

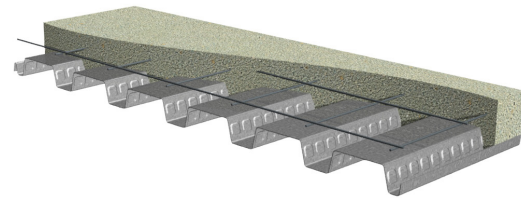
# 1.5VL-36/1.5VLI-36/1.5PLVLI-36 COMPOSITE DECKS

## GRADE 50 STEEL

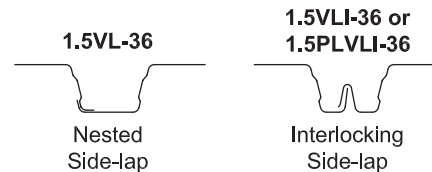
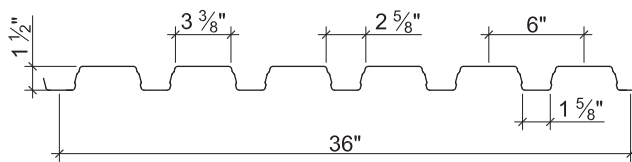
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### 1.5VL COMPOSITE DECKS

- 1.5VL-36 Deck used with Side-lap Screws
- 1.5VLI-36 Deck used with TSWs or BPs
- 1.5PLVLI-36 Deck 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		Allowable Moment		Vertical Web Shear $V_n/\Omega$ (lb/ft)
				$I_{d+}$ (in <sup>4</sup> /ft)	$I_{d-}$ (in <sup>4</sup> /ft)	$S_{e+}$ (in <sup>3</sup> /ft)	$S_{e-}$ (in <sup>3</sup> /ft)	$M_{n+}/\Omega$ (lb-ft/ft)	$M_{n-}/\Omega$ (lb-ft/ft)	
22	1.6	0.0295	50	0.155	0.178	0.169	0.179	422	447	2654
20	2.0	0.0358	50	0.197	0.217	0.224	0.229	559	571	3207
19	2.3	0.0418	50	0.239	0.257	0.266	0.278	663	693	3728
18	2.6	0.0474	50	0.277	0.290	0.306	0.318	763	793	4209
16	3.3	0.0598	50	0.364	0.367	0.393	0.402	981	1003	5261

### Allowable Reactions at Supports Based on Web Crippling, $R_n/\Omega$ (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
- Factory Hanger Tabs

# 1.5VL-36/1.5VLI-36/1.5PLVLI-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 <sup>4</sup> /ft)	Moment $M_{no}/\Omega$ (kip-ft/ft)	Shear $V_{no}/\Omega$ (kip/ft)
Total	Topping		1	2	3				
3½"	2"	22	6'-5"	7'-6"	7'-8"	32.2	2.64	1.84	2.01
		20	7'-9"	9'-1"	9'-2"	32.6	2.85	2.16	2.01
		19	8'-4"	9'-11"	10'-3"	32.9	3.03	2.47	2.01
		18	8'-9"	10'-7"	11'-0"	33.2	3.19	2.74	2.01
		16	9'-6"	11'-10"	11'-8"	33.9	3.52	3.30	2.01
5"	3½"	22	5'-7"	6'-7"	6'-8"	50.3	7.62	3.22	3.29
		20	6'-9"	7'-10"	7'-11"	50.7	8.18	3.83	3.29
		19	7'-3"	8'-8"	8'-10"	51.0	8.68	4.40	3.29
		18	7'-8"	9'-3"	9'-6"	51.3	9.12	4.90	3.29
		16	8'-4"	10'-4"	10'-4"	52.0	10.02	6.00	3.29
6"	4½"	22	5'-3"	6'-1"	6'-2"	62.4	13.11	4.24	4.27
		20	6'-3"	7'-3"	7'-5"	62.8	14.02	5.05	4.27
		19	6'-10"	8'-0"	8'-2"	63.1	14.85	5.81	4.27
		18	7'-2"	8'-7"	8'-10"	63.4	15.57	6.50	4.27
		16	7'-10"	9'-7"	9'-8"	64.1	17.06	7.98	4.27

**Note:**

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

**Superimposed Allowable Load,  $W_n/\Omega$ , 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	886	555	375	267	197	149	114	86	66
	20	974	659	448	320	237	170	124	93	72
	19	974	757	515	370	258	181	132	99	76
	18	974	772	574	406	272	191	139	104	80
	16	973	771	637	448	300	210	153	115	88
5"	22	1560	980	665	475	352	267	207	162	128
	20	1593	1174	800	574	427	327	255	202	161
	19	1592	1264	925	666	498	383	300	239	193
	18	1592	1263	1038	749	561	433	341	272	221
	16	1591	1263	1043	887	697	540	427	329	253
6"	22	2055	1292	878	629	467	355	276	217	172
	20	2074	1552	1058	761	568	435	341	270	217
	19	2073	1646	1228	885	663	510	401	321	259
	18	2073	1646	1361	997	749	578	456	366	297
	16	2072	1645	1360	1156	933	724	574	463	379

**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.

# 1.5VL-36/1.5VLI-36/1.5PLVLI-36 COMPOSITE DECK-SLABS LIGHT WEIGHT CONCRETE (110 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 <sup>4</sup> /ft)	Moment $M_{no}/\Omega$ (kip-ft/ft)	Shear $V_{no}/\Omega$ (kip/ft)
Total	Topping		1	2	3				
3½"	2"	22	6'-11"	8'-2"	8'-3"	24.8	2.07	1.74	2.01
		20	8'-5"	9'-10"	10'-0"	25.2	2.24	2.04	2.01
		19	9'-2"	10'-9"	11'-2"	25.5	2.39	2.31	2.01
		18	9'-7"	11'-6"	11'-10"	25.8	2.52	2.56	2.01
		16	10'-5"	12'-10"	12'-5"	26.5	2.79	3.07	2.01
4"	2½"	22	6'-8"	7'-10"	7'-11"	29.4	3.06	2.14	2.41
		20	8'-0"	9'-4"	9'-7"	29.8	3.31	2.52	2.41
		19	8'-8"	10'-4"	10'-8"	30.1	3.54	2.87	2.41
		18	9'-1"	11'-0"	11'-4"	30.4	3.73	3.18	2.41
		16	9'-10"	12'-3"	12'-0"	31.1	4.12	3.84	2.41
4¾"	¾"	22	6'-3"	7'-4"	7'-5"	36.3	5.07	2.84	3.06
		20	7'-7"	8'-10"	8'-11"	36.7	5.48	3.36	3.06
		19	8'-2"	9'-8"	10'-0"	37.0	5.85	3.84	3.06
		18	8'-6"	10'-4"	10'-8"	37.3	6.17	4.27	3.06
		16	9'-3"	11'-7"	11'-5"	38.0	6.81	5.18	3.06

**Note:**

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

**Superimposed Allowable Load,  $W_n/\Omega$ , 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	843	531	361	258	176	123	90	67	52
	20	982	626	427	285	191	134	97	73	56
	19	981	715	484	305	204	143	104	78	60
	18	981	779	510	321	215	151	110	82	63
	16	980	779	564	355	238	167	121	91	70
4"	22	1040	655	446	319	238	181	133	100	77
	20	1176	776	530	381	282	198	144	108	83
	19	1175	888	608	438	301	212	154	116	89
	18	1175	934	676	475	318	223	162	122	94
	16	1174	933	772	524	351	246	179	135	104
4¾"	22	1386	874	595	428	319	244	191	151	121
	20	1492	1039	710	512	383	295	232	180	138
	19	1492	1186	817	590	443	342	255	192	148
	18	1492	1186	912	660	496	369	269	202	156
	16	1491	1185	981	808	581	408	297	223	172

**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.

# 1.5VL-36/1.5VLI-36/1.5PLVLI-36 COMPOSITE DECK-SLABS

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## 1.5VL-36/1.5VLI-36/1.5PLVLI-36 Composite Deck-Slab Information

$f'_c = 3000$  psi

Total Slab Depth (in.)	Cover Depth (in.)	Theoretical Concrete Volume (yd <sup>3</sup> /100 ft <sup>2</sup> )	Min. A <sub>s</sub> for T&S (in. <sup>2</sup> )	Recommended Reinforcing for Temperature and Shrinkage	
				WWR	(OR) Bekaert Dramix® Steel Fiber Alternate to WWR (lb/yd <sup>3</sup> )
				4D 65/60BG	
<b>Normal Weight Concrete (145 pcf)</b>					
3½	2	0.78	0.028	6x6-W1.4xW1.4	23
4	2½	0.94	0.028	6x6-W1.4xW1.4	18
4½	3	1.09	0.028	6x6-W1.4xW1.4	15
5	3½	1.24	0.032	6x6-W2.1xW2.1	15
5½	4	1.40	0.036	6x6-W2.1xW2.1	15
6	4½	1.55	0.041	6x6-W2.1xW2.1	15
<b>Light Weight Concrete (110 pcf)</b>					
3½	2	0.78	0.028	6x6-W1.4xW1.4	33
4	2½	0.94	0.028	6x6-W1.4xW1.4	25
4½	3	1.09	0.028	6x6-W1.4xW1.4	20
4¾	3¼	1.17	0.029	6x6-W2.1xW2.1	20
5	3½	1.24	0.032	6x6-W2.1xW2.1	20
5¾	4¼	1.48	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](mailto:infobuilding@bekaert.com).

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