

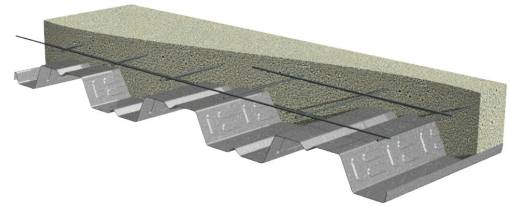
# 2VLI-36/2VLJ-36/2PLVLI-36 COMPOSITE DECKS

## GRADE 50 STEEL

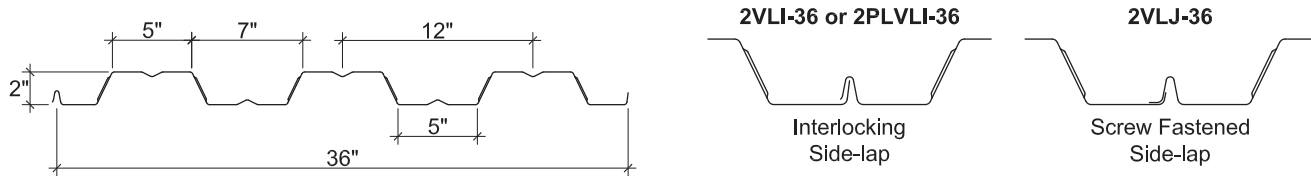
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### 2VLI COMPOSITE DECKS

- 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 $I_d = (2I_e + I_g)/3$		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	0.324	0.324	0.244	0.255	609	637	1641
20	1.9	0.0358	50	0.409	0.407	0.326	0.337	813	841	2419
19	2.2	0.0418	50	0.490	0.488	0.409	0.421	1020	1050	2863
18	2.5	0.0474	50	0.557	0.557	0.485	0.500	1210	1247	3240
16	3.2	0.0598	50	0.703	0.703	0.643	0.652	1604	1627	4069

### 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	
	1½"	2"	3"	4"	4"	6"	1½"	2"	3"	4"	4"	6"
22	363	399	460	511	767	882	362	390	437	476	924	1071
20	522	571	655	726	1098	1257	554	595	663	721	1342	1550
19	696	761	869	960	1462	1667	775	829	921	998	1805	2078
18	879	959	1092	1205	1843	2095	1013	1082	1198	1296	2292	2631
16	1354	1470	1666	1830	2825	3194	1654	1759	1936	2085	3554	4059

### 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 <sup>4</sup> /ft)	Moment $M_{no}/\Omega$ (kip-ft/ft)	Shear $V_{no}/\Omega$ (kip/ft)
Total	Topping		1	2	3				
4"	2"	22	7'-10"	9'-1"	9'-3"	37.9	4.14	2.41	3.03
		20	9'-5"	10'-5"	10'-9"	38.2	4.43	2.86	3.07
		19	10'-1"	11'-7"	12'-0"	38.5	4.68	3.27	3.07
		18	10'-6"	12'-8"	12'-7"	38.8	4.92	3.64	3.07
		16	11'-4"	14'-1"	13'-3"	39.5	5.39	4.43	3.07
5½"	3½"	22	6'-11"	7'-11"	8'-1"	56.0	10.32	3.46	3.84
		20	8'-3"	9'-2"	9'-5"	56.3	11.00	4.12	4.55
		19	9'-0"	10'-2"	10'-6"	56.6	11.60	4.73	4.67
		18	9'-4"	11'-1"	11'-6"	56.9	12.14	5.28	4.67
		16	10'-1"	12'-8"	12'-1"	57.6	13.25	6.47	4.67
6½"	4½"	22	6'-5"	7'-4"	7'-7"	68.1	16.78	4.40	4.44
		20	7'-8"	8'-6"	8'-9"	68.4	17.83	5.26	5.15
		19	8'-5"	9'-6"	9'-10"	68.7	18.77	6.05	5.55
		18	8'-9"	10'-4"	10'-8"	69.0	19.61	6.77	5.87
		16	9'-6"	11'-9"	11'-7"	69.7	21.36	7.91	5.87

**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.)								
		6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"
4"	22	498	356	263	200	155	121	96	76	60
	20	597	428	319	244	190	145	111	88	70
	19	688	495	370	280	204	153	118	93	74
	18	770	555	416	294	214	161	124	97	78
	16	945	684	459	323	235	176	136	107	85
5½"	22	713	509	376	286	221	173	136	107	85
	20	859	616	458	350	273	216	172	138	111
	19	994	715	534	410	321	256	206	167	136
	18	1116	805	603	464	365	292	236	193	158
	16	1379	998	750	581	459	369	301	248	206
6½"	22	910	650	482	366	284	223	176	140	111
	20	1099	789	588	450	352	279	223	180	146
	19	1274	918	687	528	415	331	267	217	178
	18	1435	1036	777	599	472	378	307	251	207
	16	1688	1222	919	711	563	453	369	304	253

**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.

# 2VLI-36/2VLJ-36/2PLVLI-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				
4"	2"	22	8'-7"	9'-11"	10'-2"	29.1	3.19	2.31	2.65
		20	10'-5"	11'-4"	11'-9"	29.4	3.44	2.72	3.07
		19	11'-1"	12'-8"	13'-0"	29.7	3.66	3.10	3.07
		18	11'-5"	13'-9"	13'-5"	30.0	3.85	3.45	3.07
		16	12'-1"	15'-0"	14'-2"	30.7	4.25	4.17	3.07
4½"	2½"	22	8'-3"	9'-6"	9'-9"	33.7	4.44	2.64	2.84
		20	9'-11"	10'-11"	11'-3"	34.0	4.78	3.11	3.55
		19	10'-7"	12'-2"	12'-7"	34.3	5.08	3.55	3.57
		18	11'-0"	13'-3"	13'-0"	34.6	5.35	3.95	3.57
		16	11'-8"	14'-6"	13'-8"	35.3	5.89	4.79	3.57
5¼"	3¼"	22	7'-9"	8'-11"	9'-2"	40.6	6.89	3.16	3.15
		20	9'-4"	10'-3"	10'-7"	40.9	7.40	3.74	3.86
		19	10'-0"	11'-6"	11'-10"	41.2	7.86	4.27	4.26
		18	10'-5"	12'-6"	12'-5"	41.5	8.27	4.76	4.39
		16	11'-2"	13'-11"	13'-1"	42.2	9.09	5.79	4.39

**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.)								
		6'-0"	7'-0"	8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"
4"	22	483	347	259	190	139	104	80	63	50
	20	575	414	293	205	150	112	86	68	54
	19	659	466	312	219	159	120	92	72	58
	18	735	491	329	231	168	126	97	76	61
	16	860	542	363	255	185	139	107	84	67
4½"	22	552	396	295	226	177	140	112	88	70
	20	658	474	355	273	208	156	120	95	76
	19	755	545	409	304	222	166	128	101	80
	18	843	610	456	320	233	175	135	106	85
	16	1029	747	503	353	257	193	149	117	93
5¼"	22	660	474	353	271	211	168	134	108	88
	20	789	569	426	328	258	206	166	136	111
	19	908	656	492	380	300	241	196	156	125
	18	1016	735	553	428	339	271	209	164	131
	16	1244	903	681	529	397	298	229	180	144

**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.

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

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## 2VLI-36/2VLJ-36/2PLVLI-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 <sup>3</sup> /100 ft <sup>2</sup> )	Min. A <sub>s</sub> for T&S (in. <sup>2</sup> )	WWR	(OR)	Bekaert Dramix® Steel Fiber Alternate to WWR (lb/yd <sup>3</sup> )
						4D 65/60BG
<b>Normal Weight Concrete (145 pcf)</b>						
4	2	0.93	0.028	6x6-W1.4xW1.4		23
4½	2½	1.08	0.028	6x6-W1.4xW1.4		18
5	3	1.23	0.028	6x6-W1.4xW1.4		15
5½	3½	1.39	0.032	6x6-W2.1xW2.1		15
6	4	1.54	0.036	6x6-W2.1xW2.1		15
6½	4½	1.70	0.041	6x6-W2.1xW2.1		15
<b>Light Weight Concrete (110 pcf)</b>						
4	2	0.93	0.028	6x6-W1.4xW1.4		33
4½	2½	1.08	0.028	6x6-W1.4xW1.4		25
5	3	1.23	0.028	6x6-W1.4xW1.4		20
5¼	3¼	1.31	0.029	6x6-W2.1xW2.1		20
5½	3½	1.39	0.032	6x6-W2.1xW2.1		20
6¼	4¼	1.62	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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