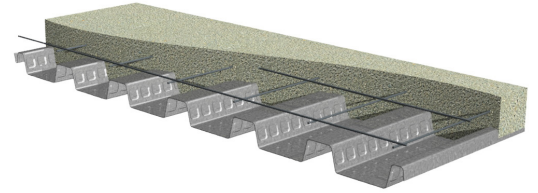


1.5VLR-36 COMPOSITE DECK GRADE 50 STEEL

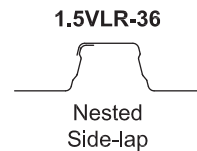
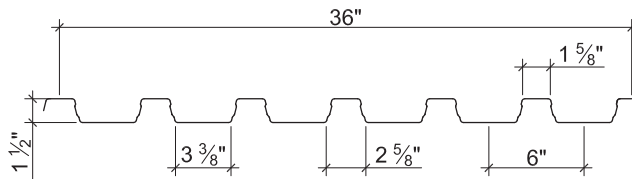
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1.5VLR COMPOSITE DECK

- 1.5VLR-36 Deck used with Side-lap Screws



Nominal Dimensions



Section Properties

Deck Gage	Deck Weight w_{dd} (psf)	Base Metal Thickness t (in.)	Yield Strength F_y (ksi)	Effective Moment of Inertia at Service Load $I_d = (2I_e + I_g)/3$		Effective Section Modulus at $F_y = 50$ ksi		Allowable Moment		Vertical Web Shear V_n/Ω (lb/ft)
				I_{d+} (in ⁴ /ft)	I_{d-} (in ⁴ /ft)	S_{e+} (in ³ /ft)	S_{e-} (in ³ /ft)	M_{n+}/Ω (lb-ft/ft)	M_{n-}/Ω (lb-ft/ft)	
22	1.6	0.0295	50	0.178	0.155	0.179	0.169	447	422	2654
20	2.0	0.0358	50	0.217	0.197	0.229	0.224	571	559	3207
19	2.3	0.0418	50	0.257	0.239	0.278	0.266	693	663	3728
18	2.6	0.0474	50	0.290	0.277	0.318	0.306	793	763	4209
16	3.3	0.0598	50	0.367	0.364	0.402	0.393	1003	981	5261

Allowable Reactions at Supports Based on Web Crippling, R_n/Ω (lb/ft)

Deck Gage	Bearing Length of Webs											
	One-Flange Loading						Two-Flange Loading					
	End Bearing				Interior Bearing		End Bearing				Interior Bearing	
	1 1/2"	2"	3"	4"	3"	4"	1 1/2"	2"	3"	4"	3"	4"
22	807	887	1021	1115	1482	1602	842	908	1017	1093	1834	1994
20	1153	1263	1448	1574	2127	2289	1274	1368	1525	1632	2662	2881
19	1532	1674	1913	2071	2839	3043	1766	1891	2100	2239	3579	3859
18	1931	2105	2398	2588	3586	3831	2297	2454	2716	2887	4546	4884
16	2958	3212	3639	3900	5517	5855	3713	3950	4347	4590	7050	7523

Standard Features

- ASTM A653 SS GR50 Min., with G60 or G90, white or gray primer bottom optional
- ASTM A1008 SS GR50 Min. with gray primer bottom
- Standard lengths – 6'-0" to 42'-0"
- IAPMO UES ER-0652 and UL Listed
- Tables conform to ANSI/SDI C-2017

Optional Features

- Inquire regarding cost and lead times for:
 - Short cuts < 6'-0"
 - Sheet Lengths > 42'-0"
 - Alternative metallic and painted finishes

1.5VLR-36 COMPOSITE DECK-SLABS

NORMAL WEIGHT CONCRETE (145 pcf)

ASD

			Maximum Unshored Spans			Composite Deck-Slab Properties			
Slab Depth		Deck Gage	Maximum Unshored Construction Clear Span			Concrete + Deck (psf)	Deflection $I_d = (I_{cr} + I_u)/2$ (in ⁴ /ft)	Moment M_{no}/Ω (kip-ft/ft)	Shear V_{no}/Ω (kip/ft)
Total	Topping		1	2	3				
3½"	2"	22	6'-5"	7'-5"	7'-7"	37.5	3.43	2.60	3.36
		20	7'-6"	8'-7"	8'-10"	37.9	3.68	3.08	3.36
		19	8'-2"	9'-4"	9'-7"	38.2	3.91	3.53	3.36
		18	8'-6"	9'-11"	10'-3"	38.5	4.11	3.93	3.36
		16	9'-2"	11'-3"	11'-3"	39.2	4.50	4.79	3.36
5"	3½"	22	5'-8"	6'-6"	6'-8"	55.6	9.34	3.80	5.03
		20	6'-7"	7'-6"	7'-9"	56.0	9.97	4.53	5.21
		19	7'-3"	8'-2"	8'-5"	56.3	10.55	5.22	5.21
		18	7'-6"	8'-9"	9'-0"	56.6	11.05	5.84	5.21
		16	8'-1"	9'-10"	10'-0"	57.3	12.09	7.18	5.21
6"	4½"	22	5'-4"	6'-1"	6'-3"	67.7	15.62	4.84	5.59
		20	6'-2"	7'-0"	7'-3"	68.1	16.63	5.78	6.10
		19	6'-10"	7'-7"	7'-10"	68.4	17.55	6.67	6.33
		18	7'-1"	8'-2"	8'-5"	68.7	18.36	7.48	6.33
		16	7'-8"	9'-2"	9'-5"	69.4	20.03	9.23	6.33

Note:

- Maximum unshored spans do not consider web-crippling. Required bearing should be determined based on specific span conditions.

Superimposed Allowable Load, W_n/Ω , Limited by L/360 (psf)

NWC (145 pcf), $f'_c = 3000$ psi

Total Slab Depth	Deck Gage	Span (ft-in.)								
		4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
3½"	22	1261	793	539	386	287	205	150	112	86
	20	1501	947	646	464	314	220	160	120	93
	19	1640	1091	746	498	333	234	170	128	98
	18	1639	1219	830	523	350	246	179	134	103
	16	1639	1303	911	573	384	269	196	147	113
5"	22	1845	1160	789	565	419	319	248	195	155
	20	2210	1394	951	684	510	391	306	243	195
	19	2546	1614	1104	796	596	459	361	288	233
	18	2545	1813	1241	897	673	520	410	329	267
	16	2545	2024	1538	1115	840	652	517	396	305
6"	22	2351	1480	1007	722	537	410	319	252	201
	20	2822	1782	1216	875	654	502	394	314	253
	19	3095	2066	1414	1020	765	590	465	372	302
	18	3095	2324	1593	1152	866	669	529	425	346
	16	3094	2461	1980	1436	1083	841	668	540	443

Notes:

- For high loads long term concrete creep should be considered.
- See Composite Deck-Slab Strength Web Based Solutions for alternate slabs or LRFD design.

1.5VLR-36 COMPOSITE DECK-SLABS

LIGHT WEIGHT CONCRETE (110 pcf)

ASD

			Maximum Unshored Spans			Composite Deck-Slab Properties			
Slab Depth		Deck Gage	Maximum Unshored Construction Clear Span			Concrete + Deck (psf)	Deflection $I_d = (I_{cr} + I_u)/2$ (in ⁴ /ft)	Moment M_{no}/Ω (kip-ft/ft)	Shear V_{no}/Ω (kip/ft)
Total	Topping		1	2	3				
3½"	2"	22	6'-11"	8'-2"	8'-3"	28.8	2.66	2.49	3.36
		20	8'-3"	9'-4"	9'-8"	29.2	2.87	2.94	3.36
		19	8'-11"	10'-2"	10'-6"	29.5	3.06	3.36	3.36
		18	9'-3"	10'-10"	11'-2"	29.8	3.22	3.73	3.36
		16	10'-0"	12'-2"	12'-0"	30.5	3.54	4.52	3.36
4"	2½"	22	6'-8"	7'-9"	7'-11"	33.4	3.85	2.86	3.91
		20	7'-10"	8'-11"	9'-3"	33.8	4.15	3.38	3.95
		19	8'-6"	9'-8"	10'-0"	34.1	4.42	3.87	3.95
		18	8'-10"	10'-5"	10'-9"	34.4	4.65	4.31	3.95
		16	9'-6"	11'-8"	11'-7"	35.1	5.11	5.24	3.95
4¾"	3¼"	22	6'-4"	7'-4"	7'-6"	40.3	6.20	3.43	4.26
		20	7'-5"	8'-5"	8'-8"	40.7	6.68	4.07	4.76
		19	8'-1"	9'-2"	9'-6"	41.0	7.11	4.67	4.88
		18	8'-4"	9'-10"	10'-2"	41.3	7.47	5.21	4.88
		16	9'-0"	11'-1"	11'-1"	42.0	8.22	6.36	4.88

Note:

- Maximum unshored spans do not consider web-crippling. Required bearing should be determined based on specific span conditions.

Superimposed Allowable Load, W_n/Ω , Limited by L/360 (psf)

LWC (110 pcf), $f'_c = 3000$ psi

Total Slab Depth	Deck Gage	Span (ft-in.)								
		4'-0"	5'-0"	6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"
3½"	22	1214	766	523	338	226	159	116	87	67
	20	1439	910	580	365	244	172	125	94	72
	19	1648	1044	619	389	261	183	133	100	77
	18	1648	1125	651	410	274	193	140	105	81
	16	1647	1239	717	451	302	212	154	116	89
4"	22	1396	881	601	433	323	230	168	126	97
	20	1658	1049	718	518	354	248	181	136	104
	19	1903	1205	826	563	377	264	193	145	111
	18	1938	1344	923	592	396	278	203	152	117
	16	1937	1542	1034	651	436	306	223	167	129
4¾"	22	1674	1057	722	519	388	298	234	186	150
	20	1995	1262	864	624	468	361	285	219	168
	19	2294	1453	997	721	542	420	310	233	179
	18	2398	1625	1116	808	609	448	326	245	189
	16	2397	1909	1371	996	701	492	359	269	207

Notes:

- For high loads long term concrete creep should be considered.
- See Composite Deck-Slab Strength Web Based Solutions for alternate slabs or LRFD design.

1.5VLR-36 COMPOSITE DECK-SLABS

ASD

1.5VLR-36 Composite Deck-Slab Information

$f'_c = 3000$ psi

				Recommended Reinforcing for Temperature and Shrinkage		
Total Slab Depth (in.)	Cover Depth (in.)	Theoretical Concrete Volume (yd ³ /100 ft ²)	Min. A _s for T&S (in. ²)	WWR	(OR)	Bekaert Dramix® Steel Fiber Alternate to WWR (lb/yd ³)
					4D 65/60BG	
Normal Weight Concrete (145 pcf)						
3½	2	0.92	0.018	6x6-W1.4xW1.4		23
4	2½	1.07	0.023	6x6-W1.4xW1.4		18
4½	3	1.22	0.027	6x6-W1.4xW1.4		15
5	3½	1.38	0.032	6x6-W2.1xW2.1		15
5½	4	1.53	0.036	6x6-W2.1xW2.1		15
6	4½	1.69	0.041	6x6-W2.1xW2.1		15
Light Weight Concrete (110 pcf)						
3½	2	0.92	0.018	6x6-W1.4xW1.4		33
4	2½	1.07	0.023	6x6-W1.4xW1.4		25
4½	3	1.22	0.027	6x6-W1.4xW1.4		20
4¾	3¼	1.30	0.029	6x6-W2.1xW2.1		20
5	3½	1.38	0.032	6x6-W2.1xW2.1		20
5¾	4¼	1.61	0.038	6x6-W2.1xW2.1		20

Notes:

1. FRC reinforcement is based on IAPMO UES ER-465.
2. Dramix® fibers may be used in UL or ULC fire rated assemblies in lieu of WWR. See UL file R19307 for additional information.

For information on Bekaert Dramix® fibers contact 770-514-2295 or infobuilding@bekaert.com.

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