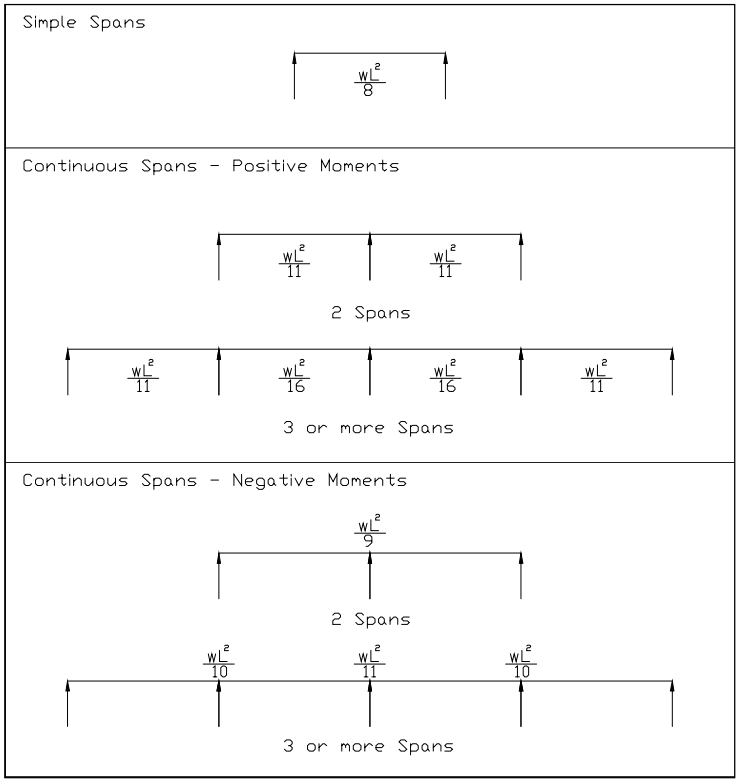
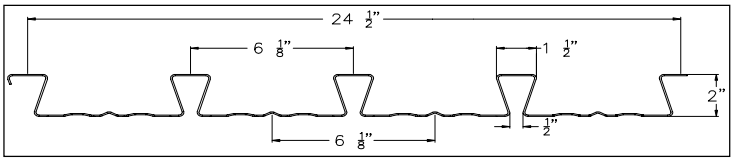
Metal Dek Group™

a unit of CSi

CONTINUOUS SLAB DESIGN Using 18 GA VERSA-DEK® XLS
Engineering Tables For Composite Floor Design

Moment Coefficients





Section Properties of 18 Gauge Versa-Dek

Thickness (in.)	0.0474
Weight (psf)	3.58
As (in^2 / ft)	1.0523
Fy (psi)	40,000
Ip (in.^4 / ft)	0.6544
In (in.^4 / ft)	0.6441
Sp (in.^3 / ft)	0.4830
Sn (in.^3 / ft)	0.4843

Note: The section properties are based on AISI's Cold-Formed Steel Design Manual, 2001 Ed.

Maximun Unshored Construction Clear Span

Slab Depth (in.)	Single Span	Double Span	Triple Span
4	8'-6"	10'-7"	11'-0"
4 1/4	8'-4"	10'-5"	10'-9"
4 1/2	8'-1"	10'-2"	10'-6"
4 3/4	7'-11"	10'-0"	10'-4"
5	7'-9"	9'-9"	10'-1"
5 1/4	7'-7"	9'-7"	9'-11"
5 1/2	7'-6"	9'-5"	9'-9"
5 3/4	7'-5"	9'-3"	9'-7"
6	7'-4"	9'-1"	9'-5"
6 1/4	7'-3"	8'-11"	9'-3"
6 1/2	7'-2"	8'-10"	9'-1"
6 3/4	7'-1"	8'-8"	9'-0"
7	7'-0"	8'-7"	8'-10"
7 1/4	6'-11"	8'-5"	8'-9"
7 1/2	6'-10"	8'-4"	8'-7"
7 3/4	6'-9"	8'-2"	8'-6"
8	6'-8"	8'-1"	8'-4"
8 1/4	6'-7"	8'-0"	8'-3"

Note: The determination of the time for removal of supporting shores may be controlled by the presence of construction loads or deflection limitations. Loaded shoring equipment shall not be released or removed, including bracing, until the approval of a qualified engineer has been received. The removal of shores may have to occur after the concrete has reached its full compressive strength (f'c) and stiffness (Ec). Premature releasing may cause failure.

Maximum Spans For 18 Gauge Versa-Dek® XLS.

Total Slab Depth (Inches)	Simple Span			Continuous Span					
	LL = 40 psf DL = 25 psf	LL = 50 psf DL = 25 psf	LL = 100 psf DL = 5 psf	LL = 40 psf DL = 25 psf		LL = 50 psf DL = 25 psf		LL = 100 psf DL = 5 psf	
				Interior	Exterior	Interior	Exterior	Interior	Exterior
4	14'-5" *	13'-11" *	12'-11" *	20'-5"	20'-5"	20'-5"	20'-5"	18'-5"	18'-5"
4 3/4	16'-5" *	15'-11" *	14'-10" *	23'-0"	23'-0"	23'-0"	23'-0"	21'-6"	21'-6"
5 1/4	17'-8" *	17'-3" *	16'-1" *	24'-7"	24'-7"	24'-7"	24'-7"	23'-7"	22'-11"
5 1/2	18'-4" *	17'-10" *	16'-8" *	25'-5"	25'-5"	25'-5"	25'-5"	24'-7"	23'-6"
6	19'-7"	19'-1"	17'-10" *	26'-11"	26'-11"	26'-11"	26'-11"	26'-7"	24'-7"
6 3/4	21'-4"	20'-10"	19'-7"	28'-0"	28'-0"	28'-0"	28'-0"	28'-0"	26'-0"
7	21'-11"	21'-5"	20'-2"	28'-0"	28'-0"	28'-0"	28'-0"	28'-0"	27'-0"
7 1/2	23'-1"	22'-7"	21'-3"	28'-0"	28'-0"	28'-0"	28'-0"	28'-0"	28'-0"
8	24'-2"	23'-8"	22'-4"	28'-0"	28'-0"	28'-0"	28'-0"	28'-0"	28'-0"

Spans marked with an asterisk (*) require one (1) line of shoring. Shaded areas represent spans that require three (3) lines of shoring.
All other spans require two (2) lines of shoring.

General Notes:

1. All designs are based on the use of regular weight concrete (145 pcf), with a compressive strength of 4000 psi.
2. No reinforcing steel other than Versa-Dek® XLS is required for simple spans. Reinforcing steel is required over interior supports for continuous spans. See negative reinforcing table for suggested rebar sizes. Table assumes 3/4" concrete cover for reinforcing steel over supports. Reinforcing steel other than Versa-Dek® XLS shall have a minimum yield strength of 60 ksi.
3. Spans should be approximately equal with the larger of the two adjacent spans not greater than the shorter by more than 20% . See ACI 318-99/8.3.3
4. Reinforcing over supports should extend a minimum of 0.3 X L on both sides of the supports. See Chapter 12 (ACI 318-99) Development and Splices of Reinforcement.
5. Maximum allowable deflection under the total superimposed load (live + dead) is limited to L/360 in all cases.
6. Temperature and shrinkage reinforcement, consisting of welded wire fabric , shall have a minimum area of 0.00075 X Ac but not less than the area of 6X6-W1.4XW1.4.
7. The live loads and unshored construction clear spans are based on the Steel Deck Institute's Composite Deck Design Handbook, March 1997 and Design Manual, Pub. No. 30 and ASCE's Standard for the Structural Design of Composite Slabs.

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