DIAPHRAGM 1.5” FORM

SCREW ATTACHMENT

1.5” x 6” x 22 Ga.

Design thickness	0.0298 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.075 in.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
No Fill (Bare Deck)	**36/7**	0	415	370	330							0.552
		1	525	470	425	380	350					0.416
		2	625	560	510	465	425	390	360	335	315	0.334
		3	715	645	590	540	500	465	430	400	370	0.279
		4	800	725	665	610	565	530	495	460	430	0.240
	36/5	0	380	340	305							0.662
		1	475	430	390	360	325					0.476
		2	555	505	465	430	400	370	345	320	300	0.372
		3	630	575	535	495	460	430	405	380	355	0.305
		4	690	640	595	555	515	485	455	430	405	0.259
	36/4	0	290	255	230							0.828
		1	380	345	315	290	265					0.556
		2	460	420	385	360	335	310	290	270	250	0.419
		3	520	480	450	420	390	365	345	325	305	0.336
		4	575	535	500	470	440	415	395	370	350	0.281
2 1/2” NW Conc. (Above Deck)	**36/4**	0	5215	5180	5155							0.828
		1	5335	5285	5245	5215	5190					0.556
		2	5450	5390	5340	5300	5265	5240	5215	5195	5175	0.419
		3	5565	5495	5435	5385	5345	5310	5280	5255	5235	0.336
		4	5685	5595	5525	5470	5425	5385	5350	5320	5295	0.281
2 1/2” LW Conc. (Above Deck)	**36/4**	0	3775	3740	3715							0.828
		1	3895	3845	3805	3775	3750					0.556
		2	4010	3950	3900	3860	3825	3800	3775	3755	3735	0.419
		3	4125	4050	3995	3945	3905	3870	3840	3815	3795	0.336
		4	4245	4155	4085	4030	3985	3940	3910	3880	3850	0.281
Type I Insul. Fill	**36/4**	0	760	725	695							0.828
		1	875	830	790	760	730					0.556
		2	995	930	885	845	810	780	760	735	720	0.419
		3	1110	1035	975	930	890	855	825	800	775	0.336
		4	1225	1140	1070	1015	965	925	890	860	835	0.281

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

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
1.5x6	0.173	8640	6825	5530	4570	3840	3270	2820	2455	2160

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

1.5" 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.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			4	4.5	5	5.5	6	6.5	7	7.5	8	1/ft
No Fill (Bare Deck)	**36/7**	0	505	445	400							0.605
		1	645	580	520	470	430					0.456
		2	770	695	635	580	535	490	455	420	395	0.366
		3	890	805	735	675	625	580	540	505	470	0.306
		4	995	905	830	770	710	665	620	580	545	0.263
	36/5	0	460	410	370							0.726
		1	580	525	480	440	405					0.522
		2	685	625	575	530	495	460	430	400	375	0.408
		3	780	715	660	615	575	535	505	475	445	0.334
		4	855	795	740	690	645	605	570	540	510	0.283
	36/4	0	350	310	275							0.907
		1	470	425	390	360	330					0.610
		2	565	520	480	445	415	385	365	340	320	0.459
		3	645	600	560	520	490	460	430	405	385	0.368
		4	710	665	625	585	555	520	495	465	445	0.307
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5280	5240	5205							0.907
		1	5435	5375	5325	5290	5255					0.610
		2	5585	5510	5450	5400	5360	5325	5295	5265	5245	0.459
		3	5740	5650	5575	5510	5460	5420	5380	5350	5320	0.368
		4	5895	5785	5695	5625	5565	5515	5470	5430	5400	0.307
2 1/2" LW Conc. (Above Deck)	**36/4**	0	3840	3800	3765							0.907
		1	3995	3935	3885	3850	3815					0.610
		2	4145	4070	4010	3960	3920	3885	3855	3825	3805	0.459
		3	4300	4205	4135	4070	4020	3980	3940	3910	3880	0.368
		4	4455	4345	4255	4185	4125	4070	4030	3990	3960	0.307
Type I Insul. Fill	**36/4**	0	825	780	745							0.907
		1	975	915	870	830	800					0.610
		2	1130	1055	995	945	900	865	835	810	785	0.459
		3	1285	1190	1115	1055	1005	960	925	890	865	0.368
		4	1440	1325	1240	1165	1105	1055	1010	975	940	0.307

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

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	4	4.5	5	5.5	6	6.5	7	7.5	8
1.5x6	0.210	11480	9070	7345	6070	5100	4345	3745	3265	2870

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

1.5" 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.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			5	5.5	6	6.5	7	7.5	8	8.5	9	1/ft
No Fill (Bare Deck)	**36/7**	0	530									0.696
		1	720	650	595							0.525
		2	880	810	745	690	640	595	555	520	490	0.422
		3	1035	950	880	820	765	720	675	630	595	0.352
		4	1175	1085	1010	940	880	830	780	740	700	0.303
	36/5	0	490									0.835
		1	655	605	560							0.601
		2	800	740	685	640	600	565	530	500	470	0.469
		3	925	860	805	755	710	665	630	600	570	0.385
		4	1035	970	910	855	805	765	725	685	655	0.326
	36/4	0	370									1.044
		1	535	495	460							0.702
		2	670	620	580	545	510	480	455	425	400	0.528
		3	780	730	685	645	610	575	545	520	495	0.424
		4	875	825	780	735	700	665	630	600	575	0.354
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5300									1.044
		1	5490	5435	5390							0.702
		2	5675	5605	5550	5500	5455	5420	5385	5360	5330	0.528
		3	5865	5775	5705	5640	5590	5545	5505	5470	5435	0.424
		4	6050	5945	5860	5785	5725	5670	5620	5580	5540	0.354
2 1/2" LW Conc. (Above Deck)	**36/4**	0	3860									1.044
		1	4050	3995	3950							0.702
		2	4235	4165	4105	4060	4015	3980	3945	3915	3890	0.528
		3	4425	4335	4265	4200	4150	4105	4065	4030	3995	0.424
		4	4610	4505	4420	4345	4285	4230	4180	4140	4100	0.354
Type I Insul. Fill	**36/4**	0	845									1.044
		1	1035	980	935							0.702
		2	1220	1150	1090	1040	1000	960	930	900	875	0.528
		3	1405	1320	1245	1185	1130	1085	1045	1010	980	0.424
		4	1595	1490	1405	1330	1265	1210	1165	1120	1085	0.354

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

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	5	5.5	6	6.5	7	7.5	8	8.5	9
1.5x6	0.279	11210	9265	7785	6630	5715	4980	4375	3875	3460

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

1.5" x 6" x 16 Ga.

Design thickness	0.0598 in.
Support fastening	#12 screws
Side-lap fastening	#10 screws
Minimum support thickness	0.15 in.

Fu	50 ksi
Fy	40 ksi

Bare Deck Diaphragm			Filled Diaphragm		
Loading	ϕdf	Ωdf	Loading	ϕdf	Ωdf
Seismic	0.70	2.30	Seismic	0.50	3.25
Wind	0.80	2.00	Wind	0.50	3.25
Other	0.70	3.30	Other	0.50	3.25

Type of Fill	Fastener Layout	Side-lap Conn/ Span	Nominal Shear Strength, S_{nf}, plf[1,2] Span, ft.									K_1
			6	6.5	7	7.5	8	8.5	9	9.5	10	1/ft
No Fill (Bare Deck)	**36/7**	0	780									0.590
		1	985	915	855	795	740	695	655			0.474
		2	1175	1090	1020	960	905	855	805	760	720	0.396
		3	1350	1260	1180	1110	1050	990	940	895	855	0.340
		4	1515	1420	1335	1255	1190	1125	1070	1020	970	0.298
	36/5	0	725									0.675
		1	905	845	790	745	705	665	630			0.527
		2	1065	1000	940	890	840	795	760	720	690	0.432
		3	1210	1140	1075	1020	970	920	875	840	800	0.366
		4	1335	1265	1200	1140	1085	1035	990	945	905	0.318
	36/4	0	600									0.788
		1	770	720	675	635	605	570	545			0.594
		2	910	860	815	770	730	695	665	635	605	0.476
		3	1035	980	935	890	845	810	775	740	710	0.397
		4	1135	1085	1035	990	950	910	870	835	805	0.341
2 1/2" NW Conc. (Above Deck)	**36/4**	0	5545									0.788
		1	5765	5700	5640	5595	5550	5510	5475			0.594
		2	5985	5905	5830	5770	5715	5665	5625	5585	5555	0.476
		3	6210	6105	6020	5945	5880	5825	5770	5725	5685	0.397
		4	6430	6310	6210	6125	6045	5980	5920	5865	5820	0.341
2 1/2" LW Conc. (Above Deck)	**36/4**	0	4105									0.788
		1	4325	4260	4200	4150	4110	4070	4035			0.594
		2	4545	4465	4390	4330	4275	4225	4185	4145	4110	0.476
		3	4615	4615	4580	4505	4440	4385	4330	4285	4245	0.397
		4	4615	4615	4615	4615	4605	4540	4480	4425	4380	0.341
Type I Insul. Fill	**36/4**	0	1085									0.788
		1	1310	1240	1185	1135	1090	1055	1020			0.594
		2	1530	1445	1375	1310	1260	1210	1170	1130	1095	0.476
		3	1750	1650	1565	1490	1425	1365	1315	1270	1230	0.397
		4	1970	1855	1755	1665	1590	1525	1465	1410	1360	0.341

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

	ϕdf	Ωdf
Buckling	0.80	2.00

Deck Profile	I	Nominal Shear Due to Panel Buckling, S_{nb}, plf[2] Span, ft.								
	in⁴/ft	6	6.5	7	7.5	8	8.5	9	9.5	10
1.5x6	0.383	11745	10005	8625	7515	6605	5850	5220	4685	4225

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