

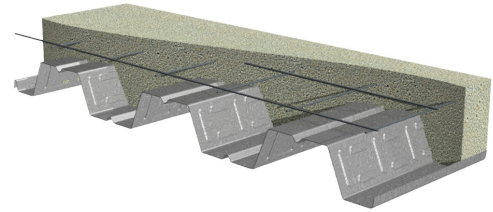
3VLI-36/3VLJ-36/3PLVLI-36 COMPOSITE DECKS

GRADE 50 STEEL

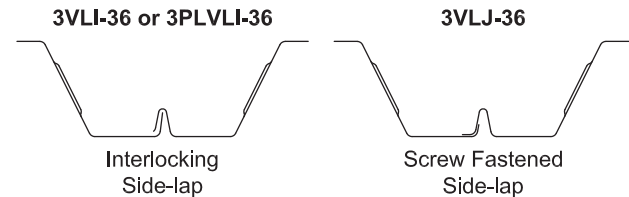
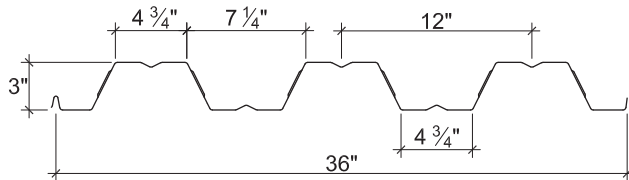
ASD

3VLI COMPOSITE DECKS

- 3VLI-36 Deck used with TSWs or BPs
- 3VLJ-36 Deck used with Side-lap Screws
- 3PLVLI-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 $I_d = (2I_e + I_g)/3$		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	1.7	0.0295	50	0.732	0.737	0.387	0.410	966	1023	1407
20	2.1	0.0358	50	0.919	0.921	0.512	0.539	1277	1345	2485
19	2.4	0.0418	50	1.099	1.101	0.639	0.669	1595	1669	3389
18	2.7	0.0474	50	1.253	1.253	0.761	0.794	1899	1981	4361
16	3.5	0.0598	50	1.580	1.580	1.013	1.013	2528	2528	6126

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"	4"	8"	1 1/2"	2"	3"	4"	4"	8"
22	353	388	446	496	783	910	333	359	402	439	910	1068
20	510	559	640	709	1121	1388	518	556	620	674	1328	1668
19	683	747	853	943	1493	1879	731	783	869	942	1792	2291
18	866	944	1075	1186	1881	2356	963	1028	1138	1231	2279	2900
16	1339	1455	1648	1811	2884	3579	1589	1690	1860	2003	3546	4474

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

3VLI-36/3VLJ-36/3PLVLI-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 M_{no}/Ω (kip-ft/ft)	Shear V_{no}/Ω (kip/ft)
Total	Topping		1	2	3				
5"	2"	22	10'-0"	10'-9"	11'-1"	44.0	7.54	3.47	3.16
		20	11'-9"	12'-6"	12'-11"	44.4	8.04	4.13	3.74
		19	12'-3"	13'-11"	14'-5"	44.7	8.49	4.73	3.74
		18	12'-8"	15'-2"	14'-10"	45.0	8.89	5.28	3.74
		16	13'-4"	16'-8"	15'-8"	45.8	9.72	6.45	3.74
6½"	3½"	22	8'-10"	8'-7"	9'-9"	62.1	15.94	4.57	3.94
		20	10'-5"	11'-1"	11'-5"	62.5	16.93	5.45	4.93
		19	11'-4"	12'-4"	12'-9"	62.8	17.82	6.26	5.31
		18	11'-8"	13'-6"	13'-8"	63.1	18.62	7.00	5.31
		16	12'-4"	15'-2"	14'-6"	63.9	20.27	8.57	5.31
7½"	4½"	22	8'-3"	7'-6"	8'-6"	74.2	24.12	5.36	4.52
		20	9'-8"	10'-4"	10'-8"	74.6	25.57	6.40	5.51
		19	10'-9"	11'-7"	11'-11"	74.9	26.87	7.36	6.33
		18	11'-2"	12'-7"	13'-0"	75.2	28.04	8.24	6.47
		16	11'-10"	14'-3"	13'-11"	76.0	30.47	10.12	6.47

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/Ω , Limited by L/360 (psf) NWC (145 pcf), $f'_c = 3000$ psi

Total Slab Depth	Deck Gage	Span (ft-in.)								
		8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
5"	22	389	298	233	185	148	120	97	79	64
	20	471	363	285	228	184	150	124	102	84
	19	546	422	333	267	214	168	135	109	90
	18	615	476	377	291	224	176	141	115	94
	16	760	582	424	319	245	193	154	125	103
6½"	22	509	389	303	240	191	154	124	100	80
	20	618	475	373	297	240	195	159	131	107
	19	719	555	437	350	284	233	192	159	132
	18	811	627	496	399	325	268	222	185	155
	16	1007	782	622	502	412	341	286	240	204
7½"	22	595	455	354	280	223	179	144	116	93
	20	725	557	437	348	281	228	186	153	125
	19	845	651	513	411	333	273	225	186	155
	18	954	738	584	469	382	314	261	217	182
	16	1189	923	733	593	486	403	337	283	240

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.

3VLI-36/3VLJ-36/3PLVLI-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				
5"	2"	22	11'-1"	11'-10"	12'-3"	33.8	5.75	3.33	2.69
		20	12'-7"	13'-8"	14'-2"	34.2	6.19	3.94	3.68
		19	13'-1"	15'-3"	15'-5"	34.5	6.59	4.51	3.74
		18	13'-6"	16'-8"	15'-10"	34.8	6.94	5.02	3.74
		16	14'-3"	17'-9"	16'-9"	35.6	7.66	6.11	3.74
5½"	2½"	22	10'-7"	11'-4"	11'-9"	38.4	7.51	3.66	2.88
		20	12'-2"	13'-2"	13'-7"	38.8	8.07	4.34	3.86
		19	12'-9"	14'-8"	14'-11"	39.1	8.57	4.97	4.24
		18	13'-2"	16'-0"	15'-5"	39.4	9.02	5.54	4.24
		16	13'-10"	17'-3"	16'-3"	40.2	9.93	6.74	4.24
6¼"	¾"	22	10'-0"	10'-9"	11'-1"	45.2	10.78	4.21	3.17
		20	11'-9"	12'-6"	12'-11"	45.6	11.57	5.00	4.16
		19	12'-3"	13'-11"	14'-4"	45.9	12.27	5.72	4.99
		18	12'-8"	15'-2"	14'-10"	46.2	12.89	6.38	5.04
		16	13'-4"	16'-7"	15'-8"	47.0	14.16	7.77	5.04

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/Ω , Limited by L/360 (psf) LWC (110 pcf), $f'_c = 3000$ psi

Total Slab Depth	Deck Gage	Span (ft-in.)								
		8'-0"	9'-0"	10'-0"	11'-0"	12'-0"	13'-0"	14'-0"	15'-0"	16'-0"
5"	22	381	294	232	186	145	114	91	74	61
	20	458	355	270	203	156	123	98	80	66
	19	528	395	287	216	166	131	104	85	70
	18	592	416	303	227	175	138	110	89	74
	16	654	459	334	251	193	152	122	99	81
5½"	22	419	323	254	203	165	135	111	91	76
	20	504	390	308	248	202	160	128	104	86
	19	581	451	358	281	216	170	136	111	91
	18	652	507	394	296	228	179	143	116	96
	16	801	595	433	325	251	197	158	128	105
6¼"	22	481	370	291	233	188	154	126	104	86
	20	579	448	354	284	232	190	158	132	110
	19	669	518	411	332	271	224	187	157	130
	18	750	583	463	375	308	255	205	166	137
	16	924	720	574	464	358	281	225	183	151

Notes:

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

3VLI-36/3VLJ-36/3PLVLI-36 COMPOSITE DECK-SLABS

ASD

3VLI-36/3VLJ-36/3PLVLI-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)					
5	2	1.08	0.028	6x6-W1.4xW1.4	27
5½	2½	1.23	0.028	6x6-W1.4xW1.4	22
6	3	1.39	0.028	6x6-W1.4xW1.4	19
6½	3½	1.54	0.032	6x6-W2.1xW2.1	18
7	4	1.70	0.036	6x6-W2.1xW2.1	18
7½	4½	1.85	0.041	6x6-W2.1xW2.1	18
Light Weight Concrete (110 pcf)					
5	2	1.08	0.028	6x6-W1.4xW1.4	42
5½	2½	1.23	0.028	6x6-W1.4xW1.4	30
6	3	1.39	0.028	6x6-W1.4xW1.4	23
6¼	3¼	1.47	0.029	6x6-W2.1xW2.1	22
6½	3½	1.54	0.032	6x6-W2.1xW2.1	22
7¼	4¼	1.77	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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