

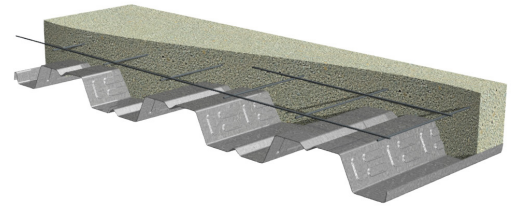
2VLI-36/2VLJ-36/2PLVLI-36 COMPOSITE DECKS

GRADE 50 STEEL

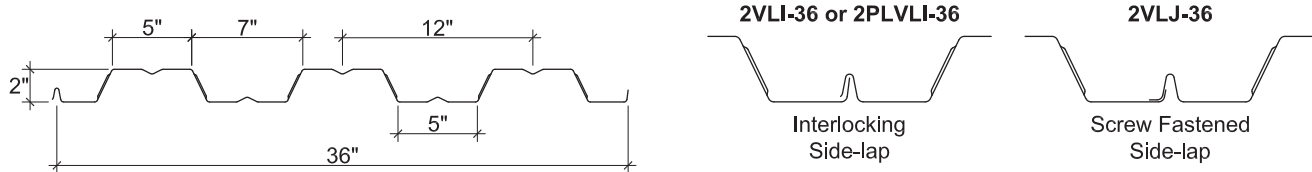
LRFD

2VLI COMPOSITE DECKS

- 2VLI Deck-36 used with TSWs or BPs
- 2VLJ Deck-36 used with Side-lap Screws
- 2PLVLI Deck-36 used with PunchLok® II System



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 $I_d = (2I_e + I_p)/3$		Effective Section Modulus at $F_y = 50$ ksi		Design Moment		Vertical Web Shear ϕV_n (lb/ft)
				I_{d+} (in ⁴ /ft)	I_{d-} (in ⁴ /ft)	S_{e+} (in ³ /ft)	S_{e-} (in ³ /ft)	ϕM_n+ (lb-ft/ft)	ϕM_n- (lb-ft/ft)	
22	1.6	0.0295	50	0.324	0.324	0.244	0.255	915	957	2495
20	1.9	0.0358	50	0.409	0.407	0.326	0.337	1222	1264	3677
19	2.2	0.0418	50	0.490	0.488	0.409	0.421	1534	1579	4352
18	2.5	0.0474	50	0.557	0.557	0.485	0.500	1819	1875	4925
16	3.2	0.0598	50	0.703	0.703	0.643	0.652	2411	2445	6185

Design Reactions at Supports Based on Web Crippling, ϕR_n (lb/ft)

Deck Gage	Bearing Length of Webs											
	One-Flange Loading						Two-Flange Loading					
	End Bearing				Interior Bearing		End Bearing				Interior Bearing	
	1½"	2"	3"	4"	4"	6"	1½"	2"	3"	4"	4"	6"
22	556	611	703	781	1141	1312	554	597	668	729	1374	1593
20	798	874	1002	1110	1634	1869	848	910	1015	1103	1997	2306
19	1065	1164	1330	1469	2174	2480	1185	1269	1409	1527	2685	3091
18	1345	1467	1671	1843	2741	3117	1550	1656	1833	1982	3410	3914
16	2071	2249	2548	2800	4202	4751	2530	2691	2962	3190	5287	6037

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
- Factory Hanger Tabs

2VLI-36/2VLJ-36/2PLVLI-36 COMPOSITE DECK-SLABS

NORMAL WEIGHT CONCRETE (145 pcf)

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			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 ϕM_{no} (kip-ft/ft)	Shear ϕV_{no} (kip/ft)
Total	Topping		1	2	3				
4"	2"	22	7'-10"	9'-0"	9'-3"	37.9	4.14	3.59	4.53
		20	9'-5"	10'-4"	10'-8"	38.2	4.43	4.25	4.60
		19	10'-1"	11'-7"	11'-11"	38.5	4.68	4.86	4.60
		18	10'-6"	12'-7"	12'-7"	38.8	4.92	5.42	4.60
		16	11'-4"	14'-1"	13'-3"	39.5	5.39	6.59	4.60
5½"	3½"	22	6'-10"	7'-10"	8'-1"	56.0	10.32	5.15	5.73
		20	8'-2"	9'-0"	9'-4"	56.3	11.00	6.13	6.79
		19	9'-0"	10'-1"	10'-5"	56.6	11.60	7.03	7.00
		18	9'-4"	11'-0"	11'-4"	56.9	12.14	7.86	7.00
		16	10'-1"	12'-6"	12'-1"	57.6	13.25	9.62	7.00
6½"	4½"	22	6'-5"	7'-3"	7'-6"	68.1	16.78	6.55	6.64
		20	7'-7"	8'-4"	8'-8"	68.4	17.83	7.82	7.70
		19	8'-5"	9'-4"	9'-8"	68.7	18.77	8.99	8.30
		18	8'-9"	10'-2"	10'-6"	69.0	19.61	10.07	8.81
		16	9'-6"	11'-7"	11'-7"	69.7	21.36	11.77	8.81

Note:

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

Superimposed Design Load, ϕW_n , / Deflection at L/360 (psf)

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

Total Slab Depth	Deck Gage	Span (ft-in.)							
		6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	14'-0"
4"	22	752/837	540/527	403/353	309/248	241/180	192/135	154/104	101/65
	20	899/895	648/563	485/377	374/265	294/193	235/145	190/111	127/70
	19	1034/947	747/596	561/399	434/280	342/204	275/153	224/118	152/74
	18	1157/994	837/626	630/419	488/294	386/214	311/161	254/124	174/78
	16	1417/1090	1029/686	776/459	603/323	480/235	388/176	318/136	221/85
5½"	22	1077/2088	774/1315	576/881	441/618	345/451	273/338	219/261	143/164
	20	1294/2224	933/1401	698/938	537/659	422/480	337/361	272/278	182/175
	19	1494/2347	1080/1478	811/990	626/695	494/507	397/380	322/293	219/184
	18	1677/2456	1214/1546	913/1036	707/727	560/530	451/398	368/307	252/193
	16	2068/2681	1501/1688	1133/1131	881/794	700/579	566/435	465/335	323/211
6½"	22	1373/3395	987/2138	737/1432	565/1006	442/733	351/551	282/424	185/267
	20	1655/3607	1194/2271	895/1521	690/1068	543/779	434/585	352/450	237/283
	19	1916/3798	1385/2391	1041/1602	805/1125	637/820	512/616	417/474	284/298
	18	2155/3968	1561/2498	1176/1674	911/1175	722/857	583/643	476/496	328/312
	16	2532/4321	1838/2721	1387/1823	1078/1280	858/933	694/701	570/540	396/340

Notes:

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

2VLI-36/2VLJ-36/2PLVLI-36 COMPOSITE DECK-SLABS

LIGHT WEIGHT CONCRETE (110 pcf)

LRFD

			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 ϕM_{no} (kip-ft/ft)	Shear ϕV_{no} (kip/ft)
Total	Topping		1	2	3				
4"	2"	22	8'-8"	9'-10"	10'-2"	29.1	3.19	3.43	3.96
		20	10'-5"	11'-4"	11'-9"	29.4	3.44	4.05	4.60
		19	11'-1"	12'-8"	13'-0"	29.7	3.66	4.61	4.60
		18	11'-5"	13'-9"	13'-5"	30.0	3.85	5.13	4.60
		16	12'-1"	15'-0"	14'-2"	30.7	4.25	6.21	4.60
4½"	2½"	22	8'-3"	9'-5"	9'-9"	33.7	4.44	3.92	4.24
		20	9'-11"	10'-10"	11'-3"	34.0	4.78	4.63	5.30
		19	10'-7"	12'-1"	12'-6"	34.3	5.08	5.29	5.36
		18	11'-0"	13'-2"	13'-0"	34.6	5.35	5.88	5.36
		16	11'-8"	14'-6"	13'-8"	35.3	5.89	7.13	5.36
5¼"	3¼"	22	7'-9"	8'-10"	9'-2"	40.6	6.89	4.69	4.70
		20	9'-4"	10'-2"	10'-6"	40.9	7.40	5.56	5.76
		19	10'-0"	11'-5"	11'-9"	41.2	7.86	6.36	6.36
		18	10'-5"	12'-5"	12'-5"	41.5	8.27	7.08	6.58
		16	11'-2"	13'-11"	13'-1"	42.2	9.09	8.61	6.58

Note:

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

Superimposed Design Load, ϕW_n , / Deflection at L/360 (psf)

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

Total Slab Depth	Deck Gage	Span (ft-in.)							
		6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	14'-0"
4"	22	727/644	525/405	394/271	304/190	239/139	191/104	155/80	105/50
	20	864/695	625/437	470/293	364/205	288/150	232/112	189/86	129/54
	19	989/740	717/466	541/312	420/219	333/159	269/120	220/92	152/58
	18	1103/779	801/491	604/329	470/231	374/168	302/126	248/97	173/61
	16	1342/860	976/542	739/363	576/255	459/185	373/139	308/107	216/67
4½"	22	830/898	599/565	449/378	346/266	273/194	218/145	177/112	119/70
	20	988/967	715/609	538/408	416/286	329/208	265/156	216/120	148/76
	19	1133/1028	821/647	619/433	480/304	381/222	308/166	252/128	174/80
	18	1264/1082	918/681	693/456	539/320	428/233	347/175	285/135	198/85
	16	1541/1192	1121/750	848/503	661/353	528/257	429/193	353/149	248/93
5¼"	22	994/1393	717/877	538/587	414/412	326/300	261/226	212/174	142/109
	20	1186/1497	858/943	645/631	500/443	395/323	318/243	259/187	177/117
	19	1363/1590	988/1001	745/671	578/471	459/343	370/258	303/198	210/125
	18	1523/1672	1105/1053	835/705	649/495	516/361	418/271	343/209	239/131
	16	1863/1839	1355/1158	1026/775	800/545	638/397	518/298	427/229	300/144

Notes:

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

2VLI-36/2VLJ-36/2PLVLI-36 COMPOSITE DECK-SLABS

LRFD

2VLI-36/2VLJ-36/2PLVLI-36 Composite Deck-Slab Information

Total Slab Depth (in.)	Cover Depth (in.)	Theoretical Concrete Volume (yd ³ /100 ft ²)	Min. A _s for T&S (in. ²)	Recommended Reinforcing for Temperature and Shrinkage	
				WWR	(OR) Bekaert Dramix® Steel Fiber Alternate to WWR (lb/yd ³)
				3D 65/60BG	
Normal Weight Concrete (145 pcf)					
4	2	0.93	0.028	6x6-W1.4xW1.4	27
4½	2½	1.08	0.028	6x6-W1.4xW1.4	22
5	3	1.23	0.028	6x6-W1.4xW1.4	19
5½	3½	1.39	0.032	6x6-W2.1xW2.1	18
6	4	1.54	0.036	6x6-W2.1xW2.1	18
6½	4½	1.70	0.041	6x6-W2.1xW2.1	18
Light Weight Concrete (110 pcf)					
4	2	0.93	0.028	6x6-W1.4xW1.4	42
4½	2½	1.08	0.028	6x6-W1.4xW1.4	30
5	3	1.23	0.028	6x6-W1.4xW1.4	23
5¼	3¼	1.31	0.029	6x6-W2.1xW2.1	22
5½	3½	1.39	0.032	6x6-W2.1xW2.1	22
6¼	4¼	1.62	0.038	6x6-W2.1xW2.1	22

Notes:

1. FRC reinforcement is based on IAPMO UES ER-497 and 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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