi_{db} S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0474 in. Support fastening: 5/8" arc spot welds Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 5	6	7	8	9	10	11	12	13	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	0	1085									0.923
		1	1320	1095								0.645
		2	1520	1295	1100	955	840					0.496
		3	1705	1465	1280	1110	975	870	790	725		0.403
		4	1875	1620	1425	1260	1115	995	900	825	760	0.339
		5	2035	1770	1560	1390	1250	1115	1010	925	855	0.293
		6	2185	1910	1695	1515	1370	1240	1125	1030	950	0.257
		8	2440	2165	1935	1745	1585	1450	1335	1235	1140	0.207
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	0	1060									0.923
		1	1305	1070								0.645
		2	1520	1275	1075	930	830					0.496
		3	1705	1465	1255	1085	965	870	790	725		0.403
		4	1875	1620	1425	1240	1100	990	900	825	760	0.339
		5	2035	1770	1560	1390	1235	1115	1010	925	855	0.293
		6	2185	1910	1695	1515	1370	1235	1125	1030	950	0.257
		8	2440	2165	1935	1745	1585	1450	1335	1235	1140	0.207
2 1/2" NW Conc. (Above Deck)	36/4	0	6060									0.923
		1	6310	6075								0.645
		2	6535	6280	6080	5935	5820					0.496
		3	6535	6485	6255	6085	5955	5850	5765	5690		0.403
		4	6535	6535	6430	6240	6090	5975	5875	5795	5725	0.339
		5	6535	6535	6535	6395	6230	6095	5985	5895	5820	0.293
		6	6535	6535	6535	6535	6365	6220	6100	6000	5915	0.257
		8	6535	6535	6535	6535	6535	6465	6320	6205	6105	0.207
2 1/2" LW Conc. (Above Deck)	36/4	0	4615									0.923
		1	4615	4615								0.645
		2	4615	4615	4615	4495	4380					0.496
		3	4615	4615	4615	4615	4515	4410	4325	4250		0.403
		4	4615	4615	4615	4615	4615	4535	4435	4355	4285	0.339
		5	4615	4615	4615	4615	4615	4615	4545	4455	4380	0.293
		6	4615	4615	4615	4615	4615	4615	4615	4560	4475	0.257
		8	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.207

[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
1.5" 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

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi
F_y= 50 ksi

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0474 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 5	6	7	8	9	10	11	12	13	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	0	495									1.044
		1	710	605								0.702
		2	885	770	675	600	530					0.528
		3	1035	910	805	725	655	595	540	495		0.424
		4	1155	1030	925	835	760	695	640	595	550	0.354
		5	1255	1135	1030	935	855	790	730	675	630	0.304
		6	1335	1220	1120	1025	945	875	810	755	705	0.266
		8	1455	1360	1265	1175	1095	1025	955	900	845	0.213
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	0	485									1.044
		1	710	600								0.702
		2	885	770	675	590	525					0.528
		3	1035	910	805	725	655	595	540	495		0.424
		4	1155	1030	925	835	760	695	640	595	550	0.354
		5	1255	1135	1030	935	855	790	730	675	630	0.304
		6	1335	1220	1120	1025	945	875	810	755	705	0.266
		8	1455	1360	1265	1175	1095	1025	955	900	845	0.213
2 1/2" NW Conc. (Above Deck)	36/4	0	5435									1.044
		1	5680	5550								0.702
		2	5925	5755	5635	5540	5470					0.528
		3	6170	5960	5810	5695	5605	5535	5480	5430		0.424
		4	6415	6165	5985	5850	5745	5660	5590	5535	5485	0.354
		5	6535	6370	6160	6000	5880	5780	5700	5635	5580	0.304
		6	6535	6535	6335	6155	6015	5905	5815	5740	5675	0.266
		8	6535	6535	6535	6465	6290	6150	6035	5940	5860	0.213
2 1/2" LW Conc. (Above Deck)	36/4	0	3995									1.044
		1	4240	4110								0.702
		2	4485	4315	4195	4100	4030					0.528
		3	4615	4520	4370	4255	4165	4095	4040	3990		0.424
		4	4615	4615	4545	4410	4305	4220	4150	4095	4045	0.354
		5	4615	4615	4615	4560	4440	4340	4260	4195	4140	0.304
		6	4615	4615	4615	4615	4575	4465	4375	4295	4235	0.266
		8	4615	4615	4615	4615	4615	4615	4595	4500	4420	0.213

[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
1.5" 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) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0598 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 6	7	8	9	10	11	12	13	14	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	1	1250									0.725
		2	1500	1305	1135	1000						0.557
		3	1730	1515	1345	1195	1065	965	880			0.452
		4	1940	1710	1525	1375	1240	1120	1025	945	875	0.381
		5	2130	1895	1695	1535	1400	1280	1170	1080	1000	0.329
		6	2305	2060	1860	1685	1540	1420	1315	1210	1125	0.289
		7	2465	2220	2010	1830	1680	1550	1435	1335	1250	0.258
		8	2610	2365	2150	1970	1810	1670	1555	1450	1355	0.233
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	1	1225									0.725
		2	1500	1285	1110	980						0.557
		3	1730	1515	1330	1170	1055	960	880			0.452
		4	1940	1710	1525	1365	1230	1115	1025	945	875	0.381
		5	2130	1895	1695	1535	1400	1275	1170	1080	1000	0.329
		6	2305	2060	1860	1685	1540	1420	1315	1210	1125	0.289
		7	2465	2220	2010	1830	1680	1550	1435	1335	1250	0.258
		8	2610	2365	2150	1970	1810	1670	1555	1450	1355	0.233
2 1/2" NW Conc. (Above Deck)	36/4	0										1.037
		1	6225									0.725
		2	6515	6285	6110	5975						0.557
		3	6535	6530	6330	6170	6045	5940	5850			0.452
		4	6535	6535	6535	6365	6215	6095	5995	5915	5840	0.381
		5	6535	6535	6535	6535	6390	6255	6145	6045	5965	0.329
		6	6535	6535	6535	6535	6535	6415	6290	6180	6090	0.289
		8	6535	6535	6535	6535	6535	6535	6535	6450	6340	0.233
2 1/2" LW Conc. (Above Deck)	36/4	0										1.037
		1	4615									0.725
		2	4615	4615	4615	4535						0.557
		3	4615	4615	4615	4615	4600	4500	4410			0.452
		4	4615	4615	4615	4615	4615	4615	4555	4475	4400	0.381
		5	4615	4615	4615	4615	4615	4615	4615	4605	4525	0.329
		6	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.289
		8	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.233

[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
1.5" 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

[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 {$\phi_{df} S_{nf}$, $\phi_{db} S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5 CF, ICF
2.0 CF, NCF
Design thickness = 0.0598 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 6	7	8	9	10	11	12	13	14	K_1 1/ft
CF, ICF 1 1/2" x 6" No Fill (Bare Deck)	36/4	1	795									0.788
		2	1015	895	795	720						0.594
		3	1205	1075	965	875	800	735	675			0.476
		4	1370	1235	1120	1020	935	865	800	745	700	0.397
		5	1500	1370	1255	1150	1060	985	915	855	805	0.341
		6	1610	1485	1370	1270	1175	1095	1025	960	900	0.299
		7	1705	1585	1475	1370	1280	1195	1120	1055	995	0.266
		8	1780	1665	1560	1465	1370	1290	1215	1145	1080	0.239
CF, NCF 2" x 12" No Fill (Bare Deck)	36/4	1	795									0.788
		2	1015	895	795	705						0.594
		3	1205	1075	965	875	800	735	675			0.476
		4	1370	1235	1120	1020	935	865	800	745	700	0.397
		5	1500	1370	1255	1150	1060	985	915	855	805	0.341
		6	1610	1485	1370	1270	1175	1095	1025	960	900	0.299
		7	1705	1585	1475	1370	1280	1195	1120	1055	995	0.266
		8	1780	1665	1560	1465	1370	1290	1215	1145	1080	0.239
2 1/2" NW Conc. (Above Deck)	36/4	0										1.172
		1	5750									0.788
		2	6040	5880	5755	5660						0.594
		3	6330	6125	5975	5855	5760	5680	5615			0.476
		4	6535	6375	6190	6050	5935	5840	5760	5695	5640	0.397
		5	6535	6535	6410	6240	6110	6000	5905	5830	5765	0.341
		6	6535	6535	6535	6435	6280	6155	6050	5965	5890	0.299
		8	6535	6535	6535	6535	6535	6475	6340	6230	6135	0.239
2 1/2" LW Conc. (Above Deck)	36/4	0										1.172
		1	4310									0.788
		2	4600	4440	4315	4220						0.594
		3	4615	4615	4535	4415	4320	4240	4175			0.476
		4	4615	4615	4615	4610	4495	4400	4320	4255	4200	0.397
		5	4615	4615	4615	4615	4615	4560	4465	4390	4325	0.341
		6	4615	4615	4615	4615	4615	4615	4610	4525	4445	0.299
		8	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.239

[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
1.5" 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) <= Min {S_{nf} / Ω_{df}, S_{nb} / Ω_{db}}

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

3.0 CF, NCF
Design thickness = 0.0295 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0	660	515								1.457
		1	810	635	515							0.925
		2	935	755	615	525	460	410				0.678
		3	1045	870	720	615	535	475	430	390	355	0.535
		4	1140	960	820	700	610	545	490	445	405	0.441
		5	1230	1045	905	785	685	610	550	500	455	0.376
		6	1315	1125	975	860	760	675	610	555	505	0.327
		8	1455	1265	1115	990	885	800	730	665	610	0.260
2 1/2" NW Conc. (Above Deck)	24/3	0	5635	5490								1.457
		1	5790	5610	5495							0.925
		2	5940	5730	5595	5495	5420	5365				0.678
		3	6090	5850	5695	5580	5495	5430	5375	5335	5300	0.535
		4	6240	5970	5795	5665	5570	5495	5435	5390	5350	0.441
		5	6390	6095	5895	5755	5645	5565	5495	5445	5400	0.376
		6	6535	6215	5995	5840	5720	5630	5560	5500	5450	0.327
		8	6535	6455	6195	6010	5870	5765	5680	5610	5550	0.260
2 1/2" LW Conc. (Above Deck)	24/3	0	4195	4050								1.457
		1	4345	4170	4050							0.925
		2	4500	4290	4155	4055	3980	3920				0.678
		3	4615	4410	4255	4140	4055	3990	3935	3895	3855	0.535
		4	4615	4530	4355	4225	4130	4055	3995	3950	3910	0.441
		5	4615	4615	4455	4310	4205	4125	4055	4005	3960	0.376
		6	4615	4615	4555	4400	4280	4190	4115	4060	4010	0.327
		8	4615	4615	4615	4570	4430	4325	4240	4165	4110	0.260

[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
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 {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi
F_y= 50 ksi

3.0 CF, NCF
Design thickness = 0.0295 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0	335	260								1.647
		1	470	380	310							0.998
		2	575	485	410	350	305	270				0.716
		3	660	565	490	430	380	340	305	275	255	0.558
		4	735	640	560	495	445	400	365	330	305	0.457
		5	790	700	620	555	500	455	415	380	355	0.387
		6	840	750	675	610	550	505	460	425	395	0.336
		8	910	835	765	700	640	590	545	510	475	0.266
2 1/2" NW Conc. (Above Deck)	24/3	0	5275	5200								1.647
		1	5425	5320	5250							0.998
		2	5575	5440	5350	5285	5240	5200				0.716
		3	5725	5560	5450	5375	5315	5270	5230	5200	5175	0.558
		4	5880	5680	5550	5460	5390	5335	5290	5255	5225	0.457
		5	6030	5805	5655	5545	5465	5400	5350	5310	5275	0.387
		6	6180	5925	5755	5630	5540	5470	5415	5365	5330	0.336
		8	6480	6165	5955	5805	5690	5605	5535	5475	5430	0.266
2 1/2" LW Conc. (Above Deck)	24/3	0	3835	3760								1.647
		1	3985	3880	3810							0.998
		2	4135	4000	3910	3845	3800	3760				0.716
		3	4285	4120	4010	3935	3875	3830	3790	3760	3735	0.558
		4	4435	4240	4110	4020	3950	3895	3850	3815	3785	0.457
		5	4590	4365	4210	4105	4025	3960	3910	3870	3835	0.387
		6	4615	4485	4315	4190	4100	4030	3970	3925	3885	0.336
		8	4615	4615	4515	4365	4250	4165	4095	4035	3990	0.266

[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
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 {$\phi_{df} S_{nf}$, $\phi_{db} S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

3.0 CF, NCF
Design thickness = 0.0358 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0	915	715								1.605
		1	1115	875	715							1.019
		2	1275	1035	850	715	625	555				0.746
		3	1420	1180	980	830	725	645	580	530	485	0.589
		4	1550	1305	1115	945	830	735	660	600	550	0.486
		5	1670	1420	1225	1060	930	825	740	675	620	0.414
		6	1785	1525	1325	1165	1030	915	825	750	685	0.361
		8	1975	1720	1510	1340	1200	1085	985	895	820	0.287
2 1/2" NW Conc. (Above Deck)	24/3	0	5905	5705								1.605
		1	6110	5865	5705							1.019
		2	6310	6030	5840	5705	5605	5530				0.746
		3	6510	6190	5975	5820	5705	5615	5545	5485	5440	0.589
		4	6535	6350	6110	5935	5810	5705	5625	5560	5505	0.486
		5	6535	6510	6245	6050	5910	5795	5705	5635	5575	0.414
		6	6535	6535	6380	6165	6010	5885	5790	5705	5640	0.361
		8	6535	6535	6535	6400	6210	6065	5950	5855	5775	0.287
2 1/2" LW Conc. (Above Deck)	24/3	0	4465	4265								1.605
		1	4615	4425	4265							1.019
		2	4615	4590	4400	4265	4165	4085				0.746
		3	4615	4615	4535	4380	4265	4175	4105	4045	4000	0.589
		4	4615	4615	4615	4495	4365	4265	4185	4120	4065	0.486
		5	4615	4615	4615	4610	4470	4355	4265	4195	4130	0.414
		6	4615	4615	4615	4615	4570	4445	4345	4265	4200	0.361
		8	4615	4615	4615	4615	4615	4615	4510	4415	4335	0.287

[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
3" x 12"	0.932	35640	22810	15840	11635	8910	7040	5700	4710	3960

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi

F_y= 50 ksi

3.0 CF, NCF
Design thickness = 0.0358 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	5	6	7	8	9	10	11	12	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0	410	320								1.814
		1	585	480	395							1.099
		2	720	610	525	450	390	350				0.789
		3	830	715	625	550	490	435	395	355	325	0.615
		4	920	805	710	635	570	515	470	430	395	0.504
		5	990	885	790	710	640	585	535	490	455	0.427
		6	1050	945	855	775	705	645	595	550	510	0.370
		8	1130	1045	965	890	820	760	705	655	610	0.293
2 1/2" NW Conc. (Above Deck)	24/3	0	5355	5265								1.814
		1	5555	5425	5340							1.099
		2	5755	5585	5470	5390	5330	5280				0.789
		3	5960	5745	5605	5505	5430	5370	5325	5285	5255	0.615
		4	6160	5910	5740	5620	5530	5460	5405	5360	5320	0.504
		5	6360	6070	5875	5735	5630	5550	5485	5435	5390	0.427
		6	6535	6230	6010	5850	5735	5640	5565	5505	5455	0.370
		8	6535	6535	6280	6080	5935	5820	5730	5655	5590	0.293
2 1/2" LW Conc. (Above Deck)	24/3	0	3915	3825								1.814
		1	4115	3985	3895							1.099
		2	4315	4145	4030	3950	3890	3840				0.789
		3	4520	4305	4165	4065	3990	3930	3885	3845	3815	0.615
		4	4615	4470	4300	4180	4090	4020	3965	3920	3880	0.504
		5	4615	4615	4435	4295	4190	4110	4045	3990	3950	0.427
		6	4615	4615	4570	4410	4290	4200	4125	4065	4015	0.370
		8	4615	4615	4615	4615	4495	4380	4285	4210	4150	0.293

[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
3" x 12"	0.932	35640	22810	15840	11635	8910	7040	5700	4710	3960

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

3.0 CF, NCF
Design thickness = 0.0474 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 5	6	7	8	9	10	11	12	13	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0	940									1.846
		1	1185	970								1.172
		2	1425	1175	995	860	765					0.859
		3	1620	1380	1170	1015	900	810	735	675		0.678
		4	1795	1550	1345	1165	1035	930	845	775	715	0.560
		5	1965	1700	1495	1320	1175	1055	960	880	810	0.477
		6	2115	1845	1630	1460	1310	1180	1070	980	905	0.415
		8	2385	2110	1880	1695	1535	1400	1290	1185	1095	0.330
2 1/2" NW Conc. (Above Deck)	24/3	0	5945									1.846
		1	6190	5975								1.172
		2	6435	6180	6000	5860	5755					0.859
		3	6535	6385	6175	6015	5890	5790	5710	5645		0.678
		4	6535	6535	6350	6170	6030	5915	5825	5745	5680	0.560
		5	6535	6535	6525	6320	6165	6040	5935	5850	5775	0.477
		6	6535	6535	6535	6475	6300	6160	6045	5950	5870	0.415
		8	6535	6535	6535	6535	6535	6405	6270	6155	6060	0.330
2 1/2" LW Conc. (Above Deck)	24/3	0	4505									1.846
		1	4615	4535								1.172
		2	4615	4615	4560	4420	4315					0.859
		3	4615	4615	4615	4575	4450	4350	4270	4205		0.678
		4	4615	4615	4615	4615	4585	4475	4385	4305	4240	0.560
		5	4615	4615	4615	4615	4615	4595	4495	4410	4335	0.477
		6	4615	4615	4615	4615	4615	4615	4605	4510	4430	0.415
		8	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.330

[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
3" x 12"	1.267	35460	24625	18090	13850	10940	8865	7325	6155	5245

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi
F_y= 50 ksi

3.0 CF, NCF
Design thickness = 0.0474 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 5	6	7	8	9	10	11	12	13	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0	430									2.087
		1	670	555								1.265
		2	850	735	645	560	495					0.908
		3	1005	880	780	695	630	570	520	475		0.708
		4	1130	1005	900	810	735	675	620	575	530	0.580
		5	1235	1115	1005	915	835	770	710	660	615	0.491
		6	1320	1205	1100	1005	925	855	795	740	690	0.426
		8	1445	1345	1250	1160	1080	1010	940	885	830	0.337
2 1/2" NW Conc. (Above Deck)	24/3	0	5380									2.087
		1	5625	5505								1.265
		2	5870	5710	5595	5510	5440					0.908
		3	6120	5915	5770	5660	5575	5510	5455	5410		0.708
		4	6365	6120	5945	5815	5715	5635	5565	5510	5465	0.580
		5	6535	6325	6120	5970	5850	5755	5680	5615	5560	0.491
		6	6535	6530	6295	6120	5985	5880	5790	5715	5655	0.426
		8	6535	6535	6535	6430	6260	6125	6015	5920	5840	0.337
2 1/2" LW Conc. (Above Deck)	24/3	0	3940									2.087
		1	4185	4065								1.265
		2	4430	4270	4155	4070	4000					0.908
		3	4615	4475	4330	4220	4135	4070	4015	3970		0.708
		4	4615	4615	4505	4375	4275	4190	4125	4070	4025	0.580
		5	4615	4615	4615	4530	4410	4315	4235	4175	4120	0.491
		6	4615	4615	4615	4615	4545	4440	4350	4275	4215	0.426
		8	4615	4615	4615	4615	4615	4615	4570	4480	4400	0.337

[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
3" x 12"	1.267	35460	24625	18090	13850	10940	8865	7325	6155	5245

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

3.0 CF, NCF
Design thickness = 0.0598 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u= 65 ksi
F_y= 50 ksi
F_{xx}= 60 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 6	7	8	9	10	11	12	13	14	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0										2.074
		1	1120									1.317
		2	1410	1195	1035	910						0.965
		3	1650	1445	1250	1105	995	900	825			0.761
		4	1865	1645	1465	1295	1165	1060	970	895	835	0.628
		5	2065	1830	1640	1480	1340	1220	1115	1030	955	0.535
		6	2245	2005	1800	1635	1490	1370	1260	1165	1080	0.466
		8	2560	2315	2100	1920	1765	1630	1510	1410	1320	0.370
2 1/2" NW Conc. (Above Deck)	24/3	0										2.074
		1	6120									1.317
		2	6410	6195	6035	5905						0.965
		3	6535	6445	6250	6100	5980	5885	5800			0.761
		4	6535	6535	6470	6295	6155	6040	5945	5865	5795	0.628
		5	6535	6535	6535	6485	6330	6200	6090	6000	5920	0.535
		6	6535	6535	6535	6535	6505	6355	6235	6135	6045	0.466
		8	6535	6535	6535	6535	6535	6535	6525	6400	6295	0.370
2 1/2" LW Conc. (Above Deck)	24/3	0										2.074
		1	4615									1.317
		2	4615	4615	4595	4465						0.965
		3	4615	4615	4615	4615	4540	4440	4360			0.761
		4	4615	4615	4615	4615	4615	4600	4505	4425	4355	0.628
		5	4615	4615	4615	4615	4615	4615	4615	4560	4480	0.535
		6	4615	4615	4615	4615	4615	4615	4615	4615	4605	0.466
		8	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.370

[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
3" x 12"	1.600	34905	25645	19630	15510	12565	10385	8725	7435	6410

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 65 ksi
F_y= 50 ksi

3.0 CF, NCF
Design thickness = 0.0598 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

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Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 6	7	8	9	10	11	12	13	14	K_1 1/ft
CF, NCF 3" x 12" No Fill (Bare Deck)	24/3	0										2.345
		1	740									1.421
		2	975	855	760	670						1.019
		3	1170	1040	935	845	770	705	645			0.795
		4	1340	1205	1090	995	910	840	780	725	680	0.651
		5	1480	1345	1230	1125	1040	960	895	835	785	0.552
		6	1590	1465	1350	1245	1155	1075	1005	940	885	0.478
		8	1765	1650	1545	1445	1355	1270	1195	1125	1065	0.378
2 1/2" NW Conc. (Above Deck)	24/3	0										2.345
		1	5695									1.421
		2	5985	5830	5715	5625						1.019
		3	6275	6080	5930	5820	5725	5650	5590			0.795
		4	6535	6330	6150	6010	5900	5810	5735	5670	5615	0.651
		5	6535	6535	6365	6205	6075	5970	5880	5805	5740	0.552
		6	6535	6535	6535	6400	6250	6125	6025	5935	5865	0.478
		8	6535	6535	6535	6535	6535	6440	6315	6205	6110	0.378
2 1/2" LW Conc. (Above Deck)	24/3	0										2.345
		1	4255									1.421
		2	4545	4390	4275	4185						1.019
		3	4615	4615	4490	4375	4285	4210	4150			0.795
		4	4615	4615	4615	4570	4460	4370	4295	4230	4175	0.651
		5	4615	4615	4615	4615	4615	4525	4440	4365	4300	0.552
		6	4615	4615	4615	4615	4615	4615	4585	4495	4425	0.478
		8	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.378

[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
3" x 12"	1.600	34905	25645	19630	15510	12565	10385	8725	7435	6410

[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 {$\phi_{df} S_{nf}$, $\phi_{db} S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 24 Ga.
Design thickness = 0.0239 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.06 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	2.5	3	3.5	4	4.5	5	5.5	6	K_1 1/ft
No Fill (Bare Deck)	36/7	0	795	660	560	485	420	375	335			0.494
		1	930	785	675	590	525	465	415	375	345	0.373
		2	1045	895	780	685	610	550	500	455	415	0.299
		3	1140	995	875	775	695	630	575	525	485	0.250
		4	1220	1080	960	860	775	700	640	590	545	0.215
	36/5	0	670	575	495	435	390	345	305			0.593
		1	770	675	590	525	470	425	390	355	320	0.426
		2	845	755	675	605	545	500	455	420	390	0.333
		3	900	820	740	675	615	565	520	480	445	0.273
		4	945	870	800	735	675	620	575	535	500	0.232
	36/4	0	510	440	380	335	295	260	230			0.741
		1	605	530	470	420	380	345	315	285	260	0.498
		2	665	605	545	495	450	410	380	350	325	0.375
		3	710	655	600	555	510	470	435	405	380	0.301
		4	745	695	645	600	560	520	485	455	425	0.251
2 1/2" NW Conc. (Above Deck)	36/4	0	5540	5415	5330	5270	5220	5185	5160			0.741
		1	5750	5580	5470	5390	5325	5280	5240	5210	5185	0.498
		2	5960	5750	5610	5510	5430	5375	5325	5285	5255	0.375
		3	6170	5920	5750	5625	5535	5465	5410	5365	5325	0.301
		4	6380	6085	5890	5745	5640	5560	5495	5440	5395	0.251
2 1/2" LW Conc. (Above Deck)	36/4	0	4100	3975	3890	3830	3780	3745	3720			0.741
		1	4310	4140	4030	3945	3885	3840	3800	3770	3745	0.498
		2	4520	4310	4170	4065	3990	3935	3885	3845	3815	0.375
		3	4615	4475	4310	4185	4095	4025	3970	3925	3885	0.301
		4	4615	4615	4450	4305	4200	4120	4055	4000	3955	0.251
Type I Insul. Fill	36/4	0	1085	955	870	810	765	730	700			0.741
		1	1295	1125	1010	930	870	825	785	755	730	0.498
		2	1505	1295	1150	1050	975	915	870	830	800	0.375
		3	1715	1460	1290	1170	1080	1010	955	905	870	0.301
		4	1925	1630	1430	1290	1185	1100	1035	985	940	0.251

[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
EF,IEF	0.141	25520	16335	11340	8330	6380	5040	4080	3375	2835

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 24 Ga.
Design thickness = 0.0239 in.
Support fastening: 16 gage washer w/ 3/8" hole - E60
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 3	3.5	4	4.5	5	5.5	6	6.5	7	K_1 1/ft
No Fill (Bare Deck)	36/7	0	980	850	750	675	605					0.437
		1	1095	955	845	760	685	625	570			0.339
		2	1205	1055	935	840	765	695	640	590	550	0.277
		3	1310	1150	1025	925	840	765	705	655	610	0.235
		4	1410	1245	1110	1000	910	835	770	715	665	0.203
	36/5	0	865	760	680	610	555					0.524
		1	965	855	765	690	625	575	530			0.390
		2	1055	940	845	765	695	640	590	550	515	0.310
		3	1135	1020	920	835	765	705	650	605	565	0.258
		4	1210	1090	990	905	830	765	710	660	620	0.220
	36/4	0	665	585	520	470	425					0.656
		1	760	675	605	545	495	455	420			0.458
		2	845	755	680	620	565	520	480	450	420	0.352
		3	915	830	750	685	630	580	540	505	470	0.286
		4	980	895	815	750	690	640	595	555	520	0.241
2 1/2" NW Conc. (Above Deck)	36/4	0	5645	5540	5460	5395	5350					0.656
		1	5785	5660	5565	5490	5430	5385	5345			0.458
		2	5925	5780	5670	5585	5515	5460	5415	5375	5340	0.352
		3	6065	5900	5775	5675	5600	5535	5485	5440	5400	0.286
		4	6205	6020	5880	5770	5685	5610	5555	5505	5460	0.241
2 1/2" LW Conc. (Above Deck)	36/4	0	4205	4100	4020	3955	3905					0.656
		1	4345	4220	4125	4050	3990	3945	3905			0.458
		2	4485	4340	4230	4145	4075	4020	3975	3935	3900	0.352
		3	4615	4460	4335	4235	4160	4095	4045	4000	3960	0.286
		4	4615	4580	4440	4330	4245	4170	4115	4060	4020	0.241
Type I Insul. Fill	36/4	0	1190	1080	1000	940	890					0.656
		1	1330	1200	1105	1035	975	925	885			0.458
		2	1465	1320	1210	1125	1060	1005	955	915	885	0.352
		3	1605	1440	1315	1220	1140	1080	1025	980	945	0.286
		4	1745	1560	1420	1315	1225	1155	1095	1045	1005	0.241

[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 3	3.5	4	4.5	5	5.5	6	6.5	7
EF,IEF	0.141	11340	8330	6380	5040	4080	3375	2835	2415	2080

[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 {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 22 Ga.
Design thickness = 0.0295 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.074 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
No Fill (Bare Deck)	36/7	0	525	465	415							0.549
		1	660	590	530	480	435					0.414
		2	780	705	640	585	530	490	450	420	390	0.333
		3	890	805	735	675	625	580	535	495	465	0.278
		4	995	905	830	765	705	660	615	575	535	0.239
	36/5	0	480	430	380							0.659
		1	595	540	490	450	410					0.474
		2	695	635	580	535	495	465	430	400	370	0.370
		3	785	720	665	615	575	535	500	470	445	0.304
		4	860	795	740	690	645	605	565	535	505	0.257
	36/4	0	365	325	290							0.824
		1	480	435	395	365	330					0.554
		2	575	525	485	450	415	390	360	335	315	0.417
		3	650	605	560	520	485	455	430	405	385	0.334
		4	715	670	625	585	550	520	490	465	440	0.279
2 1/2" NW Conc. (Above Deck)	36/4	0	5295	5255	5220							0.824
		1	5440	5380	5335	5295	5260					0.554
		2	5585	5510	5450	5400	5355	5320	5290	5265	5245	0.417
		3	5730	5635	5565	5505	5455	5410	5375	5345	5315	0.334
		4	5870	5765	5680	5610	5550	5500	5455	5420	5385	0.279
2 1/2" LW Conc. (Above Deck)	36/4	0	3855	3815	3780							0.824
		1	4000	3940	3895	3855	3820					0.554
		2	4145	4070	4010	3960	3915	3880	3850	3825	3805	0.417
		3	4290	4195	4125	4065	4015	3970	3935	3900	3875	0.334
		4	4430	4325	4240	4165	4110	4060	4015	3980	3945	0.279
Type I Insul. Fill	36/4	0	840	795	760							0.824
		1	985	925	875	835	805					0.554
		2	1130	1050	990	940	900	865	835	810	785	0.417
		3	1270	1180	1105	1045	995	955	915	885	860	0.334
		4	1415	1305	1220	1150	1090	1040	1000	960	930	0.279

[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	4.5	5	5.5	6	6.5	7	7.5	8
EF,IEF	0.183	9085	7175	5815	4805	4035	3440	2965	2580	2270

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 22 Ga.
Design thickness = 0.0295 in.
Support fastening: 5/8" weld
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
No Fill (Bare Deck)	36/7	0	1060	935	835							0.486
		1	1205	1065	950	860	785					0.377
		2	1330	1190	1065	965	880	810	745	695	645	0.308
		3	1450	1305	1180	1070	975	895	830	770	720	0.261
		4	1570	1415	1285	1175	1070	985	910	845	790	0.226
	36/5	0	970	865	770							0.583
		1	1085	980	885	800	730					0.433
		2	1195	1085	990	905	825	760	700	650	605	0.345
		3	1300	1185	1080	995	920	845	780	725	680	0.286
		4	1400	1275	1170	1080	1000	935	865	805	750	0.245
	36/4	0	740	655	580							0.729
		1	860	775	695	630	570					0.509
		2	965	875	800	735	670	610	565	525	485	0.391
		3	1065	970	890	820	760	700	645	600	560	0.318
		4	1155	1055	975	900	840	785	730	675	630	0.267
2 1/2" NW Conc. (Above Deck)	36/4	0	5700	5610	5540							0.729
		1	5840	5735	5655	5585	5530					0.509
		2	5985	5865	5770	5690	5625	5570	5520	5480	5445	0.391
		3	6130	5995	5885	5795	5720	5655	5605	5555	5515	0.318
		4	6275	6120	6000	5900	5815	5745	5685	5635	5585	0.267
2 1/2" LW Conc. (Above Deck)	36/4	0	4255	4170	4100							0.729
		1	4400	4295	4215	4145	4090					0.509
		2	4545	4425	4330	4250	4185	4130	4080	4040	4005	0.391
		3	4615	4550	4445	4355	4280	4215	4165	4115	4075	0.318
		4	4615	4615	4560	4460	4375	4305	4245	4195	4145	0.267
Type I Insul. Fill	36/4	0	1240	1150	1080							0.729
		1	1385	1280	1195	1130	1070					0.509
		2	1530	1410	1310	1235	1165	1110	1065	1025	985	0.391
		3	1670	1535	1425	1335	1265	1200	1145	1100	1060	0.318
		4	1815	1665	1540	1440	1360	1290	1230	1175	1130	0.267

[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	4.5	5	5.5	6	6.5	7	7.5	8
EF,IEF	0.183	9100	7190	5820	4810	4040	3445	2970	2585	2275

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 20 Ga.
Design thickness = 0.0358 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.09 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
No Fill (Bare Deck)	36/7	0	640	565	505							0.605
		1	815	735	660	595	545					0.456
		2	975	880	800	735	675	620	570	530	495	0.366
		3	1120	1015	930	855	790	735	680	635	595	0.306
		4	1255	1145	1050	970	900	835	780	735	690	0.263
	36/5	0	585	525	465							0.725
		1	735	665	610	560	515					0.522
		2	870	790	730	670	625	580	545	505	475	0.408
		3	985	905	835	775	725	675	635	595	565	0.334
		4	1080	1005	935	870	815	765	720	680	645	0.283
	36/4	0	445	395	355							0.907
		1	595	540	495	455	415					0.610
		2	715	660	605	565	525	490	460	430	400	0.459
		3	815	760	705	660	615	580	545	515	485	0.368
		4	895	840	790	740	700	660	620	590	560	0.307
2 1/2" NW Conc. (Above Deck)	36/4	0	5380	5330	5285							0.907
		1	5575	5500	5440	5390	5350					0.610
		2	5765	5670	5595	5530	5480	5435	5395	5365	5335	0.459
		3	5960	5840	5745	5670	5605	5550	5505	5465	5430	0.368
		4	6150	6010	5900	5810	5735	5670	5615	5570	5525	0.307
2 1/2" LW Conc. (Above Deck)	36/4	0	3940	3890	3845							0.907
		1	4135	4060	4000	3950	3910					0.610
		2	4325	4230	4155	4090	4040	3995	3955	3920	3895	0.459
		3	4520	4400	4305	4230	4165	4110	4065	4025	3990	0.368
		4	4615	4570	4460	4370	4295	4230	4175	4125	4085	0.307
Type I Insul. Fill	36/4	0	925	870	830							0.907
		1	1115	1040	980	935	895					0.610
		2	1310	1215	1135	1075	1020	975	940	905	875	0.459
		3	1500	1385	1290	1215	1150	1095	1050	1010	975	0.368
		4	1695	1555	1445	1355	1275	1215	1160	1110	1070	0.307

[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	4.5	5	5.5	6	6.5	7	7.5	8
EF,IEF	0.228	12385	9785	7925	6550	5505	4690	4045	3520	3095

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 20 Ga.
Design thickness = 0.0358 in.
Support fastening: 5/8" weld
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
No Fill (Bare Deck)	36/7	0	1425	1260	1130							0.535
		1	1615	1430	1280	1160	1055					0.415
		2	1780	1600	1435	1300	1185	1090	1005	935	870	0.340
		3	1945	1750	1590	1440	1315	1205	1115	1040	970	0.287
		4	2100	1895	1725	1580	1440	1325	1225	1140	1065	0.249
	36/5	0	1300	1165	1040							0.642
		1	1455	1315	1195	1080	985					0.477
		2	1605	1455	1325	1215	1115	1025	945	880	820	0.380
		3	1745	1585	1450	1335	1235	1140	1055	980	915	0.315
		4	1875	1710	1570	1450	1340	1250	1165	1085	1010	0.270
	36/4	0	995	880	785							0.803
		1	1150	1040	940	850	775					0.561
		2	1295	1175	1075	990	900	825	765	710	660	0.431
		3	1425	1300	1195	1100	1020	945	875	810	755	0.350
		4	1545	1415	1305	1210	1125	1050	985	915	850	0.294
2 1/2" NW Conc. (Above Deck)	36/4	0	5970	5850	5755							0.803
		1	6160	6020	5910	5815	5740					0.561
		2	6355	6190	6065	5955	5870	5795	5730	5675	5625	0.431
		3	6535	6360	6215	6095	5995	5915	5840	5780	5725	0.350
		4	6535	6535	6370	6235	6125	6030	5950	5880	5820	0.294
2 1/2" LW Conc. (Above Deck)	36/4	0	4530	4410	4315							0.803
		1	4615	4580	4470	4375	4300					0.561
		2	4615	4615	4615	4515	4430	4355	4290	4235	4185	0.431
		3	4615	4615	4615	4615	4555	4475	4400	4340	4285	0.350
		4	4615	4615	4615	4615	4615	4590	4510	4440	4380	0.294
Type I Insul. Fill	36/4	0	1510	1395	1300							0.803
		1	1705	1565	1450	1360	1285					0.561
		2	1895	1735	1605	1500	1410	1340	1275	1220	1170	0.431
		3	2090	1905	1760	1640	1540	1455	1385	1320	1265	0.350
		4	2280	2075	1915	1780	1670	1575	1495	1425	1360	0.294

[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	4.5	5	5.5	6	6.5	7	7.5	8
EF,IEF	0.228	12385	9785	7925	6550	5505	4690	4045	3520	3095

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 18 Ga.
Design thickness = 0.0474 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.119 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
No Fill (Bare Deck)	36/7	0	855	755	675							0.696
		1	1115	1000	910	825	755					0.525
		2	1350	1220	1115	1020	940	870	805	750	700	0.422
		3	1570	1425	1305	1200	1110	1035	965	905	850	0.352
		4	1765	1615	1485	1370	1270	1185	1110	1045	985	0.303
	36/5	0	775	695	625							0.835
		1	1000	910	830	765	705					0.601
		2	1200	1095	1010	935	865	810	760	710	670	0.469
		3	1365	1260	1170	1085	1015	950	895	840	795	0.385
		4	1500	1400	1305	1225	1145	1080	1020	965	910	0.326
	36/4	0	595	530	475							1.044
		1	815	740	680	625	580					0.702
		2	990	915	845	785	735	685	645	605	575	0.529
		3	1130	1055	985	925	865	815	770	730	690	0.424
		4	1240	1170	1100	1040	985	930	880	835	795	0.354
2 1/2" NW Conc. (Above Deck)	36/4	0	5535	5465	5410							1.044
		1	5830	5725	5645	5575	5520					0.702
		2	6125	5985	5880	5790	5715	5655	5600	5555	5510	0.529
		3	6415	6245	6115	6005	5910	5835	5765	5710	5660	0.424
		4	6535	6510	6345	6215	6105	6015	5935	5865	5805	0.354
2 1/2" LW Conc. (Above Deck)	36/4	0	4095	4025	3970							1.044
		1	4390	4285	4205	4135	4080					0.702
		2	4615	4545	4440	4350	4275	4215	4160	4115	4070	0.529
		3	4615	4615	4615	4560	4470	4395	4325	4270	4220	0.424
		4	4615	4615	4615	4615	4615	4575	4495	4425	4365	0.354
Type I Insul. Fill	36/4	0	1080	1010	955							1.044
		1	1375	1270	1185	1120	1065					0.702
		2	1665	1530	1420	1335	1260	1195	1140	1095	1055	0.529
		3	1960	1790	1655	1545	1455	1375	1310	1250	1200	0.424
		4	2250	2050	1890	1760	1650	1555	1475	1410	1350	0.354

[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	4.5	5	5.5	6	6.5	7	7.5	8
EF,IEF	0.240	15890	12555	10170	8405	7060	6015	5185	4520	3970

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

EF, IEF, EVF 1-1/2" x 6" x 18 Ga
Design thickness = 0.0474 in.
Support fastening: 5/8" weld
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
No Fill (Bare Deck)	36/7	0	1865	1650	1475							0.615
		1	2135	1910	1710	1550	1415					0.478
		2	2385	2145	1945	1760	1610	1480	1370	1270	1185	0.391
		3	2630	2370	2155	1970	1805	1660	1535	1430	1335	0.330
		4	2865	2590	2355	2160	1995	1840	1700	1585	1480	0.286
	36/5	0	1690	1520	1365							0.738
		1	1925	1740	1585	1445	1320					0.549
		2	2145	1945	1780	1635	1510	1395	1290	1195	1120	0.437
		3	2355	2145	1965	1810	1675	1560	1455	1355	1265	0.363
		4	2545	2330	2140	1980	1835	1715	1605	1505	1410	0.310
	36/4	0	1295	1155	1035							0.923
		1	1525	1380	1260	1145	1045					0.645
		2	1740	1585	1450	1335	1235	1140	1050	975	910	0.496
		3	1935	1770	1625	1505	1395	1300	1220	1135	1055	0.403
		4	2105	1940	1790	1660	1550	1445	1360	1280	1205	0.339
2 1/2" NW Conc. (Above Deck)	36/4	0	6285	6130	6010							0.923
		1	6535	6395	6245	6120	6020					0.645
		2	6535	6535	6480	6335	6215	6115	6025	5950	5885	0.496
		3	6535	6535	6535	6535	6410	6295	6195	6110	6035	0.403
		4	6535	6535	6535	6535	6535	6475	6360	6265	6180	0.339
2 1/2" LW Conc. (Above Deck)	36/4	0	4615	4615	4570							0.923
		1	4615	4615	4615	4615	4580					0.645
		2	4615	4615	4615	4615	4615	4615	4585	4510	4445	0.496
		3	4615	4615	4615	4615	4615	4615	4615	4615	4595	0.403
		4	4615	4615	4615	4615	4615	4615	4615	4615	4615	0.339
Type I Insul. Fill	36/4	0	1830	1675	1550							0.923
		1	2120	1935	1785	1665	1565					0.645
		2	2415	2195	2020	1875	1760	1655	1570	1495	1430	0.496
		3	2705	2455	2255	2090	1955	1835	1740	1650	1575	0.403
		4	3000	2715	2490	2305	2150	2015	1905	1810	1720	0.339

[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	4.5	5	5.5	6	6.5	7	7.5	8
EF,IEF	0.240	15890	12555	10170	8405	7060	6015	5185	4520	3970

[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 {$\phi_{df} S_{nf}$, $\phi_{db} S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 26 GA
Design thickness = 0.0179 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	0	1340	945	710	560						0.363
		1	1435	1025	780	615	505					0.295
		2	1525	1095	845	670	550	465	405	355		0.249
		3	1610	1170	905	725	595	505	435	385	340	0.215
		4	1690	1240	965	780	640	545	470	415	370	0.189
		5	1765	1305	1020	830	685	585	505	445	395	0.169
		6	1835	1370	1080	885	730	620	540	475	425	0.153
		8	1960	1495	1185	975	825	700	605	535	480	0.128
HF Form No Fill (Bare Deck)	30/5	0	695	495	370	295						0.605
		1	785	565	440	350	285					0.437
		2	865	635	495	400	330	280	245	215		0.343
		3	935	700	555	455	375	320	280	245	220	0.281
		4	995	760	605	500	420	360	310	275	245	0.239
		5	1050	820	655	545	460	400	345	305	270	0.207
		6	1095	870	705	585	500	435	380	335	300	0.183
		8	1175	960	795	670	575	500	445	395	355	0.149
HF Form No Fill (Bare Deck)	30/3	0	375	310	260	220						0.908
		1	400	345	295	255	220					0.576
		2	415	370	325	285	250	225	200	180		0.422
		3	425	385	345	310	275	250	225	205	185	0.333
		4	435	400	365	330	300	270	245	225	205	0.275
		5	440	410	380	350	320	290	265	245	225	0.234
		6	445	420	390	365	335	310	285	265	245	0.204
		8	450	435	410	385	360	335	315	295	275	0.162
2 1/2" NW Conc. (Above Deck)	30/3	0	5690	5425	5295	5215						0.908
		1	5825	5515	5365	5270	5210					0.576
		2	5960	5605	5430	5325	5255	5205	5165	5135		0.422
		3	6095	5700	5500	5380	5300	5245	5200	5165	5140	0.333
		4	6230	5790	5565	5435	5345	5280	5235	5195	5170	0.275
		5	6365	5880	5635	5490	5390	5320	5270	5230	5195	0.234
		6	6505	5970	5705	5540	5435	5360	5300	5260	5220	0.204
		8	6535	6150	5840	5650	5525	5435	5370	5320	5275	0.162
2 1/2" LW Conc. (Above Deck)	30/3	0	4250	3985	3855	3775						0.908
		1	4385	4075	3920	3830	3770					0.576
		2	4520	4165	3990	3885	3815	3765	3725	3695		0.422
		3	4615	4255	4060	3940	3860	3805	3760	3725	3700	0.333
		4	4615	4350	4125	3995	3905	3840	3795	3755	3725	0.275
		5	4615	4440	4195	4050	3950	3880	3830	3785	3755	0.234
		6	4615	4530	4260	4100	3995	3920	3860	3815	3780	0.204
		8	4615	4615	4400	4210	4085	3995	3930	3880	3835	0.162

[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	3	4	5	6	7	8	9	10
HF	0.036	7715	3430	1925	1235	855	630	480	380	305

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 26 GA
Design thickness = 0.0179 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	0	920	650	485	385						0.410
		1	1010	725	555	440	360					0.326
		2	1100	795	620	490	405	345	295	260		0.270
		3	1180	865	675	545	450	385	330	290	260	0.231
		4	1250	935	730	600	495	420	365	320	285	0.201
		5	1315	995	785	645	540	460	400	350	315	0.178
		6	1375	1055	840	690	585	500	435	380	340	0.160
		8	1480	1165	940	780	665	575	500	440	395	0.133
HF Form No Fill (Bare Deck)	30/5	0	475	335	255	200						0.684
		1	565	410	320	255	210					0.477
		2	635	475	375	305	255	215	190	165		0.366
		3	695	535	430	355	300	255	220	195	175	0.297
		4	745	590	475	395	340	295	255	225	200	0.250
		5	785	635	525	440	375	330	290	255	230	0.216
		6	820	680	565	480	410	360	320	285	255	0.190
		8	870	745	635	550	480	420	375	340	310	0.153
HF Form No Fill (Bare Deck)	30/3	0	255	210	175	150						1.026
		1	280	245	210	185	160					0.622
		2	290	265	235	210	185	170	150	140		0.446
		3	300	280	255	230	210	190	175	160	145	0.348
		4	305	285	265	245	225	210	190	180	165	0.285
		5	310	295	275	260	240	225	210	195	180	0.241
		6	310	300	285	270	255	235	220	210	195	0.209
		8	315	305	295	285	270	255	245	230	220	0.166
2 1/2" NW Conc. (Above Deck)	30/3	0	5440	5260	5170	5120						1.026
		1	5575	5350	5240	5170	5125					0.622
		2	5715	5445	5305	5225	5170	5135	5105	5080		0.446
		3	5850	5535	5375	5280	5220	5170	5140	5110	5090	0.348
		4	5985	5625	5445	5335	5265	5210	5175	5140	5120	0.285
		5	6120	5715	5510	5390	5310	5250	5205	5175	5145	0.241
		6	6255	5805	5580	5445	5355	5290	5240	5205	5175	0.209
		8	6530	5985	5715	5550	5445	5365	5310	5265	5225	0.166
2 1/2" LW Conc. (Above Deck)	30/3	0	4000	3820	3730	3675						1.026
		1	4135	3910	3800	3730	3685					0.622
		2	4275	4000	3865	3785	3730	3695	3665	3640		0.446
		3	4410	4095	3935	3840	3775	3730	3700	3670	3650	0.348
		4	4545	4185	4005	3895	3820	3770	3730	3700	3680	0.285
		5	4615	4275	4070	3950	3870	3810	3765	3730	3705	0.241
		6	4615	4365	4140	4005	3915	3850	3800	3765	3730	0.209
		8	4615	4545	4275	4110	4005	3925	3870	3825	3785	0.166

[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	3	4	5	6	7	8	9	10
HF	0.036	7715	3430	1925	1235	855	630	480	380	305

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 24 GA
Design thickness = 0.0239 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	0	2075	1465	1105	875						0.420
		1	2220	1580	1210	960	790					0.341
		2	2360	1695	1310	1045	860	730	635	555		0.287
		3	2490	1810	1400	1125	930	790	685	605	540	0.248
		4	2610	1915	1490	1210	1000	850	735	650	580	0.219
		5	2730	2020	1580	1290	1070	910	790	695	620	0.195
		6	2835	2120	1665	1365	1140	970	840	745	665	0.176
		8	3030	2310	1835	1510	1280	1090	945	835	745	0.148
HF Form No Fill (Bare Deck)	30/5	0	1075	765	580	460						0.699
		1	1215	875	680	545	450					0.506
		2	1335	985	770	625	520	440	380	335		0.396
		3	1445	1085	855	700	590	500	435	385	340	0.325
		4	1540	1180	940	775	655	560	485	430	385	0.276
		5	1620	1265	1015	840	715	620	540	475	425	0.240
		6	1695	1345	1090	910	775	675	590	525	470	0.212
		8	1815	1485	1225	1035	890	775	690	615	550	0.172
HF Form No Fill (Bare Deck)	30/3	0	580	480	400	340						1.049
		1	620	535	455	395	345					0.666
		2	645	570	500	440	390	345	310	280		0.488
		3	660	600	535	480	430	385	350	315	290	0.385
		4	675	620	565	510	465	420	380	350	320	0.318
		5	685	640	590	540	490	450	415	380	350	0.271
		6	690	650	610	560	520	475	440	405	380	0.236
		8	700	670	635	600	560	525	490	455	425	0.187
2 1/2" NW Conc. (Above Deck)	30/3	0	6115	5710	5510	5390						1.049
		1	6325	5850	5615	5470	5375					0.666
		2	6535	5990	5720	5555	5445	5370	5310	5265		0.488
		3	6535	6130	5825	5640	5515	5430	5365	5310	5270	0.385
		4	6535	6270	5930	5725	5585	5490	5415	5360	5315	0.318
		5	6535	6410	6035	5805	5655	5550	5470	5405	5355	0.271
		6	6535	6535	6140	5890	5725	5610	5520	5450	5395	0.236
		8	6535	6535	6350	6060	5865	5730	5625	5545	5480	0.187
2 1/2" LW Conc. (Above Deck)	30/3	0	4615	4270	4070	3950						1.049
		1	4615	4410	4175	4030	3935					0.666
		2	4615	4550	4280	4115	4005	3930	3870	3825		0.488
		3	4615	4615	4385	4200	4075	3990	3925	3870	3830	0.385
		4	4615	4615	4490	4285	4145	4050	3975	3920	3870	0.318
		5	4615	4615	4595	4365	4215	4110	4025	3965	3915	0.271
		6	4615	4615	4615	4450	4285	4170	4080	4010	3955	0.236
		8	4615	4615	4615	4615	4425	4290	4185	4105	4040	0.187

[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	3	4	5	6	7	8	9	10
HF	0.050	12265	5450	3065	1960	1360	1000	765	605	490

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 24 GA
Design thickness = 0.0239 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	0	1225	865	655	520						0.474
		1	1370	985	760	600	495					0.376
		2	1500	1095	850	685	565	480	415	365		0.312
		3	1620	1200	940	765	635	540	470	415	370	0.266
		4	1725	1300	1025	840	705	600	520	460	410	0.233
		5	1820	1390	1105	910	770	660	575	505	455	0.206
		6	1905	1480	1185	980	835	720	625	555	495	0.185
		8	2045	1635	1335	1115	950	830	730	645	580	0.154
HF Form No Fill (Bare Deck)	30/5	0	635	450	345	270						0.791
		1	770	565	440	355	295					0.552
		2	875	665	525	430	365	310	270	235		0.423
		3	965	750	605	500	425	370	320	285	255	0.344
		4	1030	830	675	565	485	420	375	330	295	0.289
		5	1085	895	740	625	540	470	420	375	335	0.250
		6	1130	950	800	685	595	520	465	415	380	0.220
		8	1195	1045	905	785	690	610	545	495	450	0.177
HF Form No Fill (Bare Deck)	30/3	0	345	285	235	200						1.186
		1	375	330	290	250	220					0.719
		2	395	360	325	290	260	235	215	195		0.516
		3	405	380	350	320	290	265	245	225	210	0.402
		4	410	390	365	340	315	295	270	250	235	0.329
		5	415	400	380	355	335	315	295	275	255	0.279
		6	420	405	390	370	350	330	310	295	275	0.242
		8	420	415	400	385	370	355	340	325	310	0.191
2 1/2" NW Conc. (Above Deck)	30/3	0	5620	5380	5260	5190						1.186
		1	5830	5520	5365	5275	5210					0.719
		2	6040	5660	5470	5360	5280	5225	5185	5155		0.516
		3	6250	5800	5575	5440	5350	5285	5240	5200	5170	0.402
		4	6460	5940	5680	5525	5420	5345	5290	5250	5215	0.329
		5	6535	6080	5785	5610	5490	5405	5345	5295	5255	0.279
		6	6535	6220	5890	5695	5560	5465	5395	5340	5295	0.242
		8	6535	6500	6100	5860	5700	5585	5500	5435	5380	0.191
2 1/2" LW Conc. (Above Deck)	30/3	0	4180	3940	3820	3750						1.186
		1	4390	4080	3925	3835	3770					0.719
		2	4600	4220	4030	3915	3840	3785	3745	3715		0.516
		3	4615	4360	4135	4000	3910	3845	3800	3760	3730	0.402
		4	4615	4500	4240	4085	3980	3905	3850	3810	3775	0.329
		5	4615	4615	4345	4170	4050	3965	3905	3855	3815	0.279
		6	4615	4615	4450	4255	4120	4025	3955	3900	3855	0.242
		8	4615	4615	4615	4420	4260	4145	4060	3995	3940	0.191

[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	3	4	5	6	7	8	9	10
HF	0.050	12265	5450	3065	1960	1360	1000	765	605	490

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 22 GA
Design thickness = 0.0295 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	0	3055	2155	1640	1295						0.466
		1	3255	2320	1780	1410	1165					0.379
		2	3445	2475	1910	1525	1260	1070	930	820		0.319
		3	3625	2630	2040	1640	1355	1155	1000	880	785	0.276
		4	3800	2780	2160	1755	1455	1235	1075	945	845	0.243
		5	3960	2925	2285	1865	1550	1320	1145	1010	900	0.217
		6	4110	3060	2405	1965	1645	1400	1215	1075	960	0.196
		8	4390	3330	2635	2165	1830	1565	1360	1200	1075	0.164
HF Form No Fill (Bare Deck)	30/5	0	1585	1125	860	680						0.777
		1	1775	1280	990	795	655					0.562
		2	1945	1430	1115	910	755	640	555	490		0.440
		3	2095	1570	1235	1010	850	725	630	555	495	0.361
		4	2230	1700	1350	1110	940	805	700	620	555	0.307
		5	2350	1820	1460	1205	1025	885	770	680	610	0.266
		6	2455	1935	1560	1300	1105	960	845	745	670	0.235
		8	2630	2135	1755	1475	1265	1105	975	875	785	0.191
HF Form No Fill (Bare Deck)	30/3	0	855	710	595	505						1.165
		1	910	780	670	575	505					0.740
		2	945	835	730	640	565	505	450	410		0.542
		3	970	875	780	695	620	555	505	460	420	0.428
		4	990	910	825	740	670	605	550	505	465	0.353
		5	1005	935	855	780	710	650	595	545	505	0.301
		6	1015	955	885	815	750	690	635	585	540	0.262
		8	1030	985	930	870	810	755	700	655	610	0.208
2 1/2" NW Conc. (Above Deck)	30/3	0	6535	6095	5795	5620						1.165
		1	6535	6285	5940	5735	5595					0.740
		2	6535	6480	6085	5850	5690	5575	5495	5425		0.542
		3	6535	6535	6230	5965	5785	5660	5565	5490	5430	0.428
		4	6535	6535	6370	6080	5880	5740	5635	5555	5490	0.353
		5	6535	6535	6515	6195	5975	5825	5710	5620	5545	0.301
		6	6535	6535	6535	6310	6075	5905	5780	5685	5605	0.262
		8	6535	6535	6535	6535	6265	6070	5925	5810	5720	0.208
2 1/2" LW Conc. (Above Deck)	30/3	0	4615	4615	4355	4175						1.165
		1	4615	4615	4500	4290	4155					0.740
		2	4615	4615	4615	4405	4250	4135	4055	3985		0.542
		3	4615	4615	4615	4520	4345	4220	4125	4050	3990	0.428
		4	4615	4615	4615	4615	4440	4300	4195	4115	4050	0.353
		5	4615	4615	4615	4615	4535	4385	4270	4180	4105	0.301
		6	4615	4615	4615	4615	4615	4465	4340	4240	4165	0.262
		8	4615	4615	4615	4615	4615	4615	4485	4370	4280	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 2	3	4	5	6	7	8	9	10
HF	0.062	16875	7500	4215	2700	1875	1375	1050	830	675

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 22 GA
Design thickness = 0.0295 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

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] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	0	1515	1070	815	645						0.527
		1	1710	1230	950	760	625					0.418
		2	1890	1380	1075	875	720	615	535	470		0.347
		3	2045	1525	1195	975	820	695	605	535	475	0.296
		4	2185	1655	1310	1075	910	780	675	595	535	0.258
		5	2305	1780	1420	1175	995	860	750	660	590	0.229
		6	2415	1895	1525	1265	1080	935	820	725	650	0.206
		8	2595	2095	1720	1445	1240	1080	955	855	765	0.171
HF Form No Fill (Bare Deck)	30/5	0	785	555	425	335						0.878
		1	965	710	555	450	375					0.613
		2	1110	845	670	550	465	400	345	305		0.470
		3	1220	960	775	645	550	480	420	370	330	0.382
		4	1305	1060	875	735	630	550	485	435	390	0.321
		5	1375	1145	960	815	705	615	550	490	445	0.277
		6	1425	1215	1035	890	775	680	610	545	495	0.244
		8	1500	1330	1165	1020	900	800	720	650	595	0.197
HF Form No Fill (Bare Deck)	30/3	0	425	350	295	250						1.317
		1	470	415	360	315	280					0.798
		2	490	450	410	370	330	300	275	250		0.573
		3	505	475	440	405	370	340	315	290	270	0.447
		4	510	485	460	430	400	375	350	325	305	0.366
		5	515	495	475	450	425	400	375	355	330	0.310
		6	520	505	485	465	445	420	400	375	355	0.269
		8	525	515	500	485	470	450	435	415	395	0.212
2 1/2" NW Conc. (Above Deck)	30/3	0	5790	5495	5345	5255						1.317
		1	6080	5685	5490	5370	5295					0.798
		2	6365	5880	5635	5485	5390	5320	5270	5225		0.573
		3	6535	6070	5780	5600	5485	5400	5340	5290	5250	0.447
		4	6535	6260	5920	5715	5580	5485	5410	5355	5310	0.366
		5	6535	6455	6065	5830	5675	5565	5485	5420	5365	0.310
		6	6535	6535	6210	5950	5775	5650	5555	5485	5425	0.269
		8	6535	6535	6495	6180	5965	5815	5700	5610	5540	0.212
2 1/2" LW Conc. (Above Deck)	30/3	0	4350	4055	3905	3815						1.317
		1	4615	4245	4050	3930	3855					0.798
		2	4615	4435	4195	4045	3950	3880	3825	3785		0.573
		3	4615	4615	4335	4160	4045	3960	3900	3850	3810	0.447
		4	4615	4615	4480	4275	4140	4045	3970	3915	3870	0.366
		5	4615	4615	4615	4390	4235	4125	4045	3980	3925	0.310
		6	4615	4615	4615	4505	4335	4210	4115	4040	3985	0.269
		8	4615	4615	4615	4615	4525	4375	4260	4170	4100	0.212

[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	3	4	5	6	7	8	9	10
HF	0.062	16875	7500	4215	2700	1875	1375	1050	830	675

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF Form Deck 20 GA
Design thickness = 0.0358 in.
Support fastening: 5/8" arc spot welds
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	Seismic	0.50	3.25
Wind	0.75	2.15	Wind	0.50	3.25
Other	0.55	3.00	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	1	4360	3105	2390	1900	1570					0.417
		2	4615	3320	2560	2055	1700	1445	1255	1105		0.352
		3	4860	3525	2730	2210	1825	1555	1350	1190	1065	0.304
		4	5090	3720	2895	2360	1955	1665	1445	1275	1140	0.267
		5	5305	3915	3060	2495	2085	1775	1540	1360	1215	0.239
		6	5510	4100	3220	2635	2210	1885	1640	1445	1295	0.216
		7	5700	4285	3375	2770	2340	1995	1735	1530	1370	0.197
		8	5880	4455	3530	2900	2455	2105	1830	1620	1450	0.181
HF Form No Fill (Bare Deck)	30/5	1	2380	1720	1330	1070	885					0.619
		2	2605	1915	1495	1220	1015	865	750	660		0.484
		3	2810	2105	1655	1355	1140	970	845	745	670	0.398
		4	2990	2275	1805	1485	1260	1080	940	830	745	0.338
		5	3150	2440	1955	1615	1370	1190	1040	920	820	0.293
		6	3290	2590	2090	1740	1480	1290	1135	1005	900	0.259
		7	3410	2730	2225	1860	1590	1385	1225	1090	975	0.232
		8	3520	2855	2350	1975	1695	1480	1310	1175	1055	0.210
HF Form No Fill (Bare Deck)	30/3	1	1220	1045	895	775	675					0.815
		2	1265	1120	980	860	760	675	605	550		0.597
		3	1300	1175	1045	930	830	745	675	615	560	0.471
		4	1325	1220	1105	995	895	810	740	675	620	0.389
		5	1345	1250	1150	1050	955	870	795	730	675	0.331
		6	1360	1280	1185	1095	1005	920	850	785	725	0.288
		7	1370	1300	1220	1130	1050	970	895	830	775	0.255
		8	1380	1320	1245	1165	1085	1010	940	875	820	0.229
2 1/2" NW Conc. (Above Deck)	30/3	1	6535	6535	6295	6015	5830					0.815
		2	6535	6535	6485	6170	5955	5805	5695	5605		0.597
		3	6535	6535	6535	6320	6085	5915	5790	5690	5610	0.471
		4	6535	6535	6535	6475	6215	6025	5885	5775	5690	0.389
		5	6535	6535	6535	6535	6340	6135	5980	5860	5765	0.331
		6	6535	6535	6535	6535	6470	6245	6080	5945	5845	0.288
		7	6535	6535	6535	6535	6535	6355	6175	6035	5920	0.255
		8	6535	6535	6535	6535	6535	6465	6270	6120	5995	0.229
2 1/2" LW Conc. (Above Deck)	30/3	1	4615	4615	4615	4575	4390					0.815
		2	4615	4615	4615	4615	4515	4365	4255	4165		0.597
		3	4615	4615	4615	4615	4615	4475	4350	4250	4170	0.471
		4	4615	4615	4615	4615	4615	4585	4445	4335	4250	0.389
		5	4615	4615	4615	4615	4615	4615	4540	4420	4325	0.331
		6	4615	4615	4615	4615	4615	4615	4615	4505	4400	0.288
		7	4615	4615	4615	4615	4615	4615	4615	4590	4480	0.255
		8	4615	4615	4615	4615	4615	4615	4615	4615	4555	0.229

[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	3	4	5	6	7	8	9	10
HF	0.077	22960	10200	5740	3670	2550	1870	1435	1130	915

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

HF, HVF Form Deck 20 GA
Design thickness = 0.0358 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u: 62
F_y: 60

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕ_{df}	Ω_{df}	Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	2.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	3	4	5	6	7	8	9	10	K_1 1/ft
HF Form No Fill (Bare Deck)	30/9	1	2100	1510	1170	940	775					0.461
		2	2330	1710	1335	1090	905	770	670	590		0.382
		3	2535	1900	1495	1225	1030	880	765	675	605	0.326
		4	2710	2070	1645	1355	1150	990	860	760	680	0.285
		5	2865	2230	1790	1485	1260	1095	955	845	760	0.252
		6	3000	2380	1930	1605	1370	1190	1050	930	835	0.227
		7	3120	2510	2055	1725	1475	1285	1140	1015	910	0.206
		8	3220	2635	2180	1835	1580	1380	1225	1095	990	0.188
HF Form No Fill (Bare Deck)	30/5	1	1195	880	685	560	465					0.675
		2	1375	1055	840	695	590	510	440	390		0.518
		3	1515	1205	980	815	700	605	535	475	425	0.421
		4	1620	1330	1105	930	800	700	620	555	505	0.354
		5	1700	1435	1215	1035	900	790	705	630	575	0.306
		6	1765	1525	1310	1130	990	875	780	705	640	0.269
		7	1815	1595	1390	1215	1070	955	855	775	705	0.240
		8	1850	1655	1465	1295	1150	1025	925	840	770	0.217
HF Form No Fill (Bare Deck)	30/3	1	570	510	445	395	345					0.880
		2	600	555	505	455	415	375	345	315		0.631
		3	615	580	540	500	465	430	395	365	340	0.492
		4	620	600	565	535	500	470	440	410	385	0.403
		5	630	610	585	555	530	500	470	445	420	0.341
		6	630	615	595	575	550	525	500	475	450	0.296
		7	635	620	605	585	565	545	520	500	475	0.261
		8	635	625	610	595	580	560	540	520	500	0.234
2 1/2" NW Conc. (Above Deck)	30/3	1	6365	5875	5635	5485	5390					0.880
		2	6535	6135	5825	5640	5520	5430	5365	5310		0.631
		3	6535	6390	6020	5795	5645	5540	5460	5400	5350	0.492
		4	6535	6535	6210	5950	5775	5650	5555	5485	5425	0.403
		5	6535	6535	6400	6100	5900	5760	5650	5570	5500	0.341
		6	6535	6535	6535	6255	6030	5870	5750	5655	5580	0.296
		7	6535	6535	6535	6410	6160	5980	5845	5740	5655	0.261
		8	6535	6535	6535	6535	6285	6090	5940	5825	5735	0.234
2 1/2" LW Conc. (Above Deck)	30/3	1	4615	4435	4195	4045	3950					0.880
		2	4615	4615	4385	4200	4075	3990	3925	3870		0.631
		3	4615	4615	4575	4355	4205	4100	4020	3955	3910	0.492
		4	4615	4615	4615	4510	4335	4210	4115	4045	3985	0.403
		5	4615	4615	4615	4615	4460	4320	4210	4130	4060	0.341
		6	4615	4615	4615	4615	4590	4430	4310	4215	4140	0.296
		7	4615	4615	4615	4615	4615	4540	4405	4300	4215	0.261
		8	4615	4615	4615	4615	4615	4615	4500	4385	4290	0.234

[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	3	4	5	6	7	8	9	10
HF	0.077	22960	10200	5740	3670	2550	1870	1435	1130	915

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 28 Ga.
Design thickness = 0.0149 in.
Support fastening: 16 gage washer w/ 3/8" hole - E60
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 1.5	2	2.5	3	3.5	4	4.5	5	5.5	K_1 1/ft
No Fill (Bare Deck)	30/7	0	1355	1075	885	750	650	570	505	450		0.414
		1	1440	1155	955	810	700	620	550	495	445	0.322
		2	1520	1230	1020	870	755	665	595	535	485	0.263
		3	1595	1300	1085	925	805	715	640	575	520	0.222
		4	1665	1365	1145	985	855	760	680	615	560	0.193
	30/5	0	1030	835	695	590	515	455	400	360		0.552
		1	1100	905	755	650	565	500	450	400	365	0.399
		2	1165	970	815	705	615	545	490	445	400	0.313
		3	1225	1025	875	755	665	590	530	480	440	0.257
		4	1275	1085	930	805	710	630	570	515	475	0.218
	30/4	0	860	710	600	515	450	400	355	320		0.621
		1	920	770	655	565	500	440	400	360	325	0.434
		2	970	825	710	615	545	485	435	395	365	0.334
		3	1015	875	760	665	590	525	475	435	395	0.271
		4	1050	920	805	710	630	565	510	465	430	0.228
2 1/2" NW Conc. (Above Deck)	30/4	0	6020	5740	5575	5460	5380	5320	5275	5235		0.621
		1	6160	5845	5655	5530	5440	5375	5320	5280	5245	0.434
		2	6295	5945	5740	5600	5500	5425	5365	5320	5280	0.334
		3	6435	6050	5820	5665	5560	5475	5410	5360	5320	0.271
		4	6535	6155	5905	5735	5615	5530	5460	5400	5355	0.228
2 1/2" LW Conc. (Above Deck)	30/4	0	4320	4300	4130	4020	3940	3880	3835	3795		0.621
		1	4320	4320	4215	4090	4000	3930	3880	3840	3805	0.434
		2	4320	4320	4300	4160	4060	3985	3925	3880	3840	0.334
		3	4320	4320	4320	4225	4120	4035	3970	3920	3880	0.271
		4	4320	4320	4320	4295	4175	4085	4020	3960	3915	0.228
Type I Insul. Fill	30/4	0	1565	1285	1115	1005	925	865	815	780		0.621
		1	1700	1385	1200	1075	985	915	865	820	785	0.434
		2	1840	1490	1280	1140	1040	965	910	865	825	0.334
		3	1975	1595	1365	1210	1100	1020	955	905	860	0.271
		4	2115	1695	1445	1280	1160	1070	1000	945	900	0.228

[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
SF 9/16	0.012	5145	2890	1850	1285	945	720	570	460	380

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 28 Ga.
Design thickness = 0.0149 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.038 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 1.5	2	2.5	3	3.5	4	4.5	5	5.5	K_1 1/ft
No Fill (Bare Deck)	30/7	0	645	510	420	355	310	270	240	215		0.468
		1	725	585	490	415	360	320	285	255	230	0.353
		2	800	655	550	470	410	365	325	295	270	0.284
		3	860	720	610	525	460	410	365	335	305	0.237
		4	915	775	665	575	510	450	405	370	340	0.204
	30/5	0	490	395	330	280	245	215	190	170		0.624
		1	555	460	390	335	295	260	235	210	190	0.435
		2	610	520	445	385	340	305	275	250	225	0.334
		3	655	565	495	435	385	345	310	285	260	0.271
		4	685	605	535	475	425	385	350	320	290	0.228
	30/4	0	410	335	285	245	215	190	170	150		0.702
		1	465	395	340	295	260	230	210	190	175	0.472
		2	500	440	385	340	305	270	245	225	205	0.356
		3	530	475	425	380	340	310	280	255	235	0.285
		4	555	505	455	415	375	340	315	290	265	0.238
2 1/2" NW Conc. (Above Deck)	30/4	0	5435	5300	5220	5170	5130	5100	5080	5060		0.702
		1	5570	5405	5305	5235	5190	5155	5125	5105	5085	0.472
		2	5710	5510	5385	5305	5250	5205	5170	5145	5120	0.356
		3	5845	5610	5470	5375	5305	5255	5215	5185	5160	0.285
		4	5985	5715	5550	5445	5365	5310	5265	5225	5195	0.238
2 1/2" LW Conc. (Above Deck)	30/4	0	3995	3860	3780	3730	3690	3660	3640	3620		0.702
		1	4130	3965	3865	3795	3750	3715	3685	3665	3645	0.472
		2	4270	4065	3945	3865	3810	3765	3730	3705	3680	0.356
		3	4405	4170	4030	3935	3865	3815	3775	3745	3720	0.285
		4	4545	4275	4110	4005	3925	3870	3820	3785	3755	0.238
Type I Insul. Fill	30/4	0	975	845	765	710	675	645	620	605		0.702
		1	1115	945	845	780	730	695	670	645	625	0.472
		2	1255	1050	930	850	790	750	715	685	665	0.356
		3	1390	1155	1010	915	850	800	760	730	705	0.285
		4	1530	1255	1095	985	910	850	805	770	740	0.238

[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
SF 9/16	0.012	5145	2890	1850	1285	945	720	570	460	380

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 26 Ga.
Design thickness = 0.0179 in.
Support fastening: 16 gage washer w/ 3/8" hole - E60
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 1.5	2	2.5	3	3.5	4	4.5	5	5.5	K_1 1/ft
No Fill (Bare Deck)	30/7	0	1740	1385	1140	965	835	735	650	585		0.454
		1	1855	1485	1230	1045	905	800	710	640	580	0.353
		2	1960	1585	1315	1120	975	860	770	695	630	0.288
		3	2060	1680	1400	1200	1045	920	825	745	680	0.244
		4	2150	1765	1485	1270	1110	980	880	795	725	0.211
	30/5	0	1325	1075	895	760	660	585	520	465		0.605
		1	1420	1165	975	835	730	645	580	520	470	0.437
		2	1505	1250	1055	910	795	705	630	575	520	0.343
		3	1580	1325	1130	975	860	765	685	620	570	0.281
		4	1650	1400	1200	1045	920	820	735	670	615	0.239
	30/4	0	1105	915	770	660	580	515	460	410		0.681
		1	1185	995	845	730	640	570	515	465	420	0.476
		2	1250	1065	915	800	705	625	565	515	470	0.366
		3	1305	1130	980	860	760	680	615	560	515	0.297
		4	1355	1185	1040	915	815	735	665	605	555	0.250
2 1/2" NW Conc. (Above Deck)	30/4	0	6340	5980	5765	5620	5520	5440	5380	5335		0.681
		1	6520	6115	5875	5710	5595	5510	5440	5390	5345	0.476
		2	6535	6250	5980	5800	5675	5575	5500	5440	5395	0.366
		3	6535	6390	6090	5895	5750	5645	5560	5495	5440	0.297
		4	6535	6525	6200	5985	5830	5715	5625	5550	5490	0.250
2 1/2" LW Conc. (Above Deck)	30/4	0	4320	4320	4320	4180	4080	4000	3940	3895		0.681
		1	4320	4320	4320	4270	4155	4070	4000	3945	3905	0.476
		2	4320	4320	4320	4320	4235	4135	4060	4000	3950	0.366
		3	4320	4320	4320	4320	4310	4205	4120	4055	4000	0.297
		4	4320	4320	4320	4320	4320	4275	4180	4110	4050	0.250
Type I Insul. Fill	30/4	0	1885	1525	1310	1165	1060	985	925	875		0.681
		1	2065	1660	1415	1255	1140	1050	985	930	885	0.476
		2	2245	1795	1525	1345	1215	1120	1045	985	935	0.366
		3	2425	1930	1635	1435	1295	1190	1105	1040	985	0.297
		4	2610	2065	1740	1525	1370	1255	1165	1095	1035	0.250

[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
SF 9/16	0.014	6625	3725	2385	1655	1215	930	735	595	490

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 26 Ga.
Design thickness = 0.0179 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.045 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 1.5	2	2.5	3	3.5	4	4.5	5	5.5	K_1 1/ft
No Fill (Bare Deck)	30/7	0	775	615	505	430	370	325	290	260		0.513
		1	880	715	595	505	440	390	345	315	285	0.387
		2	975	805	675	580	505	450	400	365	330	0.311
		3	1055	885	750	650	570	505	455	415	380	0.260
		4	1120	955	820	715	630	565	510	460	420	0.223
	30/5	0	590	475	395	335	295	260	230	205		0.684
		1	675	565	475	410	360	320	285	260	235	0.477
		2	745	635	545	475	420	375	340	305	280	0.366
		3	800	695	610	535	475	430	385	355	325	0.297
		4	840	745	660	590	530	475	435	395	365	0.250
	30/4	0	490	405	340	295	255	225	205	180		0.770
		1	560	480	415	360	320	285	255	230	215	0.517
		2	610	540	475	420	375	335	305	280	255	0.390
		3	645	580	520	470	420	385	350	320	295	0.313
		4	675	615	560	510	465	425	390	360	335	0.261
2 1/2" NW Conc. (Above Deck)	30/4	0	5540	5380	5285	5220	5175	5140	5115	5095		0.770
		1	5725	5520	5395	5310	5255	5210	5175	5150	5125	0.517
		2	5905	5655	5505	5405	5330	5280	5235	5200	5175	0.390
		3	6085	5790	5610	5495	5410	5345	5295	5255	5225	0.313
		4	6265	5925	5720	5585	5485	5415	5355	5310	5275	0.261
2 1/2" LW Conc. (Above Deck)	30/4	0	4100	3940	3845	3780	3735	3700	3675	3655		0.770
		1	4280	4075	3955	3870	3815	3770	3735	3710	3685	0.517
		2	4465	4215	4065	3965	3890	3835	3795	3760	3735	0.390
		3	4615	4350	4170	4055	3970	3905	3855	3815	3785	0.313
		4	4615	4485	4280	4145	4045	3975	3915	3870	3835	0.261
Type I Insul. Fill	30/4	0	1085	925	830	765	720	685	660	635		0.770
		1	1265	1060	935	855	795	755	720	690	670	0.517
		2	1445	1195	1045	945	875	820	780	745	720	0.390
		3	1630	1330	1155	1035	950	890	840	800	765	0.313
		4	1810	1470	1265	1125	1030	955	900	855	815	0.261

[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
SF 9/16	0.014	6625	3725	2385	1655	1215	930	735	595	490

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 24 Ga.
Design thickness = 0.0239 in.
Support fastening: 16 gage washer w/ 3/8" hole - E60
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	2.5	3	3.5	4	4.5	5	5.5	6	K_1 1/ft
No Fill (Bare Deck)	30/7	0	1430	1175	995	865	760	675	605			0.524
		1	1585	1315	1120	970	855	765	690	625	570	0.407
		2	1735	1445	1235	1075	950	850	770	700	640	0.333
		3	1870	1575	1350	1180	1045	935	850	775	710	0.282
		4	1995	1690	1460	1280	1135	1020	925	845	780	0.244
	30/5	0	1110	925	785	685	605	540	485			0.699
		1	1245	1050	900	785	695	625	565	515	470	0.506
		2	1370	1165	1010	885	785	710	640	585	540	0.396
		3	1480	1275	1110	980	875	790	715	655	605	0.325
		4	1575	1370	1205	1070	955	865	790	725	665	0.276
	30/4	0	945	795	685	600	530	475	430			0.787
		1	1065	910	790	695	620	555	505	465	425	0.550
		2	1165	1010	885	785	705	635	580	530	490	0.422
		3	1250	1100	975	870	780	710	650	595	550	0.343
		4	1325	1180	1055	945	855	780	715	660	610	0.289
2 1/2" NW Conc. (Above Deck)	30/4	0	6015	5795	5645	5540	5460	5395	5350			0.787
		1	6225	5960	5785	5660	5565	5490	5430	5385	5345	0.550
		2	6435	6130	5925	5780	5670	5585	5515	5460	5415	0.422
		3	6535	6295	6065	5900	5775	5675	5600	5535	5485	0.343
		4	6535	6465	6205	6020	5880	5770	5685	5610	5555	0.289
2 1/2" LW Conc. (Above Deck)	30/4	0	4575	4355	4205	4100	4020	3955	3905			0.787
		1	4615	4520	4345	4220	4125	4050	3990	3945	3905	0.550
		2	4615	4615	4485	4340	4230	4145	4075	4020	3975	0.422
		3	4615	4615	4615	4460	4335	4235	4160	4095	4045	0.343
		4	4615	4615	4615	4580	4440	4330	4245	4170	4115	0.289
Type I Insul. Fill	30/4	0	1560	1335	1190	1080	1000	940	890			0.787
		1	1770	1505	1330	1200	1105	1035	975	925	885	0.550
		2	1980	1670	1465	1320	1210	1125	1060	1005	955	0.422
		3	2190	1840	1605	1440	1315	1220	1140	1080	1025	0.343
		4	2400	2005	1745	1560	1420	1315	1225	1155	1095	0.289

[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
SF 9/16	0.018	5590	3575	2485	1825	1395	1100	890	735	620

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 24 Ga.
Design thickness = 0.0239 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.06 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	2.5	3	3.5	4	4.5	5	5.5	6	K_1 1/ft
No Fill (Bare Deck)	30/7	0	820	675	570	495	435	385	345			0.593
		1	975	810	690	600	530	475	430	390	355	0.447
		2	1110	935	805	705	625	560	510	465	425	0.359
		3	1225	1050	910	800	715	640	585	535	490	0.300
		4	1330	1150	1010	890	800	720	655	600	555	0.258
	30/5	0	635	530	450	390	345	310	275			0.791
		1	770	655	565	495	440	395	355	325	300	0.552
		2	875	760	665	585	525	475	430	395	365	0.423
		3	965	850	750	670	605	550	500	460	425	0.344
		4	1030	925	830	745	675	615	565	520	485	0.289
	30/4	0	545	455	390	345	305	270	245			0.890
		1	655	565	495	440	390	355	320	295	270	0.598
		2	740	655	580	520	470	425	390	360	330	0.450
		3	800	725	655	590	540	495	455	420	390	0.361
		4	845	775	710	655	600	555	510	475	445	0.301
2 1/2" NW Conc. (Above Deck)	30/4	0	5540	5415	5330	5270	5220	5185	5160			0.890
		1	5750	5580	5470	5390	5325	5280	5240	5210	5185	0.598
		2	5960	5750	5610	5510	5430	5375	5325	5285	5255	0.450
		3	6170	5920	5750	5625	5535	5465	5410	5365	5325	0.361
		4	6380	6085	5890	5745	5640	5560	5495	5440	5395	0.301
2 1/2" LW Conc. (Above Deck)	30/4	0	4100	3975	3890	3830	3780	3745	3720			0.890
		1	4310	4140	4030	3945	3885	3840	3800	3770	3745	0.598
		2	4520	4310	4170	4065	3990	3935	3885	3845	3815	0.450
		3	4615	4475	4310	4185	4095	4025	3970	3925	3885	0.361
		4	4615	4615	4450	4305	4200	4120	4055	4000	3955	0.301
Type I Insul. Fill	30/4	0	1085	955	870	810	765	730	700			0.890
		1	1295	1125	1010	930	870	825	785	755	730	0.598
		2	1505	1295	1150	1050	975	915	870	830	800	0.450
		3	1715	1460	1290	1170	1080	1010	955	905	870	0.361
		4	1925	1630	1430	1290	1185	1100	1035	985	940	0.301

[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
SF 9/16	0.018	5590	3575	2485	1825	1395	1100	890	735	620

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 22 Ga.
Design thickness = 0.0295 in.
Support fastening: 5/8" weld
Side-lap fastening: #10 screws

F_u= 62 ksi
F_y= 60 ksi
F_{xx}= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00	0.50	3.25
Wind	0.75	2.15	0.50	3.25
Other	0.55	3.00	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	2.5	3	3.5	4	4.5	5	5.5	6	K_1 1/ft
No Fill (Bare Deck)	30/7	0	2040	1680	1425	1235	1085	970	870			0.583
		1	2260	1870	1590	1380	1220	1090	985	890	815	0.453
		2	2460	2055	1755	1525	1350	1210	1095	995	910	0.370
		3	2650	2225	1910	1670	1475	1325	1200	1095	1005	0.313
		4	2820	2390	2060	1805	1600	1440	1305	1190	1095	0.271
	30/5	0	1585	1320	1125	975	865	770	695			0.777
		1	1775	1495	1280	1120	990	890	805	735	670	0.562
		2	1945	1655	1430	1255	1115	1000	910	830	765	0.440
		3	2095	1805	1570	1385	1235	1110	1010	925	855	0.361
		4	2230	1940	1700	1505	1350	1220	1110	1020	940	0.307
	30/4	0	1350	1140	980	855	760	680	615			0.874
		1	1515	1295	1125	990	880	790	720	660	605	0.611
		2	1655	1435	1260	1115	995	900	820	750	695	0.469
		3	1775	1560	1380	1230	1105	1000	915	840	775	0.381
		4	1875	1670	1490	1335	1210	1100	1005	925	860	0.321
2 1/2" NW Conc. (Above Deck)	30/4	0	6495	6175	5965	5810	5700	5610	5540			0.874
		1	6535	6405	6155	5975	5840	5735	5655	5585	5530	0.611
		2	6535	6535	6345	6140	5985	5865	5770	5690	5625	0.469
		3	6535	6535	6535	6305	6130	5995	5885	5795	5720	0.381
		4	6535	6535	6535	6470	6275	6120	6000	5900	5815	0.321
2 1/2" LW Conc. (Above Deck)	30/4	0	4615	4615	4525	4370	4255	4170	4100			0.874
		1	4615	4615	4615	4535	4400	4295	4215	4145	4090	0.611
		2	4615	4615	4615	4615	4545	4425	4330	4250	4185	0.469
		3	4615	4615	4615	4615	4615	4550	4445	4355	4280	0.381
		4	4615	4615	4615	4615	4615	4615	4560	4460	4375	0.321
Type I Insul. Fill	30/4	0	2035	1720	1505	1355	1240	1150	1080			0.874
		1	2325	1950	1700	1520	1385	1280	1195	1130	1070	0.611
		2	2610	2180	1890	1685	1530	1410	1310	1235	1165	0.469
		3	2900	2410	2080	1845	1670	1535	1425	1335	1265	0.381
		4	3185	2640	2275	2010	1815	1665	1540	1440	1360	0.321

[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
SF 9/16	0.023	7870	5035	3495	2570	1965	1550	1255	1040	870

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

SF, SVF 9/16" x 2 1/2" x 22 Ga.
Design thickness = 0.0295 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws
Minimum support thickness: 0.074 in.

F_u= 62 ksi
F_y= 60 ksi

S310-16	Bare Deck		Filled Deck	
Loading	ϕ_{df}	Ω_{df}	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30	0.50	3.25
Wind	0.80	2.00	0.50	3.25
Other	0.70	2.30	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 2	2.5	3	3.5	4	4.5	5	5.5	6	K_1 1/ft
No Fill (Bare Deck)	30/7	0	1015	835	705	610	540	480	430			0.659
		1	1220	1020	870	760	670	600	540	495	450	0.497
		2	1405	1190	1025	895	795	715	650	590	545	0.399
		3	1560	1340	1165	1030	915	825	750	685	635	0.334
		4	1690	1475	1295	1150	1030	930	850	780	720	0.286
	30/5	0	785	655	555	485	430	380	345			0.878
		1	965	820	710	625	555	495	450	410	380	0.613
		2	1110	965	845	750	670	605	550	505	465	0.470
		3	1220	1080	960	860	775	705	645	595	550	0.382
		4	1305	1175	1060	960	875	800	735	680	630	0.321
	30/4	0	670	565	485	425	375	335	305			0.988
		1	820	715	625	555	495	445	405	370	345	0.664
		2	930	830	740	665	600	545	500	460	425	0.500
		3	1010	915	835	760	690	635	585	540	505	0.401
		4	1065	985	910	835	770	715	660	615	575	0.335
2 1/2" NW Conc. (Above Deck)	30/4	0	5695	5535	5430	5355	5295	5255	5220			0.988
		1	5980	5765	5620	5520	5440	5380	5335	5295	5260	0.664
		2	6270	5995	5810	5680	5585	5510	5450	5400	5355	0.500
		3	6535	6225	6005	5845	5730	5635	5565	5505	5455	0.401
		4	6535	6455	6195	6010	5870	5765	5680	5610	5550	0.335
2 1/2" LW Conc. (Above Deck)	30/4	0	4250	4095	3990	3915	3855	3815	3780			0.988
		1	4540	4325	4180	4080	4000	3940	3895	3855	3820	0.664
		2	4615	4555	4370	4240	4145	4070	4010	3960	3915	0.500
		3	4615	4615	4565	4405	4290	4195	4125	4065	4015	0.401
		4	4615	4615	4615	4570	4430	4325	4240	4165	4110	0.335
Type I Insul. Fill	30/4	0	1235	1075	970	895	840	795	760			0.988
		1	1525	1305	1165	1060	985	925	875	835	805	0.664
		2	1810	1535	1355	1225	1130	1050	990	940	900	0.500
		3	2100	1765	1545	1390	1270	1180	1105	1045	995	0.401
		4	2385	1995	1740	1555	1415	1305	1220	1150	1090	0.335

[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
SF 9/16	0.023	7870	5035	3495	2570	1965	1550	1255	1040	870

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

3" DEEP TYPE (N, NV)
Support fastening: 5/8" arc spot welds or equivalent
Side-lap fastening: AISI #10 screws or equivalent

F_u= 50 ksi
F_y= 40 ksi
F_{xx}= 60 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 8	8.5	9	9.5	10	10.5	11	11.5	12	K_1 1/ft
	2	420	395	370							0.587
	3	475	450	425	400	380	360	345	330	315	0.476
	4	535	500	475	450	425	405	390	370	355	0.401
	5	590	555	525	500	475	450	430	410	395	0.346
3N22	6	650	610	575	545	520	495	470	450	430	0.305
0.0295"	7	710	665	630	595	565	540	515	490	470	0.272
24/4	8	765	720	680	645	610	585	555	530	510	0.246
	9	825	775	730	695	660	625	600	570	550	0.224
	10	880	830	785	740	705	670	640	615	585	0.206
	11	930	885	835	790	750	715	685	655	625	0.190
	12	980	930	885	840	800	760	725	695	665	0.177
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	0.808	6643	5884	5249	4711	4252	3856	3514	3215	2952	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	K_1 1/ft
	2	465									0.646
	3	535	505	480	460	435	420	400			0.525
	4	605	570	545	515	495	470	450	435	415	0.442
	5	670	635	605	575	550	525	505	485	465	0.381
3N20	6	740	700	665	635	605	580	555	535	510	0.335
0.0358	7	810	765	730	695	660	635	605	585	560	0.299
24/4	8	880	835	790	755	720	685	660	630	610	0.270
	9	950	900	855	810	775	740	710	680	655	0.247
	10	1015	965	915	870	830	795	760	730	705	0.227
	11	1080	1030	975	930	890	850	815	780	750	0.210
	12	1140	1085	1035	990	945	905	865	830	800	0.195
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	0.989	7060	6337	5719	5187	4726	4324	3971	3660	3384	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf Span, ft. 10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	K_1 1/ft
	3	665	635	605	580	555					0.604
	4	760	725	690	660	635	610	585	565	545	0.508
	5	855	815	780	745	715	685	660	635	610	0.439
	6	950	905	865	825	790	760	730	705	680	0.386
3N18	7	1045	995	950	910	870	835	805	775	745	0.345
0.0474	8	1140	1085	1035	990	950	910	875	845	815	0.311
24/4	9	1235	1175	1120	1070	1030	985	950	915	880	0.284
	10	1325	1265	1205	1155	1105	1060	1020	985	950	0.261
	11	1410	1345	1290	1235	1185	1140	1095	1055	1015	0.241
	12	1490	1425	1365	1310	1260	1215	1165	1125	1085	0.224
	13	1565	1500	1440	1385	1330	1280	1235	1195	1150	0.210
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	1.323	8782	7966	7258	6640	6099	5620	5196	4819	4481	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf Span, ft. 11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	K_1 1/ft
	3	795	760	730							0.678
	4	915	875	840	805	775	745	720	695	670	0.571
	5	1040	995	950	915	880	845	815	790	760	0.493
	6	1160	1110	1065	1020	980	945	910	880	850	0.434
3N16	7	1280	1225	1175	1130	1085	1045	1005	970	940	0.387
0.0598	8	1405	1345	1285	1235	1190	1145	1105	1065	1030	0.350
24/4	9	1525	1460	1400	1340	1290	1245	1200	1155	1120	0.319
	10	1640	1575	1510	1450	1395	1340	1295	1250	1210	0.293
	11	1745	1675	1610	1550	1495	1440	1390	1340	1295	0.271
	12	1850	1775	1710	1645	1590	1535	1485	1435	1385	0.252
	13	1950	1875	1805	1740	1680	1620	1570	1520	1470	0.235
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	1.672	10299	9423	8654	7975	7374	6838	6358	5927	5538	

[2] Design Strengths:

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

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

	ϕ_{db}	Ω_{db}
Buckling	0.80	2.00

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

3' DEEP TYPE (N, NV) DECK
Support fastening: AISI #12 screws or equivalent
Side-lap fastening: AISI #10 screws or equivalent

F_u= 50 ksi
F_y= 40 ksi
F_{xx}= 60 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[2] Span, ft. 8	8.5	9	9.5	10	10.5	11	11.5	12	K_1 1/ft
	2	250	235	225							0.625
	3	310	290	275	260	245	235	225	215	205	0.502
	4	365	345	325	310	295	280	265	255	245	0.419
	5	420	400	380	360	340	325	310	295	285	0.359
3N22	6	470	445	425	405	385	370	350	335	320	0.315
0.0295"	7	515	490	465	445	425	405	390	375	360	0.280
24/4	8	560	530	505	485	460	445	425	410	395	0.252
	9	600	570	545	520	500	480	460	440	425	0.229
	10	640	610	585	560	535	515	495	475	460	0.210
	11	675	645	620	595	570	545	525	505	490	0.194
	12	710	680	650	625	600	580	560	540	520	0.180
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	0.808	6643	5884	5249	4711	4252	3856	3514	3215	2952	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[2] Span, ft. 9.0	9.5	10.0	10.5	11.0	11.5	12.0	12.5	13.0	K_1 1/ft
	2	285									0.689
	3	355	335	315	300	290	275	265			0.553
	4	420	400	380	360	345	330	315	305	290	0.461
	5	490	465	440	420	400	385	365	355	340	0.396
3N20	6	545	520	495	475	455	435	420	400	385	0.347
0.0358	7	600	575	550	525	505	485	465	450	435	0.308
24/4	8	655	625	600	575	550	530	510	490	475	0.278
	9	705	675	645	620	595	575	555	535	515	0.253
	10	750	720	690	665	640	615	595	575	555	0.232
	11	795	765	735	710	680	655	635	615	595	0.214
	12	840	805	775	750	720	695	675	650	630	0.199
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	0.989	7060	6337	5719	5187	4726	4324	3971	3660	3384	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf Span, ft. 10.0	10.5	11.0	11.5	12.0	12.5	13.0	13.5	14.0	K_1 1/ft
	3	460	435	415	400	380					0.636
	4	550	525	500	480	460	440	425	410	395	0.531
	5	640	615	590	560	540	515	495	480	460	0.455
	6	720	690	660	635	610	590	570	550	530	0.399
3N18	7	795	765	735	705	680	655	630	610	590	0.355
0.0474	8	870	835	800	770	745	720	695	670	650	0.319
24/4	9	940	900	870	835	805	780	755	730	705	0.291
	10	1005	965	930	900	865	840	810	785	760	0.266
	11	1065	1025	990	955	925	895	865	840	815	0.246
	12	1120	1085	1045	1010	980	950	920	890	865	0.229
	13	1175	1135	1100	1065	1030	1000	970	940	915	0.213
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	1.323	8782	7966	7258	6640	6099	5620	5196	4819	4481	

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf Span, ft. 11.0	11.5	12.0	12.5	13.0	13.5	14.0	14.5	15.0	K_1 1/ft
	3	565	540	520							0.714
	4	685	655	630	605	580	560	540	520	505	0.596
	5	800	770	740	710	685	660	635	615	595	0.512
	6	905	870	835	805	775	750	725	700	680	0.448
3N16	7	1000	965	930	895	865	835	810	785	760	0.399
0.0598	8	1095	1055	1015	985	950	920	890	865	835	0.359
24/4	9	1185	1140	1105	1065	1030	1000	970	940	910	0.326
	10	1265	1225	1185	1145	1110	1075	1045	1015	985	0.299
	11	1345	1300	1260	1220	1185	1150	1115	1085	1055	0.276
	12	1420	1375	1335	1295	1255	1220	1185	1150	1120	0.257
	13	1490	1445	1400	1360	1325	1285	1250	1215	1185	0.240
	I, in^4/ft	Nominal Shear Strength due to Panel Buckling, S_{nb}, plf									
	1.672	10299	9423	8654	7975	7374	6838	6358	5927	5538	

[2] Design Strengths:

ASD Required strength (Service Applied Load) <= Min $\{S_{nf}/\Omega_{df}, S_{nb}/\Omega_{db}\}$
LRFD Required strength (Factored Applied Load) <= Min $\{\phi S, \phi S\}$

	ϕ_{db}	Ω_{db}
Buckling	0.80	2.00

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5(B,BV, BA, F,A)22 B,F = 36" cover, A = 30" cover
Design thickness = 0.0295 in.
Support fastening: 5/8" arc spot welds or equivalent
Side-lap fastening: #10 screws

F_u= 50 ksi
F_y= 40 ksi
F_{xx}= 60 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
36/9	0	1520	1345	1200							0.324
	1	1615	1445	1295	1165	1060					0.272
	2	1705	1540	1385	1250	1140	1045	965	890	830	0.234
	3	1795	1625	1480	1335	1215	1115	1030	955	890	0.206
	4	1880	1705	1555	1420	1295	1185	1095	1015	945	0.183
	5	1965	1785	1630	1500	1370	1260	1160	1080	1005	0.165
	6	2050	1865	1705	1570	1450	1330	1230	1140	1065	0.151
36/7	0	935	825	740							0.486
	1	1055	930	830	750	685					0.377
	2	1155	1035	925	835	765	700	645	600	560	0.308
	3	1255	1130	1020	920	840	770	715	660	620	0.261
	4	1350	1215	1105	1005	915	845	780	725	675	0.226
	5	1445	1305	1185	1090	995	915	845	785	735	0.199
	6	1535	1390	1265	1160	1070	985	910	850	790	0.178
36/5	0	860	765	685							0.583
	1	950	860	775	700	640					0.433
	2	1040	945	860	785	715	655	605	565	525	0.345
	3	1130	1025	935	860	795	730	675	625	585	0.286
	4	1210	1100	1010	930	860	800	740	685	640	0.245
	5	1285	1175	1080	995	925	860	805	750	700	0.214
	6	1355	1245	1145	1060	985	920	865	810	755	0.190
36/4	0	655	575	515							0.728
	1	750	680	605	550	500					0.509
	2	835	760	695	630	575	525	485	450	420	0.391
	3	920	835	765	705	655	600	550	510	475	0.318
	4	990	910	835	775	720	670	620	575	535	0.267
	5	1060	975	900	835	780	725	680	635	595	0.231
	6	1125	1040	960	895	835	780	735	690	650	0.203
30/6	0	840	740	660							0.647
	1	955	845	755	680	620					0.491
	2	1070	945	845	765	695	640	590	550	510	0.395
	3	1170	1050	940	850	775	710	655	610	570	0.331
	4	1270	1140	1030	935	850	785	725	670	625	0.284
	5	1365	1230	1120	1020	930	855	790	735	685	0.249
	6	1460	1315	1200	1100	1005	925	855	795	745	0.222
30/4	0	805	715	640							0.728
	1	895	810	735	660	605					0.536
	2	985	890	815	745	680	625	575	535	500	0.424
	3	1065	970	890	820	760	695	640	595	555	0.350
	4	1145	1045	960	885	820	765	710	660	615	0.299
	5	1215	1115	1025	950	885	825	770	720	670	0.260
	6	1285	1180	1090	1010	940	880	825	780	730	0.231

[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
A	0.114	6326	4998	4049	3346	2812	2396	2066	1799	1582
F	0.125	6857	5418	4389	3627	3048	2597	2239	1950	1714
B	0.173	8719	6889	5580	4612	3875	3302	2847	2480	2180

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 50 ksi

F_y= 40 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

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1.5(B, BV, BA F, A)22 B,F = 36" cover, A = 30" cover
Design thickness = 0.0295 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
36/9	0	685	605	540							0.366
	1	780	705	635	575	520					0.301
	2	865	785	720	655	600	550	505	470	440	0.255
	3	950	865	790	730	675	620	575	530	495	0.222
	4	1025	935	860	795	740	690	640	595	555	0.196
	5	1095	1005	930	860	800	745	700	655	610	0.176
	6	1160	1070	990	920	860	805	755	710	670	0.159
36/7	0	425	375	335							0.549
	1	530	475	425	385	350					0.414
	2	630	565	515	470	430	395	365	340	315	0.333
	3	720	650	595	545	505	465	430	400	375	0.278
	4	800	730	670	615	570	530	495	460	430	0.239
	5	880	805	740	680	635	590	550	520	490	0.209
	6	950	870	805	745	695	650	610	570	540	0.186
36/5	0	385	345	310							0.659
	1	480	435	395	360	330					0.474
	2	560	510	470	430	400	375	345	320	300	0.370
	3	630	580	535	495	460	430	405	380	360	0.304
	4	695	645	595	555	520	485	455	430	405	0.257
	5	750	695	650	610	570	535	505	480	455	0.223
	6	795	745	700	660	620	585	555	525	495	0.197
36/4	0	295	260	230							0.823
	1	385	350	320	295	265					0.554
	2	460	425	390	360	335	315	290	270	250	0.417
	3	525	485	450	420	390	370	345	325	310	0.334
	4	575	540	505	470	445	420	395	375	355	0.279
	5	620	585	550	520	490	465	440	415	395	0.240
	6	655	620	590	555	530	505	480	455	435	0.210
30/6	0	380	335	300							0.732
	1	495	435	390	355	320					0.538
	2	590	535	485	435	400	365	340	315	295	0.425
	3	685	620	565	515	475	440	405	375	350	0.351
	4	770	700	640	590	545	505	470	440	410	0.299
	5	850	775	710	655	610	565	530	500	465	0.261
	6	925	845	780	720	670	625	585	550	520	0.231
30/4	0	360	325	290							0.823
	1	450	410	375	345	315					0.585
	2	530	485	445	410	380	355	330	310	290	0.454
	3	600	550	510	475	440	415	390	365	345	0.371
	4	655	610	565	530	495	465	440	415	390	0.314
	5	705	660	620	580	545	515	485	460	435	0.272
	6	745	700	660	625	590	560	530	505	480	0.240

[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
A	0.114	6326	4998	4049	3346	2812	2396	2066	1799	1582
F	0.125	6857	5418	4389	3627	3048	2597	2239	1950	1714
B	0.173	8719	6889	5580	4612	3875	3302	2847	2480	2180

[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 {$\phi_{df}S_{nf}$, $\phi_{db}S_{nb}$}

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5(B, BV, BA, F, A)20 B,F = 36" cover, A = 30" cover
Design thickness = 0.0358 in.
Support fastening: 5/8" arc spot welds or equivalent
Side-lap fastening: #10 screws

F_u= 50 ksi
F_y= 40 ksi
F_{xx}= 60 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
36/9	0	1855	1650	1475							0.357
	1	1980	1785	1600	1445	1315					0.299
	2	2105	1900	1725	1560	1420	1300	1200	1115	1040	0.258
	3	2225	2010	1835	1670	1525	1400	1290	1195	1115	0.226
	4	2340	2120	1935	1780	1625	1495	1380	1280	1195	0.202
	5	2450	2225	2035	1875	1730	1590	1470	1365	1270	0.182
	6	2560	2330	2135	1965	1820	1685	1555	1445	1350	0.166
36/7	0	1150	1015	910							0.535
	1	1300	1155	1035	935	850					0.415
	2	1435	1290	1155	1045	955	880	810	755	705	0.340
	3	1565	1410	1280	1160	1060	975	900	835	780	0.287
	4	1695	1525	1390	1270	1160	1070	990	920	860	0.249
	5	1815	1640	1495	1370	1265	1165	1075	1000	935	0.219
	6	1935	1755	1600	1470	1355	1260	1165	1085	1015	0.196
36/5	0	1050	940	840							0.642
	1	1175	1060	965	870	795					0.477
	2	1295	1170	1070	980	900	825	760	710	660	0.380
	3	1405	1280	1170	1075	995	920	850	790	735	0.315
	4	1510	1380	1265	1165	1080	1010	940	875	815	0.270
	5	1610	1475	1355	1255	1165	1085	1020	955	890	0.236
	6	1705	1565	1445	1340	1245	1165	1090	1025	970	0.209
36/4	0	805	710	635							0.802
	1	925	840	760	685	625					0.561
	2	1040	945	865	795	725	665	615	570	530	0.431
	3	1150	1045	960	885	825	760	705	655	610	0.350
	4	1245	1140	1050	975	905	845	790	735	685	0.294
	5	1335	1230	1135	1055	985	920	865	815	765	0.254
	6	1415	1310	1215	1135	1060	990	935	880	830	0.224
30/6	0	1030	910	815							0.713
	1	1185	1045	935	845	770					0.541
	2	1330	1185	1060	960	875	805	740	690	645	0.435
	3	1465	1315	1185	1070	980	900	830	770	720	0.364
	4	1595	1435	1305	1185	1080	995	920	855	800	0.313
	5	1720	1555	1415	1295	1185	1090	1010	935	875	0.275
	6	1845	1665	1520	1395	1285	1185	1095	1020	955	0.245
30/4	0	980	880	790							0.802
	1	1105	1000	910	825	750					0.590
	2	1220	1110	1010	930	855	785	725	675	625	0.467
	3	1330	1210	1110	1025	950	880	815	755	705	0.386
	4	1430	1310	1205	1110	1030	965	900	840	780	0.329
	5	1525	1400	1290	1195	1115	1040	975	915	860	0.287
	6	1610	1485	1375	1280	1190	1115	1045	985	930	0.254

[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
A	0.138	8467	6690	5419	4478	3763	3206	2765	2408	2117
F	0.151	9177	7251	5873	4854	4079	3475	2997	2610	2294
B	0.210	11665	9216	7465	6170	5184	4417	3809	3318	2916

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 50 ksi

F_y= 40 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

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1.5(B,BV, BA, F, A)20 B,F = 36" cover, A = 30" cover
Design thickness = 0.0358 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 4	4.5	5	5.5	6	6.5	7	7.5	8	K_1 1/ft
36/9	0	835	740	665							0.403
	1	955	865	785	710	650					0.331
	2	1075	975	890	820	750	690	635	590	550	0.281
	3	1180	1075	985	910	845	785	725	675	630	0.244
	4	1280	1175	1080	1000	925	865	810	755	705	0.216
	5	1370	1260	1165	1080	1005	940	885	830	785	0.193
	6	1455	1345	1245	1160	1085	1015	955	900	850	0.175
36/7	0	515	455	410							0.605
	1	660	590	530	480	440					0.456
	2	785	710	645	590	540	500	460	430	400	0.366
	3	905	820	750	690	635	590	550	510	480	0.306
	4	1010	925	845	780	725	675	630	590	555	0.263
	5	1110	1020	940	870	805	755	705	665	625	0.230
	6	1200	1105	1025	950	885	830	775	730	690	0.205
36/5	0	470	420	375							0.726
	1	590	535	490	450	415					0.522
	2	700	640	585	540	500	470	440	410	380	0.408
	3	790	730	675	625	585	545	510	480	455	0.334
	4	870	810	750	700	655	615	580	550	520	0.283
	5	940	875	820	770	725	680	645	610	580	0.246
	6	995	935	880	830	785	740	705	665	635	0.217
36/4	0	360	320	285							0.907
	1	480	435	400	365	335					0.610
	2	575	530	490	455	420	395	370	345	325	0.459
	3	655	610	570	530	495	465	440	415	390	0.368
	4	720	675	635	595	560	530	500	475	450	0.307
	5	775	730	690	655	620	585	560	530	505	0.264
	6	815	775	740	705	670	640	610	580	555	0.231
30/6	0	460	410	365							0.806
	1	610	545	490	440	405					0.592
	2	740	670	605	555	505	465	430	400	375	0.468
	3	865	780	715	655	605	560	520	480	450	0.387
	4	975	890	815	750	695	645	605	565	530	0.330
	5	1080	985	905	840	780	725	680	640	600	0.287
	6	1170	1075	995	920	860	800	755	710	670	0.255
30/4	0	440	395	355							0.907
	1	560	510	465	425	395					0.645
	2	660	605	560	515	480	445	420	390	365	0.500
	3	750	690	640	595	555	520	490	460	435	0.409
	4	820	765	715	670	625	590	555	525	500	0.346
	5	880	830	780	735	690	650	615	585	555	0.299
	6	930	880	835	790	745	710	675	640	610	0.264

[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
A	0.138	8467	6690	5419	4478	3763	3206	2765	2408	2117
F	0.151	9177	7251	5873	4854	4079	3475	2997	2610	2294
B	0.210	11665	9216	7465	6170	5184	4417	3809	3318	2916

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5(B, BV, BA, F, A)18 B,F = 36" cover, A = 30" cover
Design thickness = 0.0474 in.
Support fastening: 5/8" arc spot welds or equivalent
Side-lap fastening: #10 screws

F_u= 50 ksi
F_y= 40 ksi
F_{xx}= 60 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 5	5.5	6	6.5	7	7.5	8	8.5	9	K_1 1/ft
36/9	0	1935									0.410
	1	2125	1920	1750							0.344
	2	2295	2090	1905	1750	1620	1500	1400	1310	1230	0.297
	3	2450	2255	2065	1895	1755	1630	1520	1425	1335	0.261
	4	2605	2395	2220	2040	1890	1755	1635	1535	1440	0.232
	5	2755	2540	2350	2190	2025	1880	1755	1645	1545	0.210
	6	2900	2675	2480	2310	2160	2005	1875	1755	1650	0.191
36/7	0	1190									0.615
	1	1380	1245	1140							0.478
	2	1565	1420	1295	1190	1100	1025	955	895	845	0.391
	3	1735	1590	1455	1335	1235	1150	1075	1010	950	0.330
	4	1900	1740	1610	1480	1370	1275	1195	1120	1055	0.286
	5	2060	1890	1745	1625	1505	1400	1310	1230	1160	0.253
	6	2215	2035	1885	1750	1635	1530	1430	1340	1265	0.226
36/5	0	1100									0.739
	1	1275	1165	1065							0.549
	2	1435	1320	1220	1125	1040	965	900	845	795	0.437
	3	1585	1460	1350	1260	1175	1090	1020	955	900	0.363
	4	1725	1595	1480	1380	1295	1215	1135	1065	1005	0.310
	5	1860	1725	1605	1500	1405	1320	1250	1180	1110	0.271
	6	1990	1850	1725	1615	1515	1425	1350	1275	1210	0.241
36/4	0	830									0.923
	1	1015	925	840							0.645
	2	1170	1075	995	915	845	785	735	685	645	0.496
	3	1310	1210	1125	1050	980	915	850	800	750	0.403
	4	1445	1340	1245	1165	1095	1030	970	910	855	0.339
	5	1565	1460	1360	1275	1200	1130	1070	1015	960	0.293
	6	1680	1570	1470	1380	1300	1230	1165	1105	1050	0.257
30/6	0	1065									0.821
	1	1255	1135	1035							0.622
	2	1440	1305	1190	1095	1015	940	880	825	775	0.501
	3	1625	1475	1350	1240	1150	1065	995	935	880	0.419
	4	1790	1640	1505	1385	1285	1195	1115	1045	985	0.360
	5	1955	1795	1655	1530	1420	1320	1235	1155	1090	0.316
	6	2110	1940	1795	1665	1555	1445	1350	1270	1195	0.281
30/4	0	1030									0.923
	1	1205	1105	1005							0.679
	2	1360	1250	1160	1070	990	920	860	805	755	0.537
	3	1505	1390	1290	1200	1125	1045	975	915	860	0.444
	4	1645	1520	1415	1320	1235	1165	1095	1025	965	0.379
	5	1770	1645	1535	1435	1345	1270	1200	1135	1070	0.330
	6	1895	1765	1650	1545	1455	1370	1295	1230	1165	0.293

[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
A	0.184	8280	6843	5750	4900	4225	3680	3234	2865	2556
F	0.201	8964	7408	6225	5304	4573	3984	3501	3102	2767
B	0.279	11390	9413	7909	6739	5811	5062	4449	3941	3515

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

F_u= 50 ksi

F_y= 40 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

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1.5(B,BV, BA, F, A)18 B,F = 36" cover, A = 30" cover
Design thickness = 0.0474 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 5	5.5	6	6.5	7	7.5	8	8.5	9	K_1 1/ft
36/9	0	885									0.464
	1	1065	975	885							0.381
	2	1220	1120	1040	960	885	825	770	720	680	0.324
	3	1365	1260	1170	1090	1020	950	890	830	785	0.281
	4	1500	1390	1295	1210	1135	1065	1005	945	890	0.248
	5	1625	1510	1410	1320	1240	1170	1105	1045	995	0.223
	6	1745	1625	1520	1430	1345	1270	1200	1140	1085	0.202
36/7	0	545									0.696
	1	730	665	605							0.525
	2	895	825	760	705	650	605	565	530	500	0.422
	3	1050	970	895	835	780	730	685	640	605	0.352
	4	1195	1105	1025	955	895	840	795	750	710	0.303
	5	1330	1230	1150	1075	1005	950	895	845	805	0.265
	6	1450	1350	1260	1185	1115	1050	995	940	895	0.236
36/5	0	505									0.835
	1	670	615	570							0.601
	2	815	750	700	650	610	575	540	505	475	0.469
	3	940	875	820	765	720	680	640	610	575	0.385
	4	1055	985	925	870	820	775	735	700	665	0.326
	5	1150	1085	1020	965	915	865	825	785	745	0.283
	6	1235	1170	1105	1050	995	950	905	865	825	0.250
36/4	0	380									1.044
	1	545	505	465							0.702
	2	680	635	590	550	520	490	460	435	410	0.528
	3	795	745	700	655	620	585	555	530	500	0.424
	4	890	840	790	750	710	675	640	610	585	0.354
	5	965	915	870	830	790	755	720	690	660	0.304
	6	1025	980	940	900	860	825	790	755	725	0.266
30/6	0	485									0.928
	1	675	610	560							0.682
	2	850	775	715	660	610	565	530	495	470	0.539
	3	1005	925	855	795	740	695	650	610	575	0.445
	4	1155	1065	985	920	860	810	760	720	680	0.380
	5	1290	1195	1110	1040	975	915	865	820	775	0.331
	6	1415	1315	1230	1150	1080	1020	965	915	865	0.293
30/4	0	470									1.044
	1	635	585	540							0.742
	2	775	715	670	625	585	550	520	490	460	0.576
	3	895	835	780	735	690	650	615	585	555	0.470
	4	1000	940	885	835	785	745	705	675	640	0.398
	5	1085	1030	970	920	875	830	790	755	720	0.344
	6	1160	1105	1050	1000	950	910	865	830	795	0.304

[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
A	0.184	8280	6843	5750	4900	4225	3680	3234	2865	2556
F	0.201	8964	7408	6225	5304	4573	3984	3501	3102	2767
B	0.279	11390	9413	7909	6739	5811	5062	4449	3941	3515

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5(B,BV, BA, F, A)16 B,F = 36" cover, A = 30" cover
Design thickness = 0.0598 in.
Support fastening: 5/8" arc spot welds or equivalent
Side-lap fastening: #10 screws

F_u= 50 ksi
F_y= 40 ksi
F_{xx}= 60 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.55	3.00
Wind	0.75	2.15
Other	0.55	3.00

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 6	6.5	7	7.5	8	8.5	9	9.5	10	K_1 1/ft
36/9	1	2205									0.387
	2	2430	2230	2065	1915	1790	1675	1575			0.333
	3	2645	2440	2255	2095	1955	1835	1725	1625	1540	0.293
	4	2835	2640	2445	2275	2125	1990	1875	1770	1675	0.261
	5	3020	2815	2635	2450	2290	2150	2020	1910	1805	0.235
	6	3205	2985	2795	2630	2460	2305	2170	2050	1940	0.214
	7	3380	3155	2955	2780	2625	2465	2320	2190	2075	0.197
36/7	1	1440									0.537
	2	1665	1530	1420	1320	1235	1155	1090			0.439
	3	1890	1740	1610	1500	1400	1315	1235	1170	1105	0.371
	4	2085	1940	1800	1675	1565	1470	1385	1310	1240	0.322
	5	2280	2120	1980	1855	1735	1630	1535	1450	1375	0.284
	6	2470	2300	2150	2020	1900	1785	1685	1590	1510	0.254
	7	2655	2475	2315	2175	2050	1935	1830	1730	1640	0.229
36/5	1	1350									0.617
	2	1555	1445	1340	1245	1165	1090	1025			0.491
	3	1740	1620	1515	1425	1330	1250	1175	1110	1050	0.408
	4	1920	1790	1680	1580	1490	1405	1325	1250	1185	0.349
	5	2090	1955	1835	1730	1630	1545	1465	1390	1320	0.304
	6	2250	2110	1985	1875	1770	1680	1595	1520	1450	0.270
	7	2405	2260	2130	2010	1905	1810	1720	1640	1565	0.243
36/4	1	1075									0.725
	2	1280	1190	1105	1025	955	895	845			0.557
	3	1455	1360	1275	1200	1125	1055	990	935	885	0.452
	4	1625	1520	1430	1345	1275	1205	1140	1080	1020	0.381
	5	1780	1675	1575	1490	1410	1335	1270	1210	1155	0.329
	6	1925	1815	1715	1620	1540	1460	1390	1330	1270	0.289
	7	2060	1945	1845	1750	1660	1580	1510	1440	1380	0.258
30/6	1	1315									0.699
	2	1535	1415	1310	1215	1135	1065	1005			0.562
	3	1760	1620	1500	1395	1305	1225	1150	1085	1030	0.471
	4	1975	1825	1690	1575	1470	1380	1300	1230	1165	0.405
	5	2170	2015	1880	1750	1640	1540	1450	1370	1295	0.355
	6	2365	2200	2055	1925	1805	1695	1600	1510	1430	0.316
	7	2550	2375	2220	2085	1965	1855	1745	1650	1565	0.285
30/4	1	1280									0.763
	2	1480	1375	1280	1190	1110	1040	980			0.603
	3	1660	1550	1450	1365	1280	1200	1130	1065	1010	0.499
	4	1835	1715	1610	1515	1430	1355	1280	1205	1145	0.425
	5	2000	1875	1760	1660	1570	1485	1415	1345	1280	0.371
	6	2155	2025	1905	1800	1705	1615	1540	1465	1400	0.329
	7	2300	2165	2045	1935	1835	1740	1660	1585	1515	0.295

[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
A	0.233	8173	6964	6005	5231	4597	4072	3632	3260	2942
F	0.254	8841	7533	6495	5658	4973	4405	3929	3527	3183
B	0.353	11224	9564	8247	7184	6314	5593	4989	4477	4041

[2] Design Strengths:

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

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

MARLYN STEEL DECKS, INC

DIAPHRAGM SHEAR STRENGTH (PLF)

1.5(B, BV, BA, F, A)16 B,F = 36" cover, A = 30" cover
Design thickness = 0.0598 in.
Support fastening: #12 screws
Side-lap fastening: #10 screws

F_u= 50 ksi
F_y= 40 ksi

Loading	ϕ_{df}	Ω_{df}
Seismic	0.70	2.30
Wind	0.80	2.00
Other	0.70	2.30

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Fastener Layout	Side-lap Conn/Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft. 6	6.5	7	7.5	8	8.5	9	9.5	10	K_1 1/ft
36/9	1	1150									0.428
	2	1350	1260	1170	1085	1015	950	895			0.363
	3	1535	1430	1340	1260	1185	1110	1045	985	935	0.316
	4	1705	1595	1500	1410	1330	1260	1195	1125	1070	0.279
	5	1870	1750	1645	1555	1470	1395	1325	1260	1200	0.250
	6	2020	1900	1790	1690	1605	1520	1450	1380	1320	0.227
	7	2160	2035	1925	1820	1730	1645	1565	1495	1430	0.207
36/7	1	795									0.590
	2	1000	930	865	805	755	710	665			0.474
	3	1195	1110	1040	975	920	865	815	770	730	0.396
	4	1370	1280	1200	1130	1065	1010	955	910	865	0.340
	5	1540	1440	1355	1275	1205	1145	1085	1035	985	0.298
	6	1695	1590	1500	1415	1340	1275	1210	1155	1100	0.265
	7	1835	1730	1635	1550	1470	1395	1330	1270	1215	0.239
36/5	1	740									0.675
	2	920	860	805	760	715	675	640			0.527
	3	1085	1015	955	905	855	810	770	735	700	0.432
	4	1230	1160	1095	1035	985	935	890	850	815	0.366
	5	1355	1285	1220	1160	1105	1050	1005	960	920	0.318
	6	1470	1395	1330	1270	1210	1160	1110	1065	1020	0.281
	7	1565	1495	1430	1370	1310	1255	1205	1160	1115	0.251
36/4	1	610									0.788
	2	780	730	690	650	615	580	550			0.594
	3	930	875	825	785	745	705	675	645	615	0.476
	4	1050	1000	950	900	860	820	785	750	720	0.397
	5	1155	1100	1055	1005	965	925	885	850	815	0.341
	6	1240	1190	1140	1095	1055	1015	975	940	905	0.299
	7	1310	1265	1220	1175	1130	1090	1055	1020	985	0.266
30/6	1	735									0.766
	2	950	880	815	760	710	665	625			0.605
	3	1140	1065	995	930	875	825	775	735	695	0.500
	4	1325	1235	1155	1090	1025	970	920	875	830	0.426
	5	1495	1400	1315	1235	1170	1105	1050	1000	955	0.371
	6	1655	1550	1460	1380	1305	1240	1180	1120	1070	0.329
	7	1800	1695	1600	1515	1435	1365	1300	1240	1185	0.295
30/4	1	705									0.834
	2	880	825	770	725	685	650	615			0.647
	3	1035	975	920	870	820	780	745	710	675	0.528
	4	1170	1110	1050	995	945	900	860	820	785	0.447
	5	1290	1225	1165	1110	1060	1010	970	925	890	0.387
	6	1390	1325	1270	1215	1160	1110	1065	1025	985	0.341
	7	1475	1415	1360	1305	1250	1205	1155	1115	1075	0.305

[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
A	0.233	8173	6964	6005	5231	4597	4072	3632	3260	2942
F	0.254	8841	7533	6495	5658	4973	4405	3929	3527	3183
B	0.353	11224	9564	8247	7184	6314	5593	4989	4477	4041

[2] Design Strengths:

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

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