

Design Guide

Versa-Dek® Composite

LONG-SPAN COMPOSITE SYSTEMS



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Building a better steel experience.



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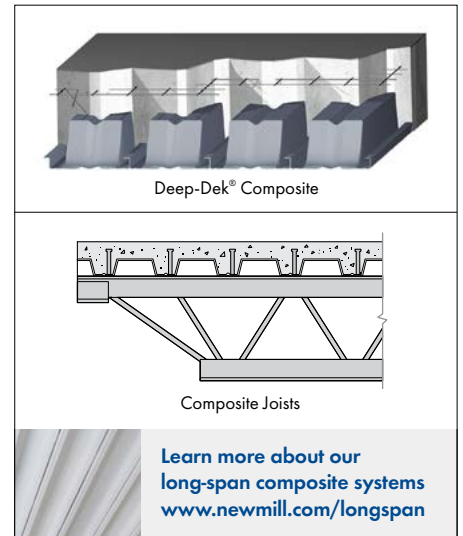
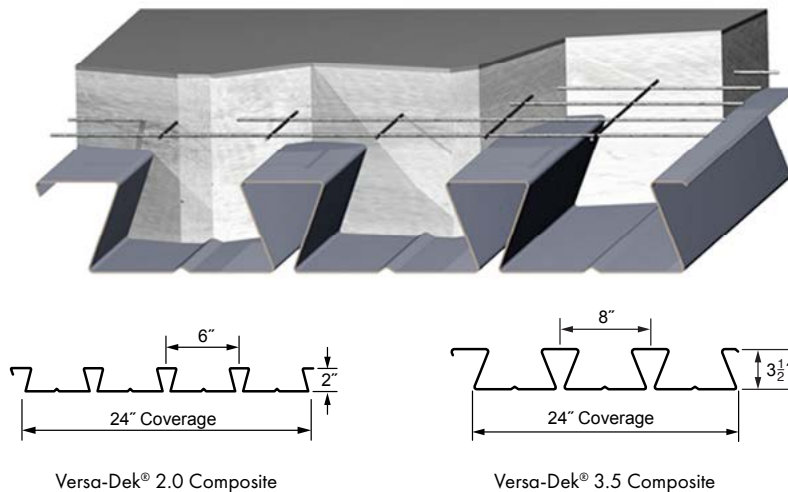
System Overview

Tables



Introduction

Only New Millennium offers you the most complete range of long-span composite systems engineered to optimize the cost and performance of multi-story building projects. System selection should be determined by span, load, fire, vibration and sound control requirements. Additional considerations include aesthetics and overall desired floor depth.



LOW PROFILE, LONG SPAN

Versa-Dek® Composite is a versatile, long-span composite floor system. It's 'dovetail' profiling keys to concrete to create a superior composite bond. Because more concrete is placed in the bottom of the deck, the total slab thickness needed to achieve fire ratings is the shallowest available.

Versa-Dek® Composite is ideal in multi-story residences demanding floor systems that are quiet, stable and cost-effective. Its head-of-wall fire rating eliminates the cost of placing expensive fire sealants in the deck flutes when set over CFS bearing walls. Additionally, Versa-Dek® Composite uniformly loads the top of cold-formed steel walls so distribution headers are not needed.

Versa-Dek® Composite combines cost-savings and competitive advantages applicable to any building market segment. These advantages include space optimization, acoustical control, MEP integration, and underside ceiling aesthetics when left exposed. An acoustical option brings the added advantage of sound dampening, without the addition of a drop ceiling.

Versa-Dek® Composite is formed from steel conforming to ASTM material specifications and corrosion protected with galvanized (zinc) coatings.



Versa-Dek® Composite is versatile and efficient, providing many options for installation, integration, and finish.



Advantages

SPACE OPTIMIZATION

- Low-profile slabs as thin as 4-inches maximize ceiling height and reduce building height
- Spans up to 28 ft. create open interior spaces
- Relocatable Versa-Wedge™ hangers suspend lighting and MEP components

AESTHETICS AND PERFORMANCE

- Sleek, lineal plank ceiling aesthetic
- Galvanized coating weight and factory-applied coating options
- High-performance STC and IIC sound ratings
- Up to 3-hr. fire endurance ratings
- UL approved 2-hr. Head-of-Wall assembly
- Durable and dimensionally stable

EFFICIENT CONSTRUCTION

- Integrates with any beam or wall construction
- Noncombustible – lower insurance premiums
- Not susceptible to termites, mold or dry-rot
- Traditional means and methods
- No specialized equipment or training
- Allows core drilling flexibility

APPROVALS AND STANDARDS

- ICC ES Evaluation Reports ESR-2635 and ESR-3477
- Compliant with International Building Code (IBC)
- Designed in accordance with AISI S100 and ANSI/SDI C



Applications

Managing floor height, fire and sound control, Versa-Dek® Composite is a low-profile floor solution suitable for any building market...from multi-story residences to healthcare

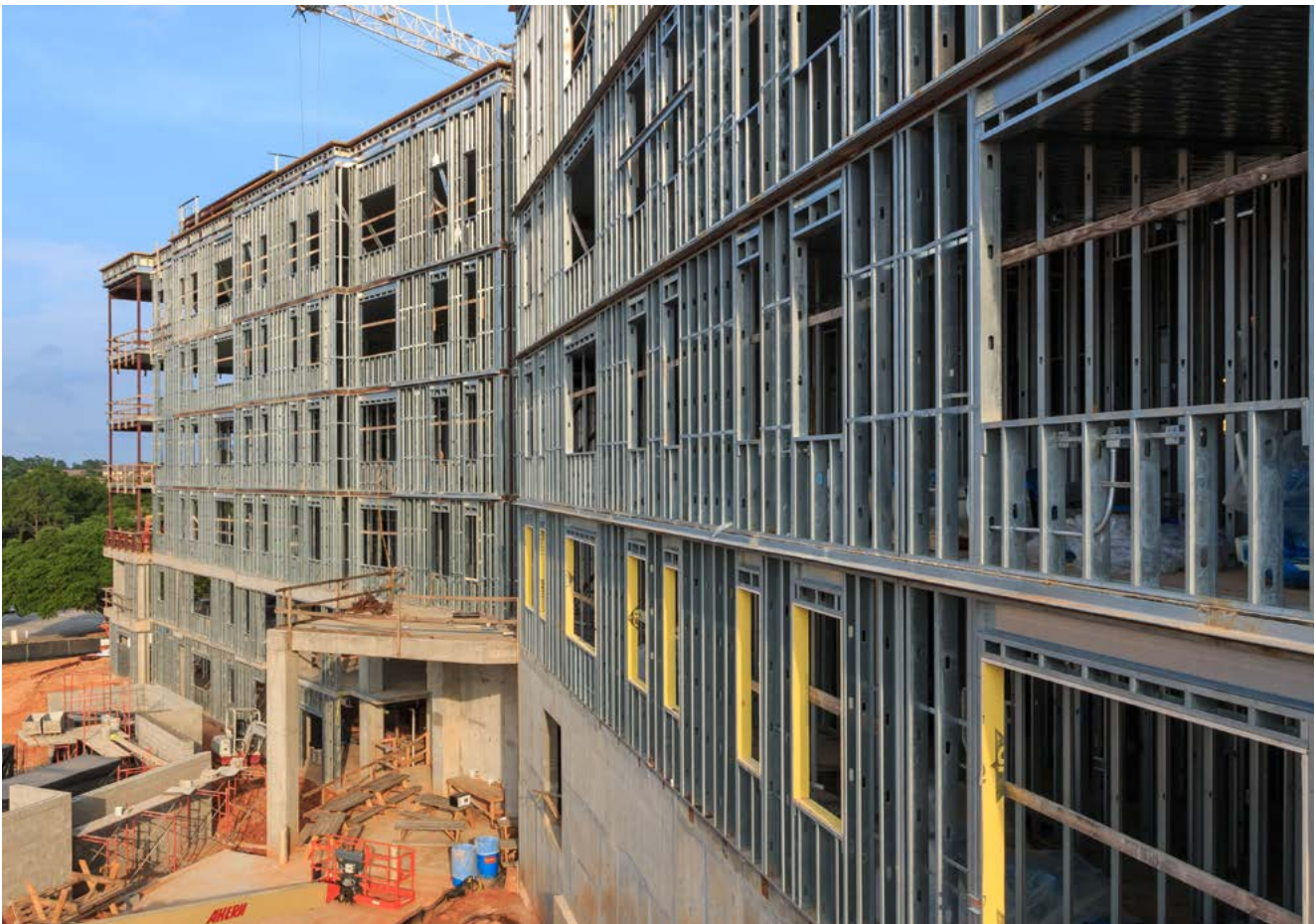
facilities to academics and parking garages. It integrates with any structural system. Engineered floor-openings, sleeves and hanging devices streamline MEP installations.



Elan Heights Luxury Apartments | Houston, TX

Low-profile Versa-Dek® Composite maximized living spaces with open spans. Reduced overall building height converts to cost savings for vertical building components (e.g. facades, MEP risers, etc.)





Sam Houston State University Piney Woods Residence Hall | Huntsville, TX

The unique composite bond between 'dovetail' shaped Versa-Dek® Composite and concrete helped create long spans between the exterior and interior corridor walls.

SYSTEM OVERVIEW



CityPlace in Springwoods Village | Spring, TX

This large residential development featured Versa-Dek® Composite in combination with prefabricated CFS bearing walls and upset steel beams. Integrated concrete balconies tie to the composite slabs.



Home2 Suites | Houston, TX

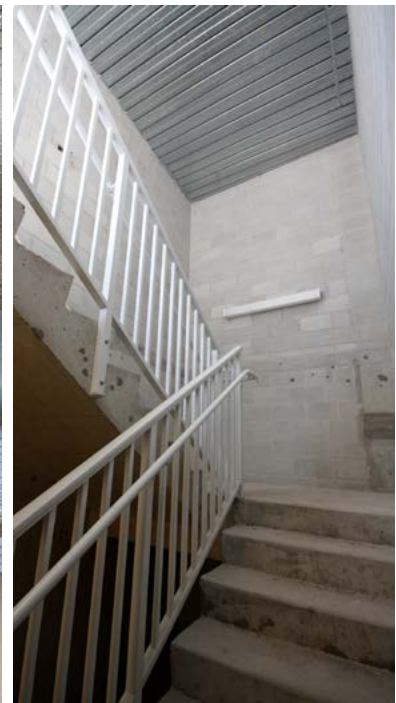
Versa-Dek® Composite provides the shallowest unprotected fire ratings available. It also reduces story height while maximizing ceiling height and providing flexible MEP integration.





1011 M Street | Washington DC

Building in urban settings presents builders with unique challenges. Here, pre-fabricated CFS bearing walls combined with Versa-Dek® Composite to produce a non-combustible frame built with 'just-in-time' deliveries.



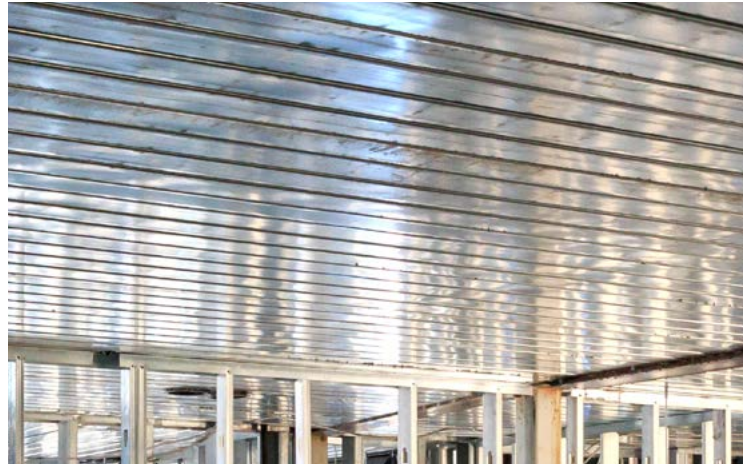
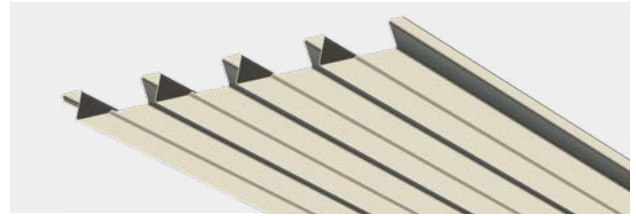
Seaport Channelside Parking Garage | Tampa, FL

This parking garage is a perfect example of the versatility of Versa-Dek® Composite: long spans, concrete beam integration, sloped ramping and durability with enhanced galvanized (zinc) coatings.

Form and Function

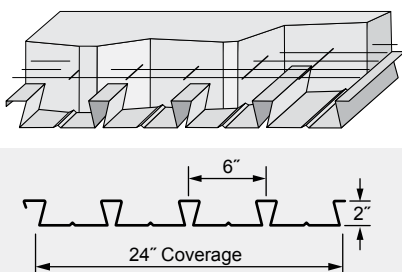
MAXIMIZED AESTHETIC

Reduce costs by eliminating suspended ceilings. Exposed, the dovetail design provides a clean, lineal-plank aesthetic for office, retail, and learning environments. Versa-Dek® Composite is non-combustible and is fire-resistance rated up to three hours without protective coverings such as gypsum and spray-on materials.

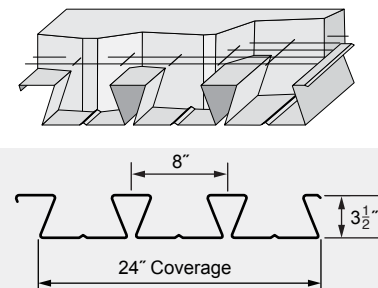


Left architecturally exposed, Versa-Dek® provides a sleek lineal-plank aesthetic that can activate any space.

Versa-Dek® 2.0 Composite



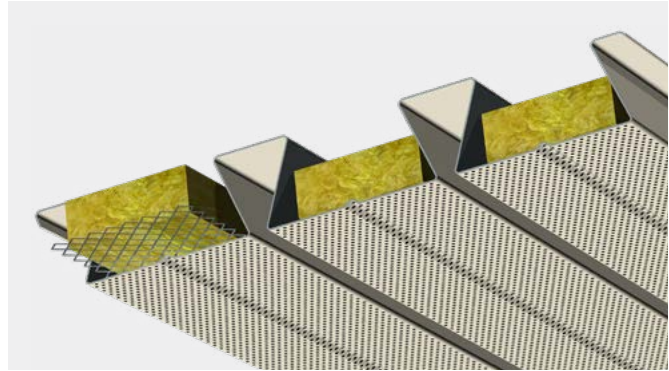
Versa-Dek® 3.5 Composite



ACOUSTICAL OPTIONS

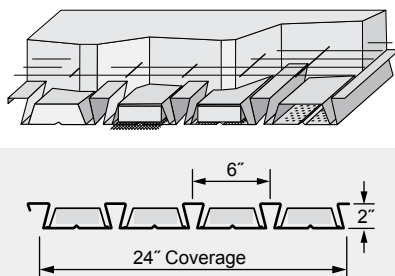
Acoustical treatments, consisting of sound insulation batts and perforated deck, combined with the deck's shape contribute to noise control. Ambient noise is absorbed in the insulation and dissipates in the deck cavity.

A continuous channel caps and shields the insulation and perforations from wet concrete. Unsightly side-lap screw tips are hidden in the dovetail's shadow. The exposed deck surfaces can be factory primed and readied for field applied finish paint.

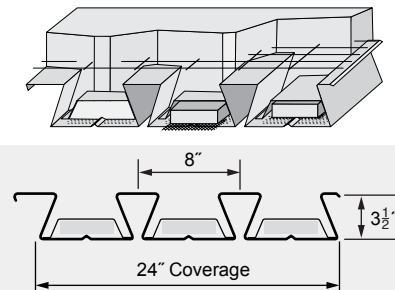


Versa-Dek® 3.5 Composite Acoustical was designed into this 2-story, 12-classroom facility. Incorporating a modular 'kit' delivery method, multi-functioning deck contributes to aesthetics, sound control and light reflectivity.

Versa-Dek® 2.0 Composite Acoustical



Versa-Dek® 3.5 Composite Acoustical



CANTILEVERED CONCRETE BALCONIES



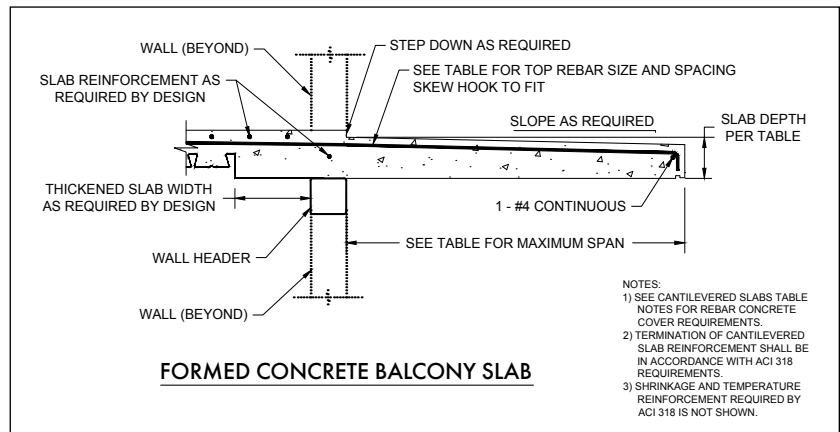
Cantilevered formed-in-place balconies can be integrated into buildings with Versa-Dek® Composite slabs.

Cantilevered Slab Reinforcement Table

Slab Depth (in.)	Maximum Span (ft)	Reinforcing Steel Required Over Supports	
		LL=60 psf SDL=5 psf (102 psf LRFD factored load)	LL=100 psf SDL=5 psf (166 psf LRFD factored load)
4.5	3'-9"	#4@11	#4@11
5	4'-2"	#4@11	#4@11
5.5	4'-7"	#4@11	#4@11
6	5'-0"	#4@11	#4@11
6.5	5'-5"	#4@11	#4@11
7	5'-10"	#4@11	#4@11
7.5	6'-3"	#4@10	#4@10

NOTES:

1. Slab depth shown in the table is at the point of maximum moment.
2. Table is based on $f'_c=4000$ psi concrete strength.
3. Table is based on 1-1/2" concrete cover for reinforcing bars over supports.
4. Maximum span length is governed by ACI 318 span-to-depth requirements for cantilevered solid one-way slabs, $L/h \geq 10$.
5. The rebar size and spacing are governed either by ACI 318 requirements on rebar spacing for crack control or by the ACI 318 requirements on minimum amount of reinforcement in flexural members.
6. Termination of cantilevered slab reinforcement shall be in accordance with ACI 318.
7. Shrinkage and temperature reinforcement required by ACI 318 is not shown in section cut.

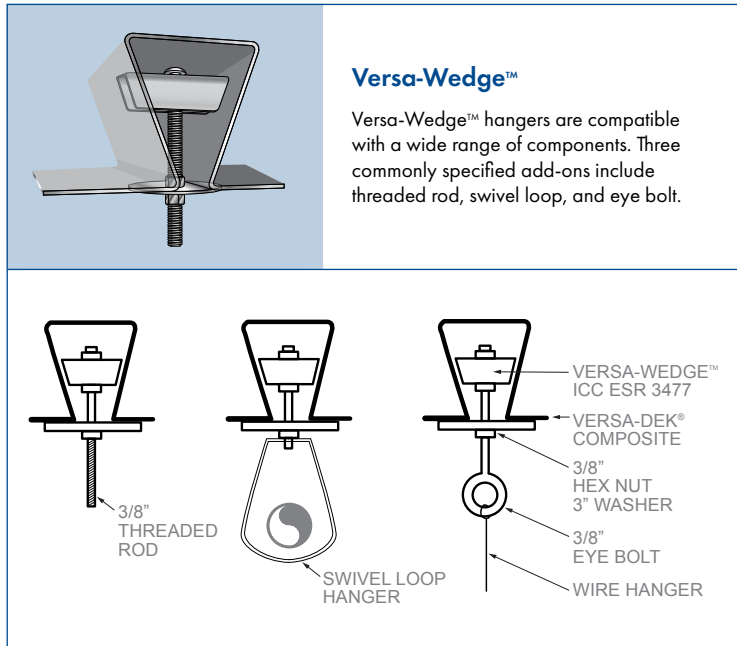


VERSA-WEDGE™ HANGER SYSTEM



Versa-Dek® Composite's dovetail profile enables placement of the Versa-Wedge™ hanger system. It's an efficient, clean and economical way to suspend MEP services below the deck. The relocatable hangers are perfect for suspending signs and banners over multi-purpose spaces.

- Quick to install, adjust and relocate on site
- Easy to remove
- Reliably suspends ceilings, light fixtures, MEP and more
- Options for up to 1,000 pound load capacity



Allowable Tension Loads for Versa-Wedge™ Hangers Installed in Ribs of Versa-Dek® Composite

Versa-Dek® Steel Deck Panels			Minimum Concrete Requirements ¹		Versa-Wedge™ Hanger		
Type	Gage	Maximum Panel Span (feet-inch)	Compressive Strength (psi)	Slab Thickness ² (inch)	Allowable Tension Load (lbf)	Deflection (inch)	Hanger Type ³
Versa-Dek® 2.0 Composite and Composite Acoustical	20	12'-4"	3500	4	314	0.04	VWT-20-250 VWT-20ES-250
	18	14'-9"			308	0.01	
	16	14'-9"			308	0.01	
	20	15'-4"	3500	6	323	0.01	VWT-20-375 VWT-20ES-375
	18	18'-5"			243	0.01	
	16	18'-5"			243	0.01	
Versa-Dek® 3.5 Composite and Composite Acoustical	20	18'-0"	3500	5.5	691	0.01	VWT-35-375 VWT-35-500
	18	18'-0"			691	0.01	
	16	19'-7"			934	0.01	
	20	20'-9"	3500	7.25	600	0.01	
	18	20'-9"			600	0.01	
	16	23'-9"			1069	0.01	

Refer to ICC-ES ESR-3477, UL File EX16155 and UL File EX16155 for specific hanger application and design requirements, limitations, and load capacities. Proper loading sequence, including any seismic design considerations, shall be determined by the Structural Engineer of Record. Allowable tension loads, in consideration of deck span and gage and slab properties, may be less than those shown in table. Materials other than the wedge component of the Versa-Wedge™ hanging system are not supplied by New Millennium Building Systems.

¹ Concrete can be either lightweight (110 pcf) or normal-weight (145 pcf) complying with IBC Chapter 19.

² Concrete slab thickness is measured from the bottom of steel deck panel to top of concrete.

³ -250, -375 and -500 designations denote 1/4", 3/8" and 1/2" rod diameters respectively.

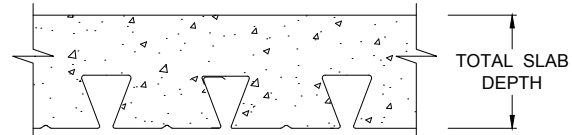
Fire and Sound Performance

Versa-Dek® Composite is UL fire rated for 1 to 3 hours, providing the thinnest slab depth requirement of any composite floor deck assembly.

VERSA-DEK® COMPOSITE FLOOR SLABS

Versa-Dek® 2.0 Composite		
Restrained Assembly Rating	Concrete Type	Total Slab Depth
1	NW	4"
1	LW	4"
1-1/2	NW	4-3/4"
2	NW	5-1/4"
2	SLW	5"
2	LW	4-1/2"
3	NW	6-3/4"
3	LW	5-1/4"
3	SLW	6"

UL Designs – D904, D917, D928, D961

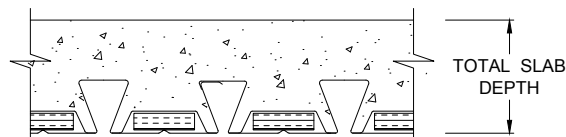


Versa-Dek® 3.5 LS Composite		
Restrained Assembly Rating	Concrete Type	Total Slab Depth
1-1/2	NW	5-1/2"
1-1/2	LW	5-1/2"
2	NW	5-3/4"
2	LW	5-1/2"
3	NW	7-1/4"
3	LW	5-3/4"

UL Designs – D947, D964

Concrete Type and Density

NW–Normal-Weight 147pcf SLW–Semi-Lightweight 130 pcf LW–Lightweight 112 pcf



VERSA-DEK® COMPOSITE ACOUSTICAL FLOOR SLABS

Versa-Dek® 2.0 Composite Acoustical		
Restrained Assembly Rating	Concrete Type	Total Slab Depth
1	NW	5-1/2"
1	LW	4-5/8"
1-1/2	NW	6"
1-1/2	LW	5"
2	NW	6-1/2"
2	LW	5-1/4"
3	NW	7-1/4"
3	LW	6-7/16"

UL Design – D929

Versa-Dek® 3.5 LS Composite Acoustical		
Restrained Assembly Rating	Concrete Type	Total Slab Depth
1-1/2	NW	6-3/4"
1-1/2	LW	5-3/4"
2	NW	7-1/4"
2	LW	6"
3	NW	8"
3	LW	6-15/16"

UL Designs – D947, D964

VERSA-DEK® COMPOSITE HEAD-OF-WALL ASSEMBLIES

Our industry exclusive UL tested 'Head-of-Wall' design utilizes staggered deck flute installations to create continuous fire, smoke and sound breaks. Doing this eliminates placing costly (and messy) fire sealants in the open deck flutes.

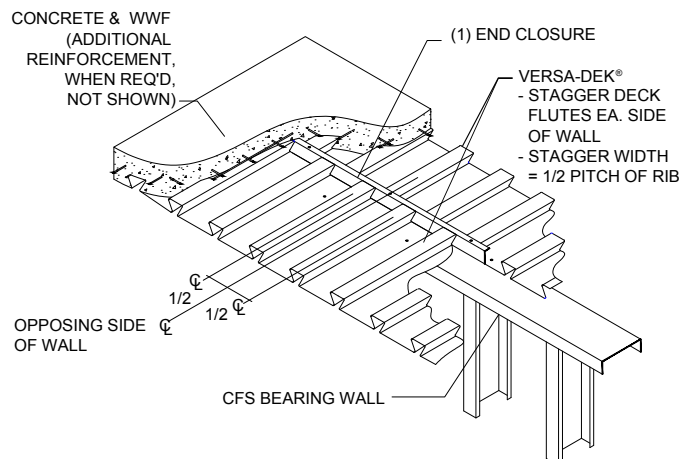
Versa-Dek® 2.0 Composite		
Restrained Assembly Rating	Concrete Type	Total Slab Depth
1 & 2	NW or LW	4-1/2"

UL Designs – HW-S-0062, HW-S-0127

Versa-Dek® 3.5 LS Composite		
Restrained Assembly Rating	Concrete Type	Total Slab Depth
1 & 2	NW or LW	5-1/2"

UL Designs – HW-S-0127

HEAD-OF-WALL FIRE-SMOKE-SOUND BREAK



ESTIMATED STC & IIC RATINGS OF VERSA-DEK® COMPOSITE FLOOR ASSEMBLIES

STC	IIC		
+0	+40		ADD 44 oz. WOVEN CARPET & 1/8" FOAM RUBBER PAD
+0	+25		ADD 20 oz. COMMERCIAL CARPET (GLUE DOWN)
+0	+21		ADD LAMINATE or HARD WOOD FLOORING OVER 6mm RUBBER SOUND MATT
+2	+1		ADD PER INCH THICKNESS CONCRETE TOPPING
51	24		BASE SYSTEM: 3-1/2" NWT CONCRETE OVER 2" VERSA-DEK COMPOSITE TOTAL DEPTH: 5-3/4"
			BASE SYSTEM: 2-1/2" NWT CONCRETE OVER 3-1/2" VERSA-DEK COMPOSITE TOTAL DEPTH: 5-3/4"
+1	+4		GYPSUM BOARD CEILING NOT RESILIENTLY SUSPENDED
+10 to 12	+8		GYPSUM BOARD CEILING RESILIENTLY SUSPENDED
+13 to 15	+13		ADD MIN. 2" THICK ACOUSTICAL INSULATION BATTS TO ASSEMBLY ABOVE

Notes:

1. Consult component manufacturers for information regarding sizes, types, spacings and/or installation requirements for all collateral flooring and ceiling materials.
2. STC values for base systems (bare slabs) were calculated as $STC=0.1304^*W+43.48$ in accordance with Section 9.2 of PCI Design Handbook, 6th Edition.
3. IIC values for base systems (bare slabs) were calculated as $IIC=(19.4+0.5^*h)+(0.02+0.0036^*h)^*W$. The formula was derived from the data published in Section 9.2 of PCI Design Handbook, 6th Edition.
4. Reference Architectural Acoustics handbook by David Egan for acoustical enhancements provided by floors and ceiling materials.

ACOUSTICAL PERFORMANCE

Versa-Dek® Composite serves as the base system of sound-absorption rated floor assemblies. Collateral flooring and ceiling treatments enhance the ratings.

STC refers to Sound Transmission Class. Generally, the STC rating reflects how well the floor assembly reduces airborne noise (energy loss) between spaces.

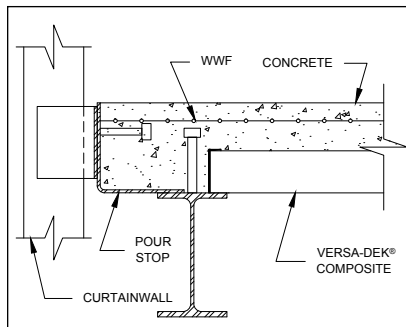
IIC refers to Impact Insulation Class. IIC rating measures the floor assembly's ability to isolate impact footfall noise between spaces.

Flooring and ceiling componentry type, arrangement and installation will influence acoustical performance. Decoupling, damping and flanking techniques should also be considered in noise reduction strategies.

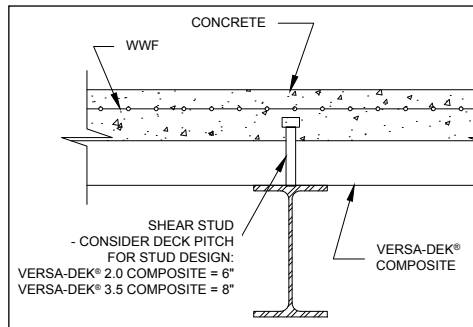


System Integration – Construction Details

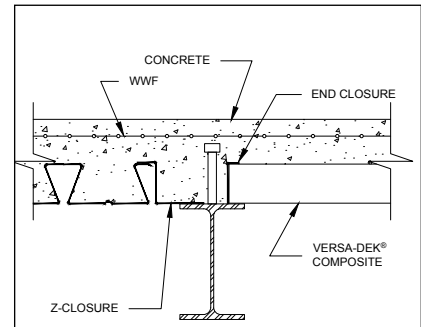
STEEL BEAM



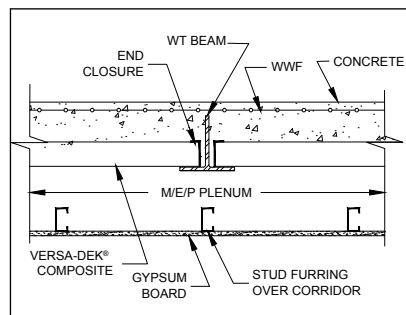
EXTERIOR BEAM



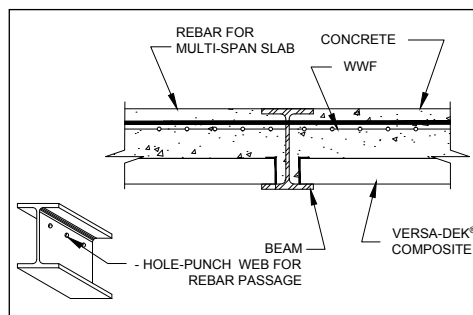
INTERIOR BEAM



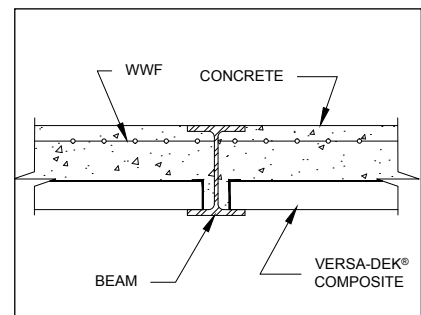
INTERIOR BEAM @ CHANGE
IN DECK DIRECTION



CORRIDOR HEADER BEAM



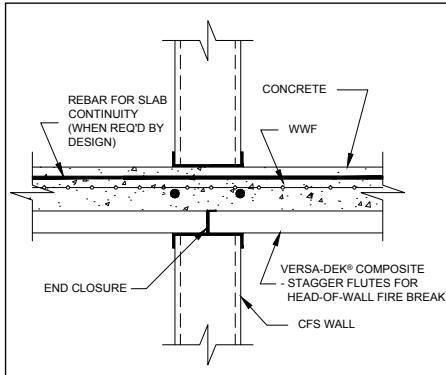
UPSET BEAM @ MULTI-SPAN SLAB



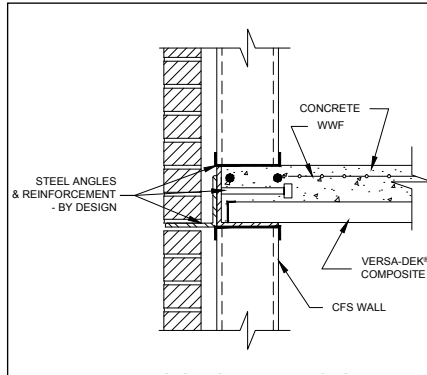
UPSET BEAM @ SINGLE-SPAN SLAB

System Integration – Construction Details

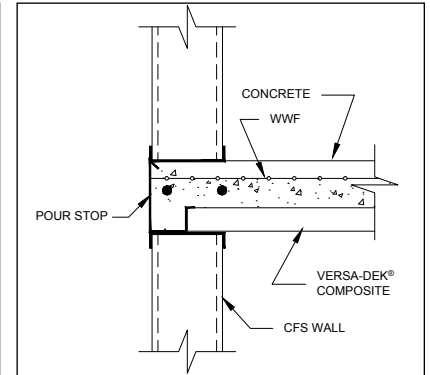
BEARING WALL



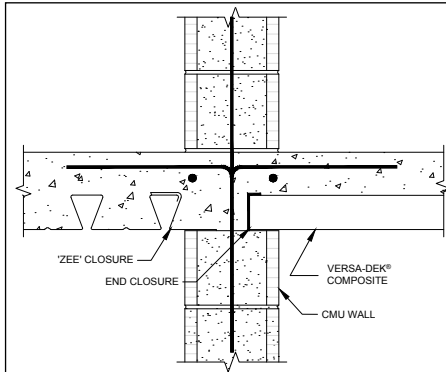
INTERIOR CFS BEARING WALL



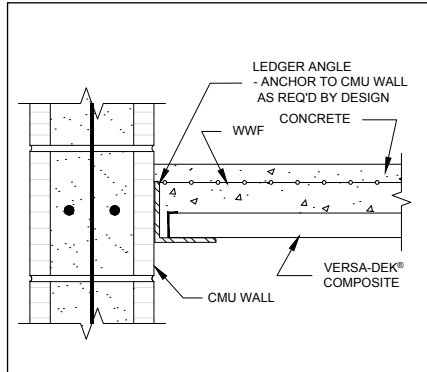
EXT. CFS BRG WALL W/BRICK SHELF



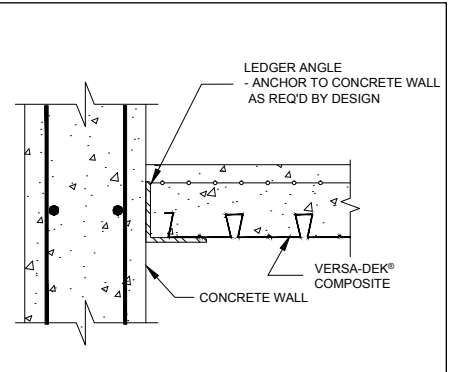
EXTERIOR CFS BRG WALL



INTERIOR @ CHANGE IN DECK DIRECTION

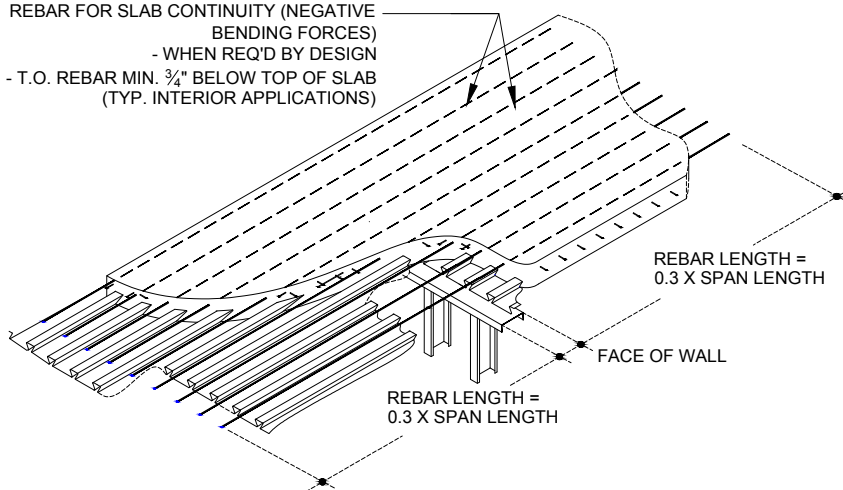


FACE OF CMU & CONCRETE CORE WALLS



SLAB REINFORCEMENT

REBAR FOR SLAB CONTINUITY (NEGATIVE BENDING FORCES) - WHEN REQ'D BY DESIGN
- T.O. REBAR MIN. 3/4" BELOW TOP OF SLAB (TYP. INTERIOR APPLICATIONS)



REINFORCEMENT FOR SLAB CONTINUITY



CONCRETE CONSTRUCTION JOINT

Contact New Millennium for suggested details of slab reinforcement surrounding floor openings and penetrations along with other project specific design needs.



Installation

Versa-Dek® Composite installation employs traditional means, methods and workforce. Deck is delivered bundled in cut-to-length pieces corresponding to deck-placement drawings prepared by New Millennium.

Depending on span, construction loading needs, and deck type, temporary shoring is placed between supports prior to installation. Versa-Dek® 2.0 Composite utilized in 2-hr. rated slab depths, is shored at intervals ranging between 7.5-ft. and 9-ft. on center depending on deck and concrete properties. Versa-Dek® 3.5 Composite can be designed unshored up to 16-ft. utilizing similarly rated slabs.

When shoring is required by design, the contractor shall employ the services of a Shoring Engineer to evaluate the shoring system selection and installation sequencing.

Upon placement and alignment, the deck is attached to the supports with welds, screws or powder actuated fasteners depending on support type and need. Deck side laps are then periodically screwed.

When placed over CFS bearing walls, the deck is typically installed in single-span lengths and the fluted ends are staggered to each side of the wall. Doing so creates a UL approved 'head-of-wall' assembly that blocks fire, smoke and sound between living compartments.

Prior to placing concrete, slab-reinforcing steel is set over the deck. Welded wire mesh is utilized to control temperature-shrinkage. Micro-synthetic fibers may also be considered. Multi-span slabs, generally limited to long-span and/or high-load designs, are tied with rebar placed over supports. Rebar is also placed at slab openings, over wall distribution headers and boundary conditions depending on need.

The concrete topping is monolithically cast and finished using common equipment and techniques. The topping, utilizing either light- or normal-weight concrete finishes flat without camber. Minor slab deflection, however, is common upon release of shoring. Total slab depth is influenced by structural and fire-separation need.

Integrated slab-beams can be used to replace bearing walls and frame large floor openings. The plywood formed beams typically match the depth of the composite slab beyond the beam. Dropped slab beams may also be utilized in long span applications. Upset, low profile steel beams may also be considered.

BUILD ASSISTANCE

New Millennium Building Systems assists builders through the bid and installation phases.

Material estimates and pricing are offered at any stage of the project.

In addition to the Versa-Dek® panel materials, New Millennium offers accessories to complete the installation. They include gage steel pour stop at boundary conditions, end- and side-closures and screw fasteners.

Our estimates do not include accessories to form MEP openings and holes. Additionally, concrete, slab reinforcement and shoring materials are the responsibility of others.

Upon award, we can provide necessary approval and field-use deck placement drawings.

Project management services help match manufacturing and delivery schedules with customer needs. Field seminars to familiarize installers with specified floor system are also available upon request.



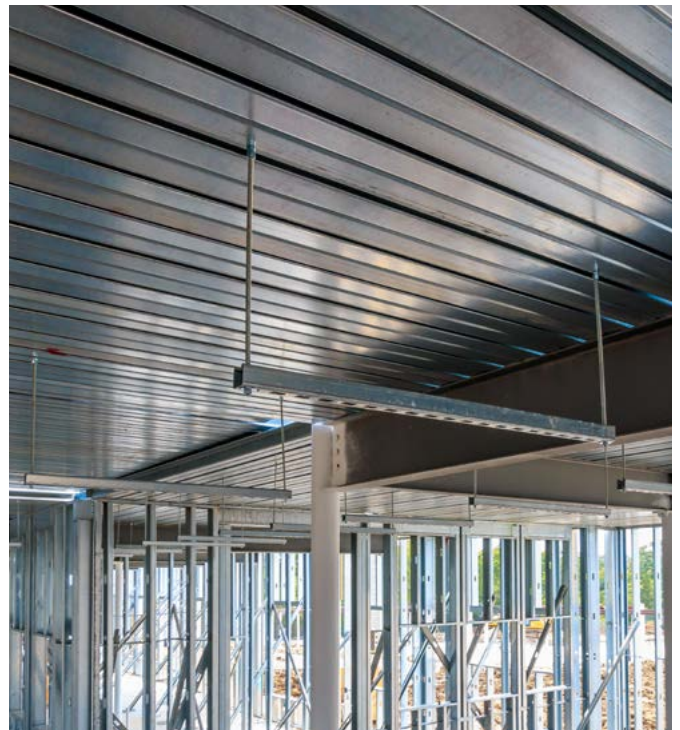
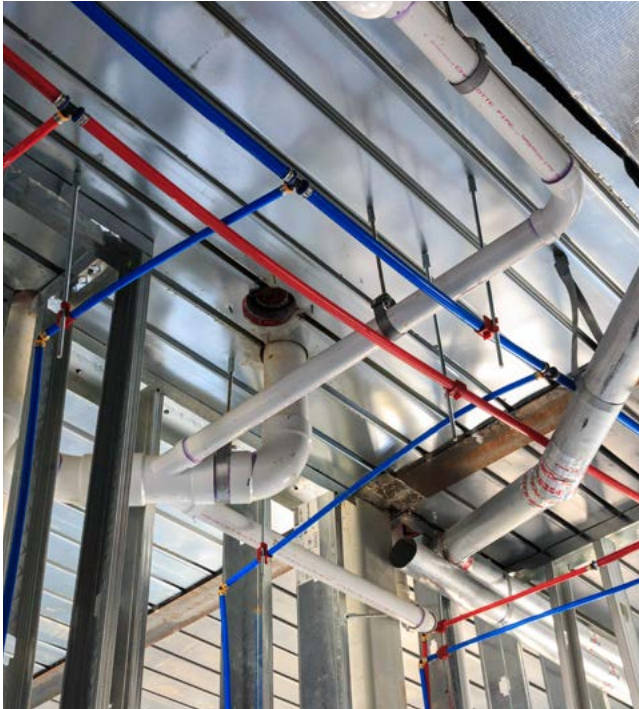
Deck installation, slab reinforcement placement and concrete casting incorporate traditional equipment and methods.

SYSTEM OVERVIEW

MEP INTEGRATION

Preset pipe sleeves help streamline MEP service installations, while deck inserts and drilled-in threaded rod hangers are used to suspend services below the floor.

Versa-Dek® Composite makes engineered penetration of vent or sewage stacks readily achievable.



MEP integration is streamlined with preset and built-in features.



Composite Slab Design

According to the Steel Deck Institute Code of Standard Practice, composite slab design is the responsibility of the Project Structural Engineer of Record.

LOAD TABLES

To assist designers, New Millennium offers Versa-Dek® Composite slab design tables. Tables include:

- Deck descriptions, section properties and strengths
- Maximum allowable spans based on service and construction stage loading
- Maximum allowable superimposed uniform loads based on given span lengths
- Suggested reinforcing steel over supports for continuous spans based on given superimposed load combinations
- Composite slab properties (moment of inertia (MOI), positive moment capacity and one-way shear capacities)
- Factored shear bond strength of composite slabs
- Allowable load and maximum span tables accounting for long-term slab deflection
- Maximum design negative moment capacity defined by rebar type and spacing, slab depth and concrete strength

The tables cover Versa-Dek® 2.0 Composite and Versa-Dek® 3.5 Composite, in separate sections, over a range of slab depths. Both normal-weight (145 pcf) and lightweight (110 pcf) concrete density of 4,000 psi strength are provided. Service stage instantaneous deflection limits are based on $L/240$ total load and $L/360$ live load. The maximum span and uniform load tables are applicable to single span slabs and continuous slabs with approximately equal span lengths. Upon request, New Millennium can prepare project specific tables based on alternative criteria.

Versa-Dek® 2.0 Composite tables cover 3,000, 4,000 and 5,000 psi concrete strengths while Versa-Dek® 3.5 Composite tables cover 4,000, 5,000 and 6,000 psi concrete.

CUSTOM SLAB DESIGNS

Composite slab property tables are used for designs not conforming to the limiting criteria of allowable load tables. Examples include continuous slabs with unequal spans or loading, concentrated load conditions, etc. In these and other cases, use a standard beam analysis program to determine strength and stiffness needs based on defined load combinations and patterns. The moment, shear and stiffness

requirements obtained from that analysis are then compared to the composite slab properties. Slab deflections, determined using the average of cracked and uncracked MOI as published in the property tables, shall can be compared against the required stiffness.



CONSTRUCTION STAGE (NON-COMPOSITE) DECK DESIGN

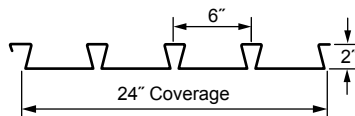
Maximum unshored clear span values were based on ANSI/SDI C-2017 for the design of deck as a form supporting the weight of deck and fluid concrete plus the worse case effect of either 20 psf uniform or 150 lb. concentrated (on a 1 ft. width) construction live load. Construction stage deck deflection is limited to the lessor of $L/180$ or $3/4"$.

The construction live loads stated above are considered adequate for concrete transport and placement by hose and concrete finishing using hand tools.

Contact New Millennium for maximum unshored clear spans based on construction live loads greater and deflection limits more restrictive than those stated above.

Versa-Dek® 2.0 S ES Composite

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	2.70	40	0.792	0.511	0.511	0.390	0.346	5547	1427	2717
18	0.0474	24	3.56	40	1.047	0.674	0.674	0.514	0.475	7280	2389	4533
16	0.0598	24	4.49	40	1.319	0.848	0.848	0.646	0.615	9097	3657	6922

F_y is steel yield stress; A_s is area of deck; I_b is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
		4"	-	-	-			-	4"	-	-
Normal-Weight Concrete (145 PCF)	44 PSF	20	8' - 9"	9' - 1"	9' - 4"	1.12 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	33 PSF	20	9' - 8"	9' - 11"	10' - 3"
	1.12 cu.yd/(100sq.ft)	18	10' - 4"	10' - 7"	10' - 11"		1.12 cu.yd/(100sq.ft)	18	11' - 5"	11' - 7"	11' - 11"
	6x6 - W1.4 x W1.4	16	11' - 6"	11' - 11"	12' - 4"		6x6 - W1.4 x W1.4	16	12' - 2"	13' - 1"	13' - 6"
	4.5"	-	-	-	-		4.5"	-	-	-	-
	50 PSF	20	8' - 5"	8' - 8"	8' - 11"	1.27 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	38 PSF	20	9' - 3"	9' - 6"	9' - 10"
	1.27 cu.yd/(100sq.ft)	18	9' - 10"	10' - 1"	10' - 5"		1.27 cu.yd/(100sq.ft)	18	10' - 11"	11' - 1"	11' - 6"
	6x6 - W1.4 x W1.4	16	11' - 1"	11' - 5"	11' - 10"		6x6 - W1.4 x W1.4	16	11' - 10"	12' - 6"	13' - 0"
	5"	-	-	-	-		5"	-	-	-	-
	56 PSF	20	8' - 0"	8' - 4"	8' - 7"	1.43 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	42 PSF	20	8' - 11"	9' - 2"	9' - 6"
	1.43 cu.yd/(100sq.ft)	18	9' - 5"	9' - 8"	10' - 0"		1.43 cu.yd/(100sq.ft)	18	10' - 6"	10' - 8"	11' - 0"
	6x6 - W1.4 x W1.4	16	10' - 9"	11' - 0"	11' - 4"		6x6 - W1.4 x W1.4	16	11' - 7"	12' - 1"	12' - 6"
	5.25"	-	-	-	-		5.25"	-	-	-	-
59 PSF	20	7' - 11"	8' - 2"	8' - 5"	1.5 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	45 PSF	20	8' - 9"	9' - 0"	9' - 3"	
1.5 cu.yd/(100sq.ft)	18	9' - 3"	9' - 6"	9' - 10"		1.5 cu.yd/(100sq.ft)	18	10' - 3"	10' - 6"	10' - 10"	
6x6 - W2.0 x W2.0	16	10' - 6"	10' - 9"	11' - 1"		6x6 - W2.0 x W2.0	16	11' - 5"	11' - 10"	12' - 3"	
5.5"	-	-	-	-		5.5"	-	-	-	-	
62 PSF	20	7' - 9"	8' - 0"	8' - 3"	1.58 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	47 PSF	20	8' - 7"	8' - 10"	9' - 2"	
1.58 cu.yd/(100sq.ft)	18	9' - 1"	9' - 4"	9' - 8"		1.58 cu.yd/(100sq.ft)	18	10' - 1"	10' - 4"	10' - 8"	
6x6 - W2.0 x W2.0	16	10' - 4"	10' - 7"	10' - 11"		6x6 - W2.0 x W2.0	16	11' - 3"	11' - 8"	12' - 1"	
6"	-	-	-	-		6"	-	-	-	-	
68 PSF	20	7' - 6"	7' - 8"	8' - 0"	1.74 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	52 PSF	20	8' - 3"	8' - 6"	8' - 10"	
1.74 cu.yd/(100sq.ft)	18	8' - 9"	9' - 0"	9' - 3"		1.74 cu.yd/(100sq.ft)	18	9' - 9"	10' - 0"	10' - 4"	
6x6 - W2.0 x W2.0	16	10' - 0"	10' - 2"	10' - 6"		6x6 - W2.0 x W2.0	16	11' - 0"	11' - 3"	11' - 8"	

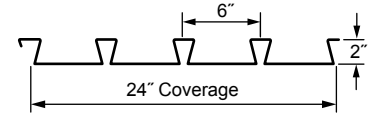
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 2.0 S ES Composite

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	2.70	40	0.792	0.511	0.511	0.390	0.346	5547	1427	2717
18	0.0474	24	3.56	40	1.047	0.674	0.674	0.514	0.475	7280	2389	4533
16	0.0598	24	4.49	40	1.319	0.848	0.848	0.646	0.615	9097	3657	6922

F_y is steel yield stress; A_s is area of deck; I_D is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

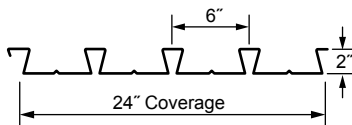
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
Normal-Weight Concrete (145 PCF)	6.25"	-	-	-	-	Lightweight Concrete (110 PCF)	6.25"	-	-	-	-
	71 PSF	20	7' - 4"	7' - 7"	7' - 10"		54 PSF	20	8' - 2"	8' - 5"	8' - 8"
	1.81 cu.yd/(100sq.ft)	18	8' - 7"	8' - 10"	9' - 2"		1.81 cu.yd/(100sq.ft)	18	9' - 7"	9' - 10"	10' - 2"
	6x6 - W2.0 x W2.0	16	9' - 9"	10' - 0"	10' - 4"		6x6 - W2.0 x W2.0	16	10' - 10"	11' - 1"	11' - 6"
	6.5"	-	-	-	-		6.5"	-	-	-	-
	74 PSF	20	7' - 3"	7' - 5"	7' - 8"		56 PSF	20	8' - 0"	8' - 3"	8' - 7"
	1.89 cu.yd/(100sq.ft)	18	8' - 6"	8' - 8"	9' - 0"		1.89 cu.yd/(100sq.ft)	18	9' - 5"	9' - 8"	10' - 0"
	4x4 - W1.4 x W1.4	16	9' - 7"	9' - 10"	10' - 2"		4x4 - W1.4 x W1.4	16	10' - 8"	10' - 11"	11' - 4"
	7"	-	-	-	-		7"	-	-	-	-
	80 PSF	20	7' - 0"	7' - 3"	7' - 6"		61 PSF	20	7' - 9"	8' - 0"	8' - 4"
	2.04 cu.yd/(100sq.ft)	18	8' - 2"	8' - 5"	8' - 9"		2.04 cu.yd/(100sq.ft)	18	9' - 2"	9' - 5"	9' - 8"
	6x6 - W2.9 x W2.9	16	9' - 4"	9' - 7"	9' - 11"		6x6 - W2.9 x W2.9	16	10' - 5"	10' - 8"	11' - 0"
	7.5"	-	-	-	-		7.5"	-	-	-	-
	86 PSF	20	6' - 9"	7' - 0"	7' - 3"		65 PSF	20	7' - 7"	7' - 10"	8' - 1"
	2.2 cu.yd/(100sq.ft)	18	8' - 0"	8' - 2"	8' - 6"		2.2 cu.yd/(100sq.ft)	18	8' - 11"	9' - 2"	9' - 5"
	6x6 - W2.9 x W2.9	16	9' - 0"	9' - 3"	9' - 7"		6x6 - W2.9 x W2.9	16	10' - 1"	10' - 4"	10' - 8"
	8"	-	-	-	-		8"	-	-	-	-
	92 PSF	20	6' - 7"	6' - 10"	7' - 1"		70 PSF	20	7' - 5"	7' - 7"	7' - 10"
	2.35 cu.yd/(100sq.ft)	18	7' - 9"	8' - 0"	8' - 3"		2.35 cu.yd/(100sq.ft)	18	8' - 8"	8' - 11"	9' - 2"
	6x6 - W2.9 x W2.9	16	8' - 9"	9' - 0"	9' - 4"		6x6 - W2.9 x W2.9	16	9' - 10"	10' - 1"	10' - 5"
	8.25"	-	-	-	-		8.25"	-	-	-	-
	95 PSF	20	6' - 6"	6' - 9"	6' - 11"		72 PSF	20	7' - 3"	7' - 6"	7' - 9"
	2.43 cu.yd/(100sq.ft)	18	7' - 8"	7' - 10"	8' - 1"		2.43 cu.yd/(100sq.ft)	18	8' - 7"	8' - 9"	9' - 1"
	6x6 - W2.9 x W2.9	16	8' - 8"	8' - 11"	9' - 3"		6x6 - W2.9 x W2.9	16	9' - 9"	10' - 0"	10' - 3"

NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.

Versa-Dek® 2.0 LS ES Composite

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



(LS indicates longitudinal stiffener in bottom flat)

PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _D (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
22	0.0295	24	2.25	40	0.66	0.417	0.417	0.304	0.309	4594	999	1908
20	0.0358	24	2.72	40	0.8	0.505	0.506	0.386	0.379	5548	1427	2717
18	0.0474	24	3.60	40	1.058	0.667	0.667	0.510	0.507	7280	2389	4533
16	0.0598	24	4.53	40	1.332	0.838	0.838	0.640	0.64	9096	3657	6922

F_y is steel yield stress; A_s is area of deck; I_D is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
Normal-Weight Concrete (145 PCF)	4"	22	7' - 6"	8' - 7"	8' - 10"	Lightweight Concrete (110 PCF)	4"	22	8' - 3"	9' - 5"	9' - 9"
	44 PSF	20	8' - 9"	9' - 6"	9' - 9"		33 PSF	20	9' - 7"	10' - 5"	10' - 9"
	1.12 cu.yd/(100sq.ft)	18	10' - 4"	10' - 11"	11' - 3"		1.12 cu.yd/(100sq.ft)	18	11' - 5"	11' - 11"	12' - 4"
	6x6 - W1.4 x W1.4	16	11' - 5"	12' - 2"	12' - 7"		6x6 - W1.4 x W1.4	16	12' - 2"	13' - 4"	13' - 9"
	4.5"	22	7' - 2"	8' - 2"	8' - 6"		4.5"	22	7' - 11"	9' - 0"	9' - 4"
	50 PSF	20	8' - 4"	9' - 1"	9' - 4"		38 PSF	20	9' - 2"	9' - 11"	10' - 3"
	1.27 cu.yd/(100sq.ft)	18	9' - 10"	10' - 5"	10' - 9"		1.27 cu.yd/(100sq.ft)	18	10' - 10"	11' - 5"	11' - 10"
	6x6 - W1.4 x W1.4	16	11' - 1"	11' - 8"	12' - 0"		6x6 - W1.4 x W1.4	16	11' - 10"	12' - 9"	13' - 3"
	5"	22	6' - 11"	7' - 10"	8' - 1"		5"	22	7' - 7"	8' - 8"	9' - 0"
	56 PSF	20	8' - 0"	8' - 8"	9' - 0"		42 PSF	20	8' - 10"	9' - 7"	9' - 11"
	1.43 cu.yd/(100sq.ft)	18	9' - 5"	10' - 0"	10' - 4"		1.43 cu.yd/(100sq.ft)	18	10' - 5"	11' - 0"	11' - 5"
	6x6 - W1.4 x W1.4	16	10' - 8"	11' - 2"	11' - 7"		6x6 - W1.4 x W1.4	16	11' - 6"	12' - 4"	12' - 9"
	5.25"	22	6' - 9"	7' - 8"	8' - 0"		5.25"	22	7' - 6"	8' - 6"	8' - 10"
	59 PSF	20	7' - 10"	8' - 6"	8' - 10"		45 PSF	20	8' - 8"	9' - 5"	9' - 9"
	1.5 cu.yd/(100sq.ft)	18	9' - 3"	9' - 10"	10' - 2"		1.5 cu.yd/(100sq.ft)	18	10' - 3"	10' - 10"	11' - 2"
	6x6 - W2.0 x W2.0	16	10' - 6"	11' - 0"	11' - 4"		6x6 - W2.0 x W2.0	16	11' - 5"	12' - 1"	12' - 6"
	5.5"	22	6' - 8"	7' - 7"	7' - 10"		5.5"	22	7' - 4"	8' - 4"	8' - 8"
	62 PSF	20	7' - 8"	8' - 4"	8' - 8"		47 PSF	20	8' - 6"	9' - 3"	9' - 7"
	1.58 cu.yd/(100sq.ft)	18	9' - 0"	9' - 7"	9' - 11"		1.58 cu.yd/(100sq.ft)	18	10' - 0"	10' - 8"	11' - 0"
	6x6 - W2.0 x W2.0	16	10' - 3"	10' - 9"	11' - 2"		6x6 - W2.0 x W2.0	16	11' - 3"	11' - 11"	12' - 4"
	6"	22	6' - 5"	7' - 3"	7' - 6"		6"	22	7' - 1"	8' - 1"	8' - 4"
	68 PSF	20	7' - 5"	8' - 1"	8' - 4"		52 PSF	20	8' - 3"	8' - 11"	9' - 3"
	1.74 cu.yd/(100sq.ft)	18	8' - 9"	9' - 3"	9' - 7"		1.74 cu.yd/(100sq.ft)	18	9' - 8"	10' - 3"	10' - 8"
	6x6 - W2.0 x W2.0	16	9' - 11"	10' - 5"	10' - 9"		6x6 - W2.0 x W2.0	16	10' - 11"	11' - 6"	11' - 11"

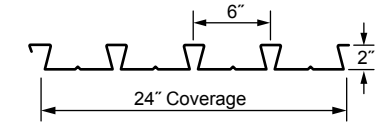
NOTES:

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Versa-Dek® 2.0 LS ES Composite

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



(LS indicates longitudinal stiffener in bottom flat)

PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
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22	0.0295	24	2.25	40	0.66	0.417	0.417	0.304	0.309	4594	999	1908
20	0.0358	24	2.72	40	0.8	0.505	0.506	0.386	0.379	5548	1427	2717
18	0.0474	24	3.60	40	1.058	0.667	0.667	0.510	0.507	7280	2389	4533
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CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
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Normal-Weight Concrete (145 PCF)	6.25"	22	6' - 4"	7' - 2"	7' - 5"	Lightweight Concrete (110 PCF)	6.25"	22	7' - 0"	8' - 0"	8' - 3"
	71 PSF	20	7' - 3"	7' - 11"	8' - 2"		54 PSF	20	8' - 1"	8' - 10"	9' - 1"
	1.81 cu.yd/(100sq.ft)	18	8' - 7"	9' - 2"	9' - 5"		1.81 cu.yd/(100sq.ft)	18	9' - 6"	10' - 2"	10' - 6"
	6x6 - W2.0 x W2.0	16	9' - 9"	10' - 3"	10' - 7"		6x6 - W2.0 x W2.0	16	10' - 9"	11' - 4"	11' - 9"
	6.5"	22	6' - 3"	7' - 1"	7' - 3"		6.5"	22	6' - 11"	7' - 10"	8' - 1"
	74 PSF	20	7' - 2"	7' - 9"	8' - 1"		56 PSF	20	8' - 0"	8' - 8"	9' - 0"
	1.89 cu.yd/(100sq.ft)	18	8' - 5"	9' - 0"	9' - 3"		1.89 cu.yd/(100sq.ft)	18	9' - 5"	10' - 0"	10' - 4"
	4x4 - W1.4 x W1.4	16	9' - 7"	10' - 1"	10' - 5"		4x4 - W1.4 x W1.4	16	10' - 8"	11' - 2"	11' - 6"
	7"	22	6' - 0"	6' - 10"	7' - 1"		7"	22	6' - 8"	7' - 7"	7' - 10"
	80 PSF	20	6' - 11"	7' - 7"	7' - 10"		61 PSF	20	7' - 9"	8' - 5"	8' - 8"
	2.04 cu.yd/(100sq.ft)	18	8' - 2"	8' - 9"	9' - 0"		2.04 cu.yd/(100sq.ft)	18	9' - 1"	9' - 8"	10' - 0"
	6x6 - W2.9 x W2.9	16	9' - 3"	9' - 9"	10' - 1"		6x6 - W2.9 x W2.9	16	10' - 4"	10' - 10"	11' - 3"
7.5"	22	5' - 10"	6' - 8"	6' - 10"	7.5"	22	6' - 6"	7' - 5"	7' - 8"		
86 PSF	20	6' - 9"	7' - 4"	7' - 7"	65 PSF	20	7' - 6"	8' - 2"	8' - 6"		
2.2 cu.yd/(100sq.ft)	18	7' - 11"	8' - 6"	8' - 9"	2.2 cu.yd/(100sq.ft)	18	8' - 10"	9' - 5"	9' - 9"		
6x6 - W2.9 x W2.9	16	9' - 0"	9' - 6"	9' - 9"	6x6 - W2.9 x W2.9	16	10' - 1"	10' - 7"	10' - 11"		
8"	22	5' - 9"	6' - 5"	6' - 8"	8"	22	6' - 4"	7' - 3"	7' - 6"		
92 PSF	20	6' - 7"	7' - 2"	7' - 4"	70 PSF	20	7' - 4"	8' - 0"	8' - 3"		
2.35 cu.yd/(100sq.ft)	18	7' - 8"	8' - 3"	8' - 6"	2.35 cu.yd/(100sq.ft)	18	8' - 7"	9' - 2"	9' - 6"		
6x6 - W2.9 x W2.9	16	8' - 9"	9' - 3"	9' - 6"	6x6 - W2.9 x W2.9	16	9' - 10"	10' - 3"	10' - 8"		
8.25"	22	5' - 8"	6' - 4"	6' - 7"	8.25"	22	6' - 3"	7' - 1"	7' - 4"		
95 PSF	20	6' - 6"	7' - 0"	7' - 3"	72 PSF	20	7' - 3"	7' - 10"	8' - 2"		
2.43 cu.yd/(100sq.ft)	18	7' - 7"	8' - 1"	8' - 5"	2.43 cu.yd/(100sq.ft)	18	8' - 6"	9' - 1"	9' - 4"		
6x6 - W2.9 x W2.9	16	8' - 8"	9' - 1"	9' - 5"	6x6 - W2.9 x W2.9	16	9' - 8"	10' - 2"	10' - 6"		

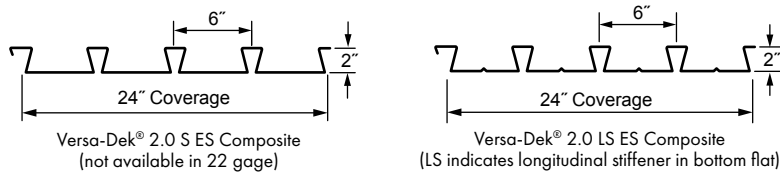
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"
3000 PSI Normal-Weight Concrete (145 PCF)	4"	22	254	152 / 199	68 / 154	- / 104	- / 71	- / 45	- / 44	-	-	-	-
	44 PSF	20	288	165 / 209	76 / 170	- / 128	- / 89	- / 56	- / 44	-	-	-	-
	1.12 cu.yd/(100sq.ft)	18	311	235 / 249	88 / 170	- / 116	- / 80	- / 56	- / 43	-	-	-	-
	6x6 - W1.4 x W1.4	16	336	258 / 269	100 / 201	45 / 138	- / 97	- / 69	- / 42	-	-	-	-
	4.5"	22	295	222 / 231	106 / 181	47 / 123	- / 85	- / 59	- / 68	- / 48	-	-	-
	50 PSF	20	334	240 / 242	116 / 198	54 / 152	- / 107	- / 76	- / 68	- / 47	-	-	-
	1.27 cu.yd/(100sq.ft)	18	361	264	134 / 216	64 / 181	- / 144	- / 105	48 / 67	- / 47	-	-	-
	6x6 - W1.4 x W1.4	16	390	312	150 / 234	74 / 172	- / 122	- / 88	57 / 66	- / 46	-	-	-
	5"	22	336	263	154 / 209	75 / 142	- / 99	- / 69	60 / 96	- / 70	- / 50	-	-
	56 PSF	20	352	276	167 / 226	83 / 176	- / 125	- / 89	67 / 96	- / 69	- / 50	-	-
	1.43 cu.yd/(100sq.ft)	18	411	301	190 / 246	98 / 207	46 / 169	- / 124	77 / 95	41 / 69	- / 49	-	-
	6x6 - W1.4 x W1.4	16	444	355	212 / 267	111 / 225	54 / 193	- / 157	89 / 95	47 / 68	- / 48	-	-
	5.25"	22	356	279	184 / 223	93 / 152	42 / 105	- / 74	75 / 112	- / 82	- / 60	- / 43	-
	59 PSF	20	374	293	199 / 240	102 / 188	48 / 133	- / 96	83 / 112	44 / 82	- / 59	- / 43	-
	1.5 cu.yd/(100sq.ft)	18	436	319	225 / 261	118 / 220	58 / 181	- / 133	95 / 111	54 / 81	- / 59	- / 42	-
	6x6 - W2.0 x W2.0	16	471	376	250 / 284	134 / 239	68 / 206	- / 169	108 / 110	61 / 80	- / 58	- / 41	-
	5.5"	22	377	295	215 / 237	111 / 161	53 / 112	- / 79	91 / 126	49 / 93	- / 69	- / 50	-
	62 PSF	20	395	310	232 / 253	122 / 200	60 / 142	- / 102	100 / 128	55 / 95	- / 70	- / 51	-
	1.58 cu.yd/(100sq.ft)	18	461	338	261 / 276	140 / 232	72 / 193	- / 142	113 / 128	67 / 94	- / 69	- / 50	-
	6x6 - W2.0 x W2.0	16	498	398	289 / 301	157 / 253	83 / 218	- / 181	127	75 / 93	41 / 69	- / 50	-
	6"	22	417	327	265	153 / 181	80 / 126	- / 88	128 / 141	74 / 105	- / 77	- / 56	- / 40
	68 PSF	20	438	344	281	167 / 225	88 / 160	41 / 115	139 / 165	82 / 124	44 / 93	- / 70	- / 52
	1.74 cu.yd/(100sq.ft)	18	500	375	307	189 / 258	103 / 218	51 / 161	156 / 165	96 / 123	54 / 93	- / 69	- / 51
	6x6 - W2.0 x W2.0	16	500	407	334	211 / 281	118 / 242	61 / 206	164	107 / 123	65 / 92	- / 69	- / 50
3000 PSI Lightweight Concrete (110 PCF)	4"	22	273	118 / 201	53 / 161	- / 112	- / 75	- / 43	- / 52	-	-	-	-
	33 PSF	20	285	129 / 211	59 / 173	- / 129	- / 86	- / 55	- / 52	-	-	-	-
	1.12 cu.yd/(100sq.ft)	18	307	184 / 246	70 / 178	- / 124	- / 88	- / 64	- / 51	-	-	-	-
	6x6 - W1.4 x W1.4	16	331	203 / 264	117 / 209	- / 146	- / 105	- / 77	- / 50	-	-	-	-
	4.5"	22	297	171 / 234	82 / 190	- / 132	- / 94	- / 65	- / 77	- / 57	- / 42	-	-
	38 PSF	20	330	186 / 245	91 / 201	42 / 161	- / 115	- / 80	- / 77	- / 56	- / 41	-	-
	1.27 cu.yd/(100sq.ft)	18	356	253 / 285	105 / 218	51 / 184	- / 142	- / 100	- / 76	- / 56	- / 41	-	-
	6x6 - W1.4 x W1.4	16	384	278 / 307	118 / 236	59 / 181	- / 131	- / 97	45 / 75	- / 55	- / 40	-	-
	5"	22	339	237 / 267	118 / 219	58 / 152	- / 109	- / 79	46 / 106	- / 80	- / 60	- / 45	-
	42 PSF	20	376	257 / 280	130 / 230	65 / 186	- / 135	- / 99	50 / 106	- / 79	- / 60	- / 45	-
	1.43 cu.yd/(100sq.ft)	18	406	325	149 / 249	76 / 210	- / 179	- / 128	60 / 105	- / 79	- / 59	- / 44	-
	6x6 - W1.4 x W1.4	16	437	350	166 / 270	87 / 228	43 / 197	- / 154	70 / 105	- / 78	- / 58	- / 43	-
	5.25"	22	360	279 / 283	141 / 232	72 / 162	- / 116	- / 84	58 / 123	- / 93	- / 70	- / 54	- / 40
	45 PSF	20	399	297	154 / 244	79 / 199	- / 144	- / 106	63 / 122	- / 92	- / 70	- / 53	- / 40
	1.5 cu.yd/(100sq.ft)	18	431	344	176 / 264	93 / 223	46 / 192	- / 144	74 / 122	40 / 92	- / 69	- / 53	-
	6x6 - W2.0 x W2.0	16	464	371	196 / 286	105 / 242	54 / 209	- / 173	85 / 121	48 / 91	- / 69	- / 52	-
	5.5"	22	380	300	165 / 246	85 / 173	41 / 123	- / 90	70 / 137	- / 104	- / 80	- / 61	- / 47
	47 PSF	20	422	314	179 / 258	94 / 212	47 / 153	- / 113	76 / 140	43 / 106	- / 81	- / 62	- / 48
	1.58 cu.yd/(100sq.ft)	18	455	364	204 / 280	109 / 236	56 / 204	- / 154	89 / 139	50 / 105	- / 81	- / 62	- / 47
	6x6 - W2.0 x W2.0	16	491	393	226 / 303	123 / 256	66 / 221	- / 193	101 / 138	59 / 105	- / 80	- / 61	- / 46
	6"	22	422	332	218 / 273	117 / 193	61 / 138	- / 101	97 / 154	56 / 117	- / 90	- / 69	- / 53
	52 PSF	20	467	348	236 / 286	129 / 237	68 / 172	- / 127	107 / 178	63 / 136	- / 106	- / 82	- / 64
	1.74 cu.yd/(100sq.ft)	18	500	378	267 / 311	148 / 263	81 / 227	40 / 173	122 / 177	73 / 136	43 / 105	- / 82	- / 63
	6x6 - W2.0 x W2.0	16	500	436	296 / 337	166 / 285	92 / 246	48 / 216	138 / 176	84 / 135	49 / 104	- / 81	- / 63

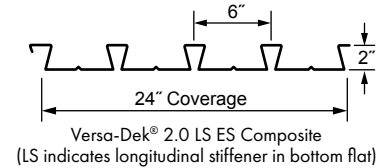
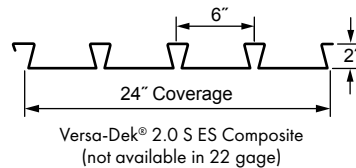
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

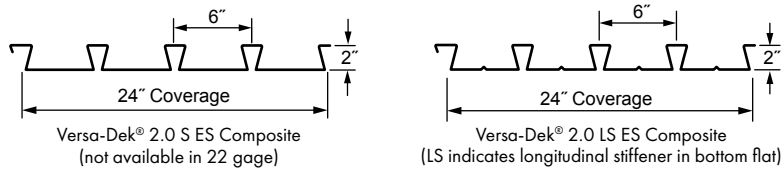
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	Negative Moment Steel Reinforcing Required				
3000 PSI Normal-Weight Concrete (145 PCF)	6.25"	22	438	343	279	177 / 190	95 / 133	44 / 93	88 / 110	48 / 82	- / 60	- / 43	-
	71 PSF	20	460	361	295	192 / 237	104 / 168	51 / 121	97 / 140	55 / 106	- / 80	- / 60	- / 44
	1.81 cu.yd/(100sq.ft)	18	500	393	322	217 / 271	121 / 230	63 / 170	113 / 139	66 / 105	- / 80	- / 59	- / 44
	6x6 - W2.0 x W2.0	16	500	427	350	242 / 295	137 / 254	74 / 218	126 / 138	78 / 105	42 / 79	- / 59	- / 43
	6.5"	22	458	359	293	200	111 / 140	55 / 98	104 / 116	59 / 86	- / 63	- / 45	-
	74 PSF	20	481	378	309	220 / 249	122 / 177	63 / 128	114 / 149	67 / 113	- / 86	- / 65	- / 48
	1.89 cu.yd/(100sq.ft)	18	500	412	337	248 / 284	140 / 243	75 / 180	132 / 156	80 / 119	43 / 90	- / 68	- / 51
	4x4 - W1.4 x W1.4	16	500	448	367	275 / 309	158 / 266	88 / 231	146 / 155	92 / 118	53 / 90	- / 68	- / 50
	7"	22	499	392	320	219	152 / 153	82 / 108	127	87 / 95	48 / 70	- / 50	-
	80 PSF	20	500	412	337	273	164 / 195	91 / 141	155 / 164	95 / 125	55 / 95	- / 72	- / 53
	2.04 cu.yd/(100sq.ft)	18	500	449	367	309	186 / 266	106 / 198	176 / 192	111 / 148	66 / 114	- / 88	- / 67
	6x6 - W2.9 x W2.9	16	500	488	400	337	208 / 290	121 / 254	191	127 / 147	78 / 114	43 / 87	- / 67
	7.5"	22	500	424	346	238	167	111 / 118	139	103	70 / 76	- / 55	-
	86 PSF	20	500	446	364	298	210 / 212	121 / 154	179	127 / 136	78 / 104	42 / 79	- / 59
	2.2 cu.yd/(100sq.ft)	18	500	486	398	335	236 / 288	139 / 217	215	146 / 180	91 / 140	53 / 110	- / 85
	6x6 - W2.9 x W2.9	16	500	500	433	365	262 / 314	157 / 275	231	164 / 179	106 / 140	63 / 109	- / 85
3000 PSI Lightweight Concrete (110 PCF)	8"	22	500	456	372	258	181	128	150	112	83	54 / 60	-
	92 PSF	20	500	480	392	322	230	156 / 167	194	148	104 / 113	62 / 86	- / 64
	2.35 cu.yd/(100sq.ft)	18	500	500	428	361	294 / 310	178 / 235	231	186 / 205	121 / 166	75 / 131	41 / 103
	6x6 - W2.9 x W2.9	16	500	500	467	393	325 / 339	199 / 296	254	208 / 214	138 / 168	87 / 133	50 / 104
	8.25"	22	500	472	386	267	187	133	156	116	86	63	-
	95 PSF	20	500	496	406	334	239	173	201	154	117	73 / 89	- / 67
	2.43 cu.yd/(100sq.ft)	18	500	500	443	373	321	199 / 245	240	208 / 213	137 / 172	87 / 136	50 / 107
	6x6 - W2.9 x W2.9	16	500	500	483	407	351	222 / 307	263	232 / 233	155 / 184	100 / 145	60 / 115
	6.25"	22	442	349	248 / 286	135 / 203	72 / 146	- / 106	67 / 123	- / 94	- / 73	- / 56	- / 42
	54 PSF	20	490	366	268 / 300	148 / 250	80 / 181	40 / 134	75 / 153	42 / 119	- / 93	- / 73	- / 57
	1.81 cu.yd/(100sq.ft)	18	500	397	303 / 326	169 / 276	94 / 238	49 / 183	86 / 152	52 / 118	- / 92	- / 72	- / 56
	6x6 - W2.0 x W2.0	16	500	457	335 / 354	190 / 299	108 / 258	58 / 227	99 / 151	59 / 117	- / 92	- / 72	- / 56
	6.5"	22	463	365	281 / 300	155 / 213	85 / 153	42 / 112	79 / 129	45 / 99	- / 76	- / 59	- / 45
	56 PSF	20	486	383	304 / 315	169 / 262	94 / 191	48 / 141	88 / 162	51 / 127	- / 99	- / 78	- / 61
	1.89 cu.yd/(100sq.ft)	18	500	416	342	193 / 289	109 / 249	59 / 193	103 / 169	62 / 132	- / 104	- / 82	- / 64
	4x4 - W1.4 x W1.4	16	500	479	370	215 / 314	124 / 271	69 / 238	115 / 169	70 / 131	42 / 103	- / 81	- / 64
	7"	22	500	398	327	203 / 234	115 / 168	62 / 123	108 / 142	66 / 109	- / 84	- / 65	- / 49
	61 PSF	20	500	417	343	220 / 288	126 / 209	70 / 155	119 / 178	73 / 139	42 / 109	- / 86	- / 68
	2.04 cu.yd/(100sq.ft)	18	500	453	373	248 / 315	145 / 272	82 / 213	137 / 206	87 / 162	52 / 129	- / 103	- / 82
	6x6 - W2.9 x W2.9	16	500	500	404	275 / 342	163 / 296	95 / 259	152 / 206	99 / 162	61 / 128	- / 102	- / 81
	7.5"	22	500	431	354	254	148 / 183	84 / 134	140 / 155	88 / 119	52 / 92	- / 71	- / 54
	65 PSF	20	500	452	371	274 / 313	161 / 228	93 / 169	152 / 194	97 / 152	59 / 119	- / 94	- / 74
	2.2 cu.yd/(100sq.ft)	18	500	491	404	308 / 341	183 / 295	108 / 232	174 / 224	113 / 195	71 / 156	41 / 125	- / 101
	6x6 - W2.9 x W2.9	16	500	500	438	341 / 371	205 / 320	123 / 281	192 / 247	129 / 195	83 / 155	50 / 125	- / 100
	8"	22	500	463	380	274	185 / 197	108 / 145	167	114 / 129	71 / 100	40 / 77	- / 59
	70 PSF	20	500	486	400	336 / 338	201 / 247	119 / 183	191 / 210	125 / 164	79 / 130	47 / 102	- / 81
	2.35 cu.yd/(100sq.ft)	18	500	500	435	368	227 / 317	138 / 252	216 / 241	144 / 215	94 / 182	58 / 147	- / 119
	6x6 - W2.9 x W2.9	16	500	500	472	399	253 / 345	156 / 303	238 / 269	163 / 231	108 / 185	69 / 149	40 / 121
	8.25"	22	500	480	394	284	205	122 / 150	173	128 / 134	82 / 103	48 / 80	- / 61
	72 PSF	20	500	500	414	350	223 / 256	134 / 190	211 / 218	140 / 171	90 / 135	55 / 106	- / 84
	2.43 cu.yd/(100sq.ft)	18	500	500	450	381	252 / 329	154 / 262	239 / 250	161 / 223	106 / 190	67 / 153	- / 124
	6x6 - W2.9 x W2.9	16	500	500	489	414	280 / 357	173 / 314	264 / 279	181 / 244	122 / 201	79 / 163	48 / 132

NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
3000 PSI Normal-Weight Concrete (145 PCF)	4	22	13' - 2" / 17' - 1"	16' - 3" / 16' - 10"	17' - 9"	12' - 5" / 14' - 0"	13' - 7"	14' - 4"
		20	13' - 5" / 17' - 9"	16' - 7" / 16' - 10"	17' - 9"	12' - 9" / 15' - 2"	13' - 7"	14' - 3"
		18	13' - 10" / 18' - 1"	16' - 9"	17' - 8"	13' - 2" / 14' - 7"	13' - 6"	14' - 3"
		16	14' - 3" / 19' - 4"	16' - 9"	17' - 7"	13' - 6" / 15' - 8"	13' - 6"	14' - 3"
	4.5	22	14' - 4" / 18' - 4"	17' - 8" / 19' - 2"	20' - 3"	13' - 7" / 14' - 11"	15' - 7"	16' - 5"
		20	14' - 7" / 19' - 3"	18' - 1" / 19' - 2"	20' - 2"	13' - 11" / 16' - 2"	15' - 7"	16' - 5"
		18	15' - 1" / 20' - 5"	18' - 8" / 19' - 1"	20' - 2"	14' - 4" / 18' - 1"	15' - 6"	16' - 4"
		16	15' - 6" / 20' - 10"	19' - 0"	20' - 1"	14' - 9" / 17' - 0"	15' - 6"	16' - 4"
	5	22	15' - 6" / 19' - 3"	19' - 1" / 21' - 5"	22' - 7"	14' - 9" / 15' - 9"	17' - 6"	18' - 6"
		20	15' - 9" / 20' - 7"	19' - 6" / 21' - 5"	22' - 7"	15' - 0" / 17' - 1"	17' - 6"	18' - 6"
		18	16' - 3" / 21' - 10"	20' - 1" / 21' - 4"	22' - 6"	15' - 6" / 19' - 2"	17' - 6"	18' - 5"
		16	16' - 8" / 23' - 0"	20' - 8" / 21' - 3"	22' - 5"	15' - 11" / 20' - 9"	17' - 5"	18' - 5"
	5.25	22	16' - 1" / 19' - 7"	19' - 10" / 22' - 6"	23' - 9"	15' - 3" / 16' - 1"	18' - 6"	19' - 6"
		20	16' - 4" / 21' - 4"	20' - 3" / 22' - 6"	23' - 8"	15' - 7" / 17' - 6"	18' - 6"	19' - 6"
		18	16' - 10" / 22' - 7"	20' - 10" / 22' - 5"	23' - 7"	16' - 1" / 19' - 8"	18' - 5"	19' - 5"
		16	17' - 4" / 23' - 9"	21' - 5" / 22' - 4"	23' - 6"	16' - 6" / 21' - 5"	18' - 5"	19' - 5"
	5.5	22	16' - 7" / 19' - 11"	20' - 6" / 23' - 5"	24' - 7" / 24' - 10"	15' - 10" / 16' - 5"	19' - 3"	20' - 6"
		20	16' - 11" / 21' - 9"	20' - 11" / 23' - 6"	24' - 10"	16' - 2" / 17' - 11"	19' - 5"	20' - 5"
		18	17' - 5" / 23' - 3"	21' - 6" / 23' - 6"	24' - 9"	16' - 8" / 20' - 2"	19' - 4"	20' - 5"
		16	17' - 11" / 24' - 5"	22' - 1" / 23' - 5"	24' - 8"	17' - 1" / 22' - 1"	19' - 4"	20' - 4"
	6	22	17' - 8" / 20' - 7"	21' - 10" / 24' - 2"	26' - 2" / 27' - 0"	16' - 11" / 17' - 1"	20' - 1"	22' - 5"
		20	18' - 0" / 22' - 5"	22' - 3" / 25' - 7"	26' - 8" / 27' - 0"	17' - 3" / 18' - 8"	21' - 3"	22' - 5"
		18	18' - 6" / 24' - 7"	22' - 11" / 25' - 6"	26' - 11"	17' - 9" / 21' - 0"	21' - 2"	22' - 4"
		16	19' - 0" / 25' - 10"	23' - 6" / 25' - 5"	26' - 10"	18' - 3" / 23' - 1"	21' - 1"	22' - 4"
3000 PSI Lightweight Concrete (110 PCF)	4	22	12' - 7" / 16' - 11"	15' - 7" / 17' - 8"	18' - 8"	11' - 10" / 14' - 5"	14' - 0"	14' - 9"
		20	12' - 11" / 17' - 8"	15' - 11" / 17' - 8"	18' - 7"	12' - 2" / 15' - 3"	14' - 0"	14' - 9"
		18	13' - 4" / 18' - 11"	16' - 6" / 17' - 7"	18' - 6"	12' - 7" / 15' - 0"	13' - 11"	14' - 8"
		16	13' - 9" / 20' - 2"	16' - 11" / 17' - 6"	18' - 5"	12' - 11" / 16' - 1"	13' - 11"	14' - 8"
	4.5	22	13' - 9" / 18' - 3"	17' - 0" / 20' - 2"	20' - 5" / 21' - 3"	13' - 0" / 15' - 5"	16' - 0" / 16' - 1"	17' - 0"
		20	14' - 1" / 19' - 1"	17' - 5" / 20' - 2"	20' - 10" / 21' - 3"	13' - 3" / 16' - 9"	16' - 1"	16' - 11"
		18	14' - 7" / 20' - 6"	18' - 0" / 20' - 1"	21' - 2"	13' - 9" / 18' - 0"	16' - 0"	16' - 11"
		16	14' - 11" / 21' - 9"	18' - 6" / 20' - 0"	21' - 1"	14' - 1" / 17' - 6"	16' - 0"	16' - 10"
	5	22	14' - 10" / 19' - 8"	18' - 5" / 22' - 8"	22' - 1" / 23' - 10"	14' - 1" / 16' - 3"	17' - 4" / 18' - 2"	19' - 2"
		20	15' - 2" / 20' - 6"	18' - 9" / 22' - 7"	22' - 7" / 23' - 10"	14' - 5" / 17' - 8"	17' - 9" / 18' - 2"	19' - 2"
		18	15' - 9" / 21' - 11"	19' - 5" / 22' - 6"	23' - 4" / 23' - 9"	14' - 10" / 19' - 6"	18' - 1"	19' - 1"
		16	16' - 2" / 23' - 3"	19' - 11" / 22' - 5"	23' - 7"	15' - 4" / 20' - 8"	18' - 1"	19' - 0"
	5.25	22	15' - 5" / 20' - 3"	19' - 1" / 23' - 10"	22' - 11" / 25' - 1"	14' - 7" / 16' - 8"	18' - 1" / 19' - 2"	20' - 3"
		20	15' - 10" / 21' - 2"	19' - 6" / 23' - 9"	23' - 5" / 25' - 1"	14' - 11" / 18' - 2"	18' - 6" / 19' - 2"	20' - 2"
		18	16' - 4" / 22' - 7"	20' - 2" / 23' - 8"	24' - 2" / 25' - 0"	15' - 5" / 20' - 2"	19' - 1" / 19' - 1"	20' - 2"
		16	16' - 9" / 24' - 0"	20' - 8" / 23' - 7"	24' - 10" / 24' - 10"	15' - 11" / 21' - 5"	19' - 1"	20' - 1"
	5.5	22	16' - 0" / 20' - 11"	19' - 9" / 24' - 9"	23' - 9" / 26' - 4"	15' - 2" / 17' - 1"	18' - 8" / 20' - 0"	21' - 3"
		20	16' - 4" / 21' - 10"	20' - 2" / 24' - 11"	24' - 3" / 26' - 3"	15' - 6" / 18' - 7"	19' - 1" / 20' - 2"	21' - 3"
		18	16' - 10" / 23' - 4"	20' - 10" / 24' - 10"	25' - 0" / 26' - 2"	16' - 0" / 20' - 10"	19' - 9" / 20' - 1"	21' - 2"
		16	17' - 4" / 24' - 8"	21' - 5" / 24' - 9"	25' - 8" / 26' - 1"	16' - 5" / 22' - 1"	20' - 1"	21' - 2"
	6	22	17' - 0" / 21' - 11"	21' - 1" / 25' - 8"	25' - 3" / 28' - 9"	16' - 2" / 17' - 10"	20' - 0" / 20' - 11"	23' - 4"
		20	17' - 5" / 23' - 1"	21' - 6" / 27' - 2"	25' - 10" / 28' - 8"	16' - 6" / 19' - 5"	20' - 5" / 22' - 2"	23' - 4"
		18	18' - 0" / 24' - 8"	22' - 2" / 27' - 1"	26' - 8" / 28' - 7"	17' - 1" / 21' - 11"	21' - 1" / 22' - 1"	23' - 3"
		16	18' - 5" / 26' - 1"	22' - 10" / 27' - 0"	27' - 4" / 28' - 6"	17' - 7" / 23' - 5"	21' - 8" / 22' - 0"	23' - 3"

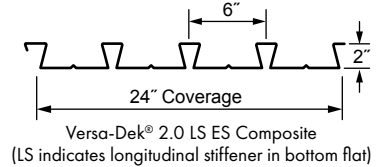
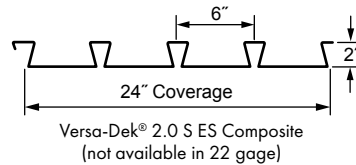
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
3000 PSI Normal-Weight Concrete (145 PCF)	6.25	22	18' - 2" / 20' - 11"	22' - 6" / 24' - 6"	26' - 11" / 28' - 1"	17' - 5" / 17' - 5"	20' - 5"	23' - 5"
		20	18' - 6" / 22' - 9"	22' - 11" / 26' - 7"	27' - 5" / 28' - 0"	17' - 9" / 19' - 0"	21' - 11" / 22' - 2"	23' - 4"
		18	19' - 1" / 25' - 3"	23' - 7" / 26' - 6"	27' - 11"	18' - 3" / 21' - 5"	22' - 1"	23' - 4"
		16	19' - 7" / 26' - 6"	24' - 2" / 26' - 5"	27' - 10"	18' - 9" / 23' - 7"	22' - 1"	23' - 3"
	6.5	22	18' - 8" / 21' - 2"	23' - 1" / 24' - 10"	27' - 9" / 29' - 1"	17' - 8"	20' - 9"	24' - 4"
		20	19' - 0" / 23' - 1"	23' - 6" / 27' - 1"	28' - 3" / 29' - 1"	18' - 3" / 19' - 4"	22' - 7" / 22' - 8"	24' - 3"
		18	19' - 7" / 25' - 10"	24' - 3" / 27' - 6"	29' - 0"	18' - 10" / 21' - 10"	23' - 0"	24' - 3"
		16	20' - 1" / 27' - 2"	24' - 10" / 27' - 5"	28' - 11"	19' - 4" / 24' - 0"	22' - 11"	24' - 2"
	7	22	19' - 9" / 21' - 9"	24' - 5" / 25' - 6"	29' - 4" / 30' - 7"	18' - 3"	21' - 5"	25' - 8"
		20	20' - 1" / 23' - 8"	24' - 10" / 27' - 9"	29' - 10" / 31' - 1"	19' - 4" / 19' - 11"	23' - 4"	26' - 2"
		18	20' - 8" / 26' - 10"	25' - 7" / 29' - 5"	30' - 8" / 31' - 0"	19' - 10" / 22' - 6"	24' - 7" / 24' - 9"	26' - 1"
		16	21' - 2" / 28' - 5"	26' - 2" / 29' - 4"	30' - 11"	20' - 4" / 24' - 10"	24' - 8"	26' - 0"
	7.5	22	20' - 9" / 22' - 2"	25' - 8" / 26' - 0"	30' - 9" / 31' - 3"	18' - 9"	22' - 0"	26' - 4"
		20	21' - 1" / 24' - 3"	26' - 1" / 28' - 5"	31' - 4" / 33' - 1"	20' - 3" / 20' - 6"	24' - 0"	27' - 11"
		18	21' - 8" / 27' - 5"	26' - 10" / 31' - 3"	32' - 2" / 33' - 0"	20' - 10" / 23' - 2"	25' - 9" / 26' - 5"	27' - 11"
		16	22' - 3" / 29' - 8"	27' - 6" / 31' - 2"	32' - 11"	21' - 5" / 25' - 7"	26' - 5"	27' - 10"
	8	22	21' - 8" / 22' - 7"	26' - 6"	31' - 10"	19' - 2"	22' - 6"	27' - 0"
		20	22' - 1" / 24' - 9"	27' - 3" / 29' - 0"	32' - 9" / 34' - 9"	21' - 0"	24' - 7"	29' - 6"
		18	22' - 8" / 28' - 0"	28' - 0" / 32' - 10"	33' - 7" / 34' - 10"	21' - 10" / 23' - 10"	27' - 0" / 27' - 11"	29' - 8"
		16	23' - 3" / 30' - 11"	28' - 8" / 33' - 0"	34' - 5" / 34' - 9"	22' - 5" / 26' - 4"	27' - 8" / 28' - 1"	29' - 7"
	8.25	22	22' - 2" / 22' - 10"	26' - 9"	32' - 1"	19' - 5"	22' - 9"	27' - 4"
		20	22' - 6" / 24' - 11"	27' - 10" / 29' - 3"	33' - 5" / 35' - 1"	21' - 3"	24' - 11"	29' - 11"
		18	23' - 2" / 28' - 3"	28' - 7" / 33' - 2"	34' - 4" / 35' - 10"	22' - 4" / 24' - 1"	27' - 7" / 28' - 3"	30' - 6"
		16	23' - 8" / 31' - 3"	29' - 4" / 33' - 10"	35' - 2" / 35' - 8"	22' - 11" / 26' - 8"	28' - 3" / 28' - 10"	30' - 5"
3000 PSI Lightweight Concrete (110 PCF)	6.25	22	17' - 7" / 22' - 3"	21' - 8" / 26' - 1"	26' - 0" / 29' - 11"	16' - 8" / 18' - 2"	20' - 7" / 21' - 3"	24' - 5"
		20	17' - 11" / 23' - 9"	22' - 2" / 28' - 4"	26' - 7" / 29' - 10"	17' - 0" / 19' - 10"	21' - 1" / 23' - 1"	24' - 4"
		18	18' - 6" / 25' - 3"	22' - 10" / 28' - 2"	27' - 5" / 29' - 9"	17' - 7" / 22' - 4"	21' - 9" / 23' - 1"	24' - 4"
		16	19' - 0" / 26' - 9"	23' - 6" / 28' - 1"	28' - 2" / 29' - 8"	18' - 1" / 24' - 0"	22' - 4" / 23' - 0"	24' - 3"
	6.5	22	18' - 1" / 22' - 7"	22' - 4" / 26' - 6"	26' - 9" / 31' - 0"	17' - 2" / 18' - 6"	21' - 3" / 21' - 8"	25' - 5"
		20	18' - 5" / 24' - 4"	22' - 9" / 28' - 10"	27' - 4" / 31' - 0"	17' - 6" / 20' - 2"	21' - 8" / 23' - 8"	25' - 4"
		18	19' - 0" / 25' - 11"	23' - 6" / 29' - 4"	28' - 3" / 30' - 11"	18' - 1" / 22' - 9"	22' - 5" / 24' - 0"	25' - 4"
		16	19' - 6" / 27' - 5"	24' - 2" / 29' - 2"	29' - 0" / 30' - 9"	18' - 8" / 24' - 8"	23' - 0" / 23' - 11"	25' - 3"
	7	22	19' - 1" / 23' - 2"	23' - 7" / 27' - 3"	28' - 4" / 32' - 8"	18' - 2" / 19' - 1"	22' - 5"	26' - 10"
		20	19' - 6" / 25' - 4"	24' - 1" / 29' - 8"	28' - 11" / 33' - 3"	18' - 7" / 20' - 10"	22' - 11" / 24' - 5"	27' - 4"
		18	20' - 1" / 27' - 2"	24' - 10" / 31' - 5"	29' - 10" / 33' - 1"	19' - 2" / 23' - 7"	23' - 8" / 25' - 11"	27' - 4"
		16	20' - 8" / 28' - 8"	25' - 6" / 31' - 4"	30' - 7" / 33' - 0"	19' - 8" / 25' - 11"	24' - 4" / 25' - 10"	27' - 3"
	7.5	22	20' - 1" / 23' - 9"	24' - 10" / 27' - 10"	29' - 9" / 33' - 5"	19' - 2" / 19' - 8"	23' - 1"	27' - 8"
		20	20' - 6" / 25' - 11"	25' - 3" / 30' - 5"	30' - 4" / 35' - 5"	19' - 6" / 21' - 6"	24' - 2" / 25' - 2"	29' - 0" / 29' - 4"
		18	21' - 1" / 28' - 4"	26' - 1" / 33' - 6"	31' - 3" / 35' - 4"	20' - 2" / 24' - 4"	24' - 11" / 27' - 9"	29' - 3"
		16	21' - 8" / 29' - 11"	26' - 9" / 33' - 5"	32' - 1" / 35' - 2"	20' - 9" / 26' - 10"	25' - 7" / 27' - 8"	29' - 2"
	8	22	21' - 0" / 24' - 3"	25' - 11" / 28' - 6"	31' - 2" / 34' - 2"	20' - 1" / 20' - 2"	23' - 8"	28' - 5"
		20	21' - 5" / 26' - 6"	26' - 6" / 31' - 1"	31' - 9" / 37' - 4"	20' - 6" / 22' - 1"	25' - 4" / 25' - 11"	30' - 4" / 31' - 1"
		18	22' - 1" / 29' - 6"	27' - 3" / 35' - 3"	32' - 9" / 37' - 5"	21' - 1" / 25' - 0"	26' - 1" / 29' - 4"	31' - 2"
		16	22' - 8" / 31' - 2"	28' - 0" / 35' - 5"	33' - 7" / 37' - 4"	21' - 8" / 27' - 8"	26' - 10" / 29' - 6"	31' - 1"
	8.25	22	21' - 6" / 24' - 6"	26' - 6" / 28' - 9"	31' - 10" / 34' - 6"	20' - 5"	24' - 0"	28' - 9"
		20	21' - 11" / 26' - 10"	27' - 0" / 31' - 5"	32' - 5" / 37' - 9"	20' - 11" / 22' - 4"	25' - 10" / 26' - 3"	31' - 0" / 31' - 5"
		18	22' - 7" / 30' - 1"	27' - 10" / 35' - 8"	33' - 5" / 38' - 5"	21' - 7" / 25' - 4"	26' - 8" / 29' - 9"	32' - 0" / 32' - 1"
		16	23' - 2" / 31' - 9"	28' - 7" / 36' - 4"	34' - 4" / 38' - 4"	22' - 2" / 28' - 1"	27' - 5" / 30' - 5"	32' - 0"

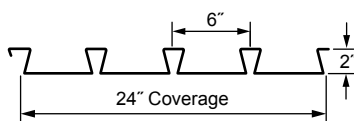
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

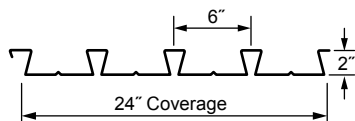


Versa-Dek® 2.0 S ES and LS ES Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
3000 PSI Normal-Weight Concrete (145 PCF)	4	22	7.72 / 10.61	3.99 / 5.5	5.86 / 8.06	5.417	6.080	1.762
		20	8.02 / 11.55	4.57 / 6.67	6.29 / 9.11	6.366	6.080	1.843
		18	8.54 / 13.27	5.5 / 8.87	7.02 / 11.07	5.926	6.080	1.991
		16	9.06 / 15.09	6.37 / 11.29	7.71 / 13.19	6.838	6.080	2.149
	4.5	22	10.82 / 14.5	5.37 / 7.18	8.1 / 10.84	6.349	6.799	2.042
		20	11.22 / 15.71	6.15 / 8.68	8.68 / 12.19	7.497	6.799	2.137
		18	11.9 / 17.93	7.43 / 11.49	9.66 / 14.71	9.420	6.799	2.310
		16	12.58 / 20.28	8.61 / 14.58	10.6 / 17.43	8.326	6.799	2.494
	5	22	14.67 / 19.23	7 / 9.11	10.84 / 14.17	7.281	7.517	2.322
		20	15.17 / 20.75	8.03 / 10.98	11.6 / 15.86	8.628	7.517	2.431
		18	16.05 / 23.53	9.72 / 14.49	12.89 / 19.01	10.917	7.517	2.629
		16	16.93 / 26.49	11.3 / 18.33	14.12 / 22.41	13.091	7.517	2.839
	5.25	22	16.9 / 21.93	7.91 / 10.16	12.4 / 16.05	7.747	7.877	2.462
		20	17.46 / 23.62	9.08 / 12.25	13.27 / 17.94	9.193	7.877	2.577
		18	18.45 / 26.72	11.01 / 16.14	14.73 / 21.43	11.666	7.877	2.788
		16	19.45 / 30.01	12.81 / 20.39	16.13 / 25.2	14.035	7.877	3.012
	5.5	22	19.34 / 24.88	8.88 / 11.29	14.11 / 18.08	8.213	8.229	2.602
		20	19.97 / 26.75	10.21 / 13.59	15.09 / 20.17	9.759	8.236	2.724
		18	21.08 / 30.17	12.39 / 17.88	16.73 / 24.02	12.415	8.236	2.947
		16	22.19 / 33.81	14.43 / 22.56	18.31 / 28.19	14.980	8.236	3.184
	6	22	24.91 / 31.53	11.02 / 13.73	17.97 / 22.63	9.145	8.588	2.882
		20	25.69 / 33.78	12.68 / 16.51	19.19 / 25.15	10.890	8.955	3.018
		18	27.06 / 37.91	15.44 / 21.66	21.25 / 29.79	13.912	8.955	3.266
		16	28.44 / 42.31	18.02 / 27.27	23.23 / 34.79	16.869	8.955	3.530
3000 PSI Lightweight Concrete (110 PCF)	4	22	5.57 / 8.51	3.5 / 5.52	4.53 / 7.01	5.417	4.560	1.744
		20	5.84 / 9.44	3.96 / 6.75	4.9 / 8.09	6.366	4.560	1.822
		18	6.3 / 11.15	4.7 / 9.09	5.5 / 10.12	5.926	4.560	1.964
		16	6.76 / 12.96	5.38 / 11.6	6.07 / 12.28	6.838	4.560	2.116
	4.5	22	7.76 / 11.51	4.73 / 7.16	6.24 / 9.33	6.349	5.099	2.023
		20	8.12 / 12.71	5.36 / 8.72	6.74 / 10.72	7.497	5.099	2.114
		18	8.73 / 14.92	6.37 / 11.7	7.55 / 13.31	9.420	5.099	2.280
		16	9.33 / 17.26	7.3 / 15.01	8.31 / 16.14	8.326	5.099	2.457
	5	22	10.48 / 15.13	6.18 / 9.04	8.33 / 12.08	7.281	5.638	2.302
		20	10.94 / 16.64	7.02 / 10.98	8.98 / 13.81	8.628	5.638	2.406
		18	11.73 / 19.42	8.37 / 14.67	10.05 / 17.05	10.917	5.638	2.597
		16	12.5 / 22.37	9.6 / 18.77	11.05 / 20.57	13.091	5.638	2.799
	5.25	22	12.05 / 17.19	7 / 10.07	9.52 / 13.63	7.747	5.908	2.442
		20	12.56 / 18.87	7.96 / 12.22	10.26 / 15.54	9.193	5.908	2.553
		18	13.45 / 21.95	9.5 / 16.3	11.47 / 19.13	11.666	5.908	2.755
		16	14.33 / 25.23	10.9 / 20.82	12.61 / 23.03	14.035	5.908	2.971
	5.5	22	13.76 / 19.42	7.87 / 11.16	10.82 / 15.29	8.213	6.177	2.581
		20	14.34 / 21.28	8.96 / 13.53	11.65 / 17.41	9.759	6.177	2.699
		18	15.34 / 24.69	10.71 / 18.02	13.03 / 21.35	12.415	6.177	2.914
		16	16.32 / 28.32	12.31 / 22.99	14.32 / 25.65	14.980	6.177	3.142
	6	22	17.68 / 24.43	9.8 / 13.53	13.74 / 18.98	9.145	6.716	2.860
		20	18.4 / 26.67	11.18 / 16.37	14.79 / 21.52	10.890	6.716	2.991
		18	19.63 / 30.79	13.4 / 21.74	16.52 / 26.26	13.912	6.716	3.231
		16	20.86 / 35.17	15.43 / 27.66	18.14 / 31.41	16.869	6.716	3.486

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

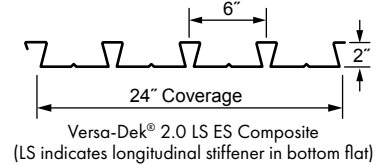
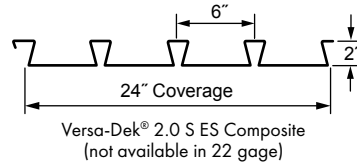
NOTES:

1. Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span.
2. Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
3. Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
4. Factored shear bond capacities of the slabs are based on physical testing.



Versa-Dek® 2.0 S ES and LS ES Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
3000 PSI Normal-Weight Concrete (145 PCF)	6.25	22	28.07 / 35.26	12.18 / 15.05	20.12 / 25.16	9.611	8.768	3.022
		20	28.92 / 37.72	14.04 / 18.08	21.48 / 27.9	11.455	9.315	3.165
		18	30.44 / 42.23	17.1 / 23.71	23.77 / 32.97	14.661	9.315	3.426
		16	31.96 / 47.02	19.99 / 29.81	25.97 / 38.42	17.813	9.315	3.703
	6.5	22	31.47 / 39.27	13.41 / 16.44	22.44 / 27.85	10.076	8.948	3.162
		20	32.42 / 41.94	15.47 / 19.74	23.94 / 30.84	12.021	9.674	3.311
		18	34.08 / 46.85	18.87 / 25.85	26.47 / 36.35	15.409	9.674	3.585
		16	35.76 / 52.07	22.08 / 32.47	28.92 / 42.27	18.758	9.674	3.876
	7	22	39.1 / 48.16	16.07 / 19.41	27.58 / 33.79	11.008	9.307	3.441
		20	40.22 / 51.3	18.56 / 23.28	29.39 / 37.29	13.152	10.161	3.605
		18	42.21 / 57.05	22.7 / 30.44	32.45 / 43.74	16.907	10.393	3.904
		16	44.22 / 63.17	26.61 / 38.16	35.41 / 50.67	20.647	10.393	4.222
	7.5	22	47.87 / 58.3	18.99 / 22.65	33.43 / 40.47	11.940	9.667	3.721
		20	49.19 / 61.93	21.96 / 27.15	35.58 / 44.54	14.283	10.520	3.898
		18	51.54 / 68.6	26.92 / 35.43	39.23 / 52.02	18.404	11.112	4.223
		16	53.91 / 75.7	31.62 / 44.35	42.77 / 60.03	22.536	11.112	4.568
	8	22	57.87 / 69.75	22.18 / 26.16	40.02 / 47.96	12.872	10.026	4.001
		20	59.41 / 73.93	25.69 / 31.33	42.55 / 52.63	15.413	10.880	4.192
		18	62.14 / 81.59	31.55 / 40.83	46.84 / 61.21	19.901	11.831	4.542
		16	64.92 / 89.74	37.13 / 51.05	51.02 / 70.39	24.425	11.831	4.914
	8.25	22	63.35 / 76.01	23.87 / 28.02	43.61 / 52.01	13.338	10.206	4.140
		20	65.01 / 80.46	27.67 / 33.55	46.34 / 57	15.979	11.059	4.338
		18	67.94 / 88.64	34.01 / 43.69	50.98 / 66.17	20.650	12.190	4.702
		16	70.93 / 97.34	40.06 / 54.58	55.5 / 75.96	25.369	12.190	5.087
3000 PSI Lightweight Concrete (110 PCF)	6.25	22	19.89 / 27.22	10.86 / 14.81	15.37 / 21.01	9.611	6.986	3.000
		20	20.68 / 29.67	12.39 / 17.91	16.54 / 23.79	11.455	6.986	3.138
		18	22.05 / 34.17	14.87 / 23.74	18.46 / 28.95	14.661	6.986	3.390
		16	23.4 / 38.96	17.15 / 30.16	20.28 / 34.56	17.813	6.986	3.658
	6.5	22	22.27 / 30.21	11.98 / 16.15	17.12 / 23.18	10.076	7.256	3.140
		20	23.14 / 32.88	13.68 / 19.51	18.41 / 26.2	12.021	7.256	3.284
		18	24.65 / 37.78	16.44 / 25.83	20.55 / 31.81	15.409	7.256	3.549
		16	26.15 / 42.99	18.98 / 32.79	22.56 / 37.89	18.758	7.256	3.830
	7	22	27.59 / 36.83	14.4 / 19.02	21 / 27.93	11.008	7.795	3.419
		20	28.64 / 39.96	16.48 / 22.95	22.56 / 31.45	13.152	7.795	3.577
		18	30.45 / 45.7	19.85 / 30.31	25.15 / 38.01	16.907	7.795	3.867
		16	32.25 / 51.81	22.97 / 38.39	27.61 / 45.1	20.647	7.795	4.174
	7.5	22	33.7 / 44.32	17.07 / 22.15	25.39 / 33.24	11.940	8.278	3.698
		20	34.94 / 47.95	19.56 / 26.69	27.25 / 37.32	14.283	8.334	3.870
		18	37.09 / 54.61	23.63 / 35.18	30.36 / 44.89	18.404	8.334	4.185
		16	39.22 / 61.69	27.4 / 44.46	33.31 / 53.08	22.536	8.334	4.519
	8	22	40.65 / 52.75	20 / 25.54	30.32 / 39.15	12.872	8.547	3.977
		20	42.09 / 56.92	22.95 / 30.74	32.52 / 43.83	15.413	8.873	4.163
		18	44.61 / 64.56	27.79 / 40.43	36.2 / 52.5	19.901	8.873	4.503
		16	47.12 / 72.7	32.28 / 51.02	39.7 / 61.86	24.425	8.873	4.864
	8.25	22	44.45 / 57.33	21.56 / 27.33	33.01 / 42.33	13.338	8.682	4.116
		20	46.01 / 61.78	24.76 / 32.88	35.38 / 47.33	15.979	9.143	4.309
		18	48.72 / 69.95	30.01 / 43.21	39.36 / 56.58	20.650	9.143	4.662
		16	51.43 / 78.63	34.9 / 54.47	43.16 / 66.55	25.369	9.143	5.036

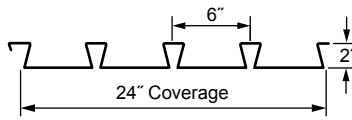
ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

NOTES:

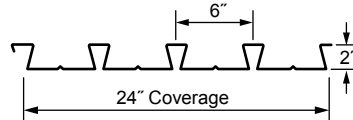
- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
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- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

Versa-Dek® 2.0 S ES and LS ES Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
3000 PSI Normal-Weight Concrete (145 PCF)	4	18	-	-	5@9	-	-	-
		20	-	-	-	-	-	-
		22	-	-	-	-	-	-
		24	-	-	-	-	-	-
	4.5	18	5@8	5@10	5@11	-	-	-
		20	-	-	5@8	-	-	-
		22	-	-	-	-	-	-
		24	-	-	-	-	-	-
	5	18	5@10	5@11	4@8	-	5@7	5@8
		20	5@7	5@8	5@10	-	-	-
		22	-	-	5@8	-	-	-
		24	-	-	-	-	-	-
	5.25	18	5@10	4@7	4@8	5@6	5@7	5@8
		20	5@8	5@9	5@10	-	-	-
		22	-	5@7	5@8	-	-	-
		24	-	-	5@6	-	-	-
	5.5	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@8	5@9	5@11	-	5@6	5@7
		22	5@7	5@7	5@8	-	-	-
		24	-	5@6	5@7	-	-	-
	6	18	4@7	4@8	4@9	5@8	5@9	5@10
		20	5@9	5@10	4@7	5@6	5@7	5@7
		22	5@7	5@8	5@9	-	-	5@6
		24	5@6	5@7	5@7	-	-	-
3000 PSI Lightweight Concrete (110 PCF)	4	18	-	-	5@10	-	-	-
		20	-	-	-	-	-	-
		22	-	-	-	-	-	-
		24	-	-	-	-	-	-
	4.5	18	5@10	5@11	4@8	-	-	-
		20	-	5@8	5@9	-	-	-
		22	-	-	-	-	-	-
		24	-	-	-	-	-	-
	5	18	5@11	4@8	4@9	-	5@7	5@8
		20	5@8	5@10	5@11	-	-	-
		22	-	5@8	5@9	-	-	-
		24	-	-	5@7	-	-	-
	5.25	18	4@7	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	-	-	5@7
		22	5@7	5@8	5@9	-	-	-
		24	-	5@7	5@7	-	-	-
	5.5	18	4@8	4@9	4@10	5@7	5@8	5@9
		20	5@10	5@11	4@8	-	5@6	5@7
		22	5@8	5@9	5@10	-	-	-
		24	5@6	5@7	5@8	-	-	-
	6	18	4@9	4@10	4@11	5@8	5@9	5@11
		20	5@10	4@8	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@11	-	5@6	5@7
		24	5@7	5@8	5@9	-	-	-

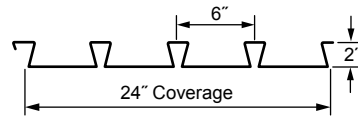
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

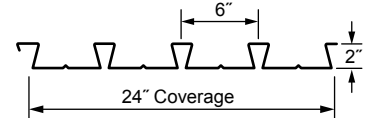


Versa-Dek® 2.0 S ES and LS ES Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
3000 PSI Normal-Weight Concrete (145 PCF)	6.25	20	5@9	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	-	6@8	5@6
		24	5@6	5@7	5@8	-	-	-
		26	4@3	5@6	5@6	-	-	-
	6.5	20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@7
		24	5@6	5@7	5@8	-	-	6@7
		26	6@7	5@6	5@7	-	-	-
	7	18	4@8	4@10	4@11	5@9	5@10	5@11
		22	5@8	5@10	5@11	5@6	5@6	5@7
		26	5@6	5@6	5@7	-	-	6@7
		30	-	6@6	6@7	-	-	-
	7.5	18	4@9	4@10	4@11	5@10	5@11	4@8
		22	5@9	5@10	5@11	5@6	5@7	5@8
		26	5@6	5@7	5@8	4@2	6@6	6@7
		30	6@6	6@7	6@8	-	-	-
	8	18	4@9	4@9	4@9	5@10	4@7	4@8
		22	5@9	5@11	4@7	5@6	5@7	5@8
		26	5@6	5@7	5@8	6@6	6@7	6@8
		30	6@6	6@7	5@6	-	-	6@5
	8.25	18	4@10	4@10	4@10	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@8
		26	5@7	5@7	5@8	6@6	6@7	5@6
		30	6@7	6@8	5@6	-	6@5	6@6
3000 PSI Lightweight Concrete (110 PCF)	6.25	20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	6@8	5@6	5@7
		24	5@7	5@8	5@9	-	-	5@6
		26	5@6	5@7	5@7	-	-	-
	6.75	18	4@10	4@11	4@12	5@10	5@11	4@8
		20	4@8	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@11	4@8	5@6	5@7	5@8
		24	5@8	5@9	5@10	6@7	6@8	5@6
	7	18	4@10	4@11	4@11	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@6	5@7	5@8
		26	5@7	5@8	5@8	-	6@7	6@8
		30	6@7	6@8	5@6	-	-	-
	7.5	18	4@10	4@10	4@10	5@11	4@8	4@9
		22	5@10	4@7	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@6	6@7	5@6
		30	6@7	5@6	5@6	-	-	4@2
	8	18	5@11	4@8	4@9	5@11	4@8	4@9
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@8	5@8	5@9	6@7	5@6	5@6
		30	6@8	5@6	5@7	-	6@6	6@6
	8.25	18	5@11	4@8	4@9	4@8	4@8	4@9
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	6@8	5@6	5@7	6@5	6@6	6@6

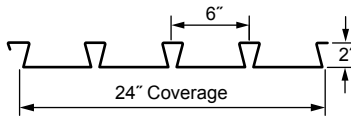
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

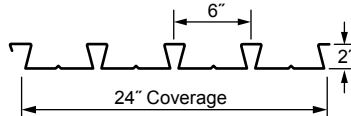


Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM DESIGN NEGATIVE MOMENT CAPACITY OF COMPOSITE SLABS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

3000 PSI OF ANY DENSITY

	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		4	4.5	5	5.25	5.5	6
3000 PSI of Any Density	4@12	2.483	2.933	3.383	3.608	3.833	4.283
	4@10	2.927	3.467	4.007	4.277	4.547	5.087
	4@8	3.561	4.236	4.911	5.249	5.586	6.261
	4@6	-	5.431	6.331	6.781	7.231	8.131
	5@12	3.576	4.274	4.971	5.320	5.669	6.366
	5@10	4.166	5.003	5.840	6.258	6.677	7.514
	5@8	-	-	7.065	7.588	8.111	9.158
	5@6	-	-	-	-	-	11.688
	6@12	-	5.631	6.621	7.116	7.611	8.601
	6@10	-	-	-	8.287	8.881	10.069
	6@8	-	-	-	-	-	-
	6@6	-	-	-	-	-	-
	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		6.25	6.5	7	7.5	8	8.25
3000 PSI of Any Density	4@12	4.508	4.733	5.183	-	-	-
	4@10	5.357	5.627	6.167	6.707	7.247	7.517
	4@8	6.599	6.936	7.611	8.286	8.961	9.299
	4@6	8.581	9.031	9.931	10.831	11.731	12.181
	5@12	6.715	7.064	7.761	8.459	9.156	9.505
	5@10	7.932	8.351	9.188	10.025	10.862	11.280
	5@8	9.681	10.204	11.250	12.296	13.343	13.866
	5@6	12.386	13.083	14.478	15.873	17.268	17.966
	6@12	9.096	9.591	10.581	11.571	12.561	13.056
	6@10	10.663	11.257	12.445	13.633	14.821	15.415
	6@8	12.856	13.599	15.084	16.569	18.054	18.796
	6@6	-	-	-	-	23.023	24.013

NOTES:

- Table is based on Grade 60 ASTM A615 reinforcing bars with 3/4" concrete cover over supports.
- Slab self-weight has not been accounted for in the tabulated moment capacities.
It should be included into the loads applied to the slab.

INSTRUCTIONS ON HOW TO SELECT A REINFORCEMENT PATTERN:

Step 1 – Calculate required negative moment capacity, M_{req} , as follows:

$$M_{req, LRFD} = [1.2(W_{slab} + W_D) + 1.6W_L]L^2/C \text{ (LRFD)}$$

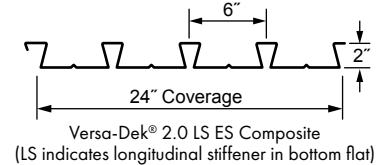
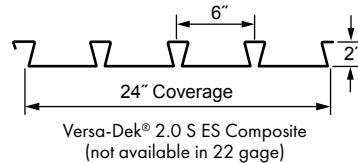
Where: w_D = superimposed dead load, psf; w_L = live load, psf; w_{slab} = slab weight, psf; L = span length taken as the average of the adjacent span lengths (spans shall be approximately equal with the larger of two adjacent spans not greater than the shorter by more than 20%), ft; $M_{req, LRFD}$ = required LRFD factored negative moment capacity, lb-ft/ft deck width; C = negative bending coefficient (9 for interior support of two span continuous composite slab; 10 for first interior support of composite slab continuous over more than two spans; 11 for other interior supports of composite slab continuous over more than two spans).

Step 2 – Select reinforcement size and spacing from table where $\phi M_n \geq M_{req, LRFD}$ (LRFD).



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	Negative Moment Steel Reinforcing Required				
			18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"						
4000 PSI Normal-Weight Concrete (145 PCF)	4"	22	255	171 / 199	80 / 161	- / 109	- / 75	- / 50	- / 70	- / 50	-	-	-
	44 PSF	20	289	185 / 209	87 / 171	- / 135	- / 95	- / 61	- / 70	- / 50	-	-	-
	1.12 cu.yd/(100sq.ft)	18	312	250	101 / 186	46 / 156	- / 123	- / 82	- / 69	- / 49	-	-	-
	6x6 - W1.4 x W1.4	16	337	270	114 / 202	54 / 158	- / 113	- / 82	40 / 69	- / 49	-	-	-
	4.5"	22	296	232	122 / 188	57 / 128	- / 89	- / 62	45 / 100	- / 73	- / 54	-	-
	50 PSF	20	335	243	133 / 199	64 / 159	- / 113	- / 81	48 / 103	- / 76	- / 56	- / 41	-
	1.27 cu.yd/(100sq.ft)	18	362	265	151 / 216	75 / 182	- / 154	- / 113	58 / 103	- / 76	- / 55	- / 40	-
	6x6 - W1.4 x W1.4	16	391	313	169 / 235	86 / 198	- / 170	- / 136	67 / 102	- / 75	- / 55	- / 40	-
	5"	22	337	264	175 / 215	89 / 147	40 / 103	- / 72	71 / 115	- / 85	- / 63	- / 46	-
	56 PSF	20	353	277	189 / 226	97 / 184	46 / 130	- / 94	79 / 137	42 / 107	- / 81	- / 61	- / 45
	1.43 cu.yd/(100sq.ft)	18	412	302	213 / 247	112 / 208	55 / 178	- / 132	90 / 142	51 / 106	- / 80	- / 60	- / 45
	6x6 - W1.4 x W1.4	16	445	356	237 / 269	127 / 226	65 / 194	- / 169	103 / 141	58 / 106	- / 79	- / 60	- / 44
	5.25"	22	357	280	209 / 228	109 / 157	53 / 109	- / 77	89 / 123	48 / 91	- / 67	- / 49	-
	59 PSF	20	375	294	225 / 240	118 / 196	59 / 139	- / 100	98 / 146	54 / 117	- / 89	- / 67	- / 50
	1.5 cu.yd/(100sq.ft)	18	437	320	252 / 262	135 / 220	70 / 189	- / 141	110 / 164	65 / 124	- / 94	- / 71	- / 54
	6x6 - W2.0 x W2.0	16	472	378	278 / 285	152 / 240	80 / 206	- / 180	124 / 163	72 / 123	40 / 93	- / 71	- / 53
	5.5"	22	377	296	242	129 / 166	65 / 116	- / 82	107 / 130	60 / 96	- / 71	- / 52	-
	62 PSF	20	396	311	254	140 / 208	72 / 148	- / 107	116 / 154	67 / 124	- / 94	- / 72	- / 54
	1.58 cu.yd/(100sq.ft)	18	462	339	277	159 / 233	85 / 200	40 / 150	131 / 175	79 / 142	43 / 109	- / 84	- / 64
	6x6 - W2.0 x W2.0	16	499	400	302	178 / 254	97 / 219	48 / 191	147 / 186	88 / 141	51 / 108	- / 83	- / 63
	6"	22	418	328	268	176 / 186	95 / 130	46 / 92	146	88 / 108	49 / 80	- / 59	- / 42
	68 PSF	20	440	345	282	190 / 232	104 / 165	52 / 120	160 / 171	97 / 139	55 / 106	- / 80	- / 61
	1.74 cu.yd/(100sq.ft)	18	500	376	308	214 / 259	120 / 222	63 / 169	178 / 194	112 / 165	66 / 141	- / 110	- / 86
	6x6 - W2.0 x W2.0	16	500	409	335	238 / 282	135 / 243	73 / 212	199 / 212	124 / 182	77 / 141	43 / 109	- / 85
4000 PSI Lightweight Concrete (110 PCF)	4"	22	274	132 / 202	61 / 166	- / 117	- / 78	- / 47	- / 78	- / 58	- / 44	-	-
	33 PSF	20	286	144 / 212	68 / 174	- / 134	- / 90	- / 58	- / 78	- / 58	- / 43	-	-
	1.12 cu.yd/(100sq.ft)	18	308	201 / 247	79 / 188	- / 159	- / 111	- / 78	- / 77	- / 57	- / 43	-	-
	6x6 - W1.4 x W1.4	16	332	220 / 266	127 / 222	42 / 166	- / 121	- / 89	- / 77	- / 57	- / 42	-	-
	4.5"	22	298	191 / 235	93 / 193	44 / 137	- / 98	- / 70	- / 109	- / 83	- / 63	- / 47	-
	38 PSF	20	332	207 / 246	103 / 202	49 / 168	- / 119	- / 84	- / 112	- / 85	- / 65	- / 50	-
	1.27 cu.yd/(100sq.ft)	18	358	276 / 286	118 / 219	59 / 185	- / 147	- / 103	45 / 112	- / 85	- / 64	- / 49	-
	6x6 - W1.4 x W1.4	16	386	302 / 309	132 / 238	67 / 201	- / 173	- / 124	53 / 111	- / 84	- / 64	- / 49	-
	5"	22	340	263 / 268	134 / 220	67 / 157	- / 113	- / 82	54 / 125	- / 95	- / 73	- / 56	- / 43
	42 PSF	20	377	281	146 / 230	75 / 194	- / 140	- / 104	59 / 147	- / 117	- / 91	- / 71	- / 56
	1.43 cu.yd/(100sq.ft)	18	408	326	166 / 250	87 / 211	43 / 182	- / 132	70 / 152	- / 117	- / 90	- / 70	- / 55
	6x6 - W1.4 x W1.4	16	440	352	185 / 271	99 / 229	51 / 198	- / 158	80 / 151	45 / 116	- / 90	- / 70	- / 54
	5.25"	22	361	284	159 / 233	83 / 168	40 / 120	- / 87	68 / 133	- / 101	- / 78	- / 60	- / 46
	45 PSF	20	400	298	173 / 245	91 / 206	45 / 150	- / 111	73 / 156	42 / 128	- / 99	- / 78	- / 61
	1.5 cu.yd/(100sq.ft)	18	432	346	196 / 266	105 / 224	54 / 194	- / 149	85 / 170	49 / 134	- / 105	- / 82	- / 65
	6x6 - W2.0 x W2.0	16	467	373	217 / 288	119 / 244	63 / 210	- / 178	97 / 174	57 / 134	- / 104	- / 81	- / 64
	5.5"	22	382	301	185 / 247	98 / 178	49 / 127	- / 93	81 / 142	46 / 108	- / 83	- / 63	- / 49
	47 PSF	20	423	315	200 / 259	108 / 219	56 / 159	- / 118	87 / 165	52 / 136	- / 106	- / 83	- / 65
	1.58 cu.yd/(100sq.ft)	18	457	366	226 / 281	124 / 238	66 / 205	- / 162	102 / 180	60 / 153	- / 120	- / 95	- / 75
	6x6 - W2.0 x W2.0	16	493	395	251 / 305	139 / 258	76 / 223	- / 195	115 / 195	69 / 152	- / 119	- / 94	- / 74
	6"	22	423	333	244 / 274	134 / 198	72 / 142	- / 104	112 / 158	67 / 120	- / 92	- / 71	- / 55
	52 PSF	20	469	350	263 / 287	146 / 243	80 / 178	40 / 132	123 / 179	74 / 152	42 / 118	- / 93	- / 73
	1.74 cu.yd/(100sq.ft)	18	500	380	296 / 312	166 / 264	93 / 228	49 / 181	138 / 199	85 / 177	52 / 154	- / 122	- / 98
	6x6 - W2.0 x W2.0	16	500	438	328 / 339	185 / 286	106 / 247	57 / 217	155 / 217	97 / 193	58 / 153	- / 122	- / 98

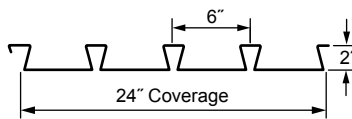
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

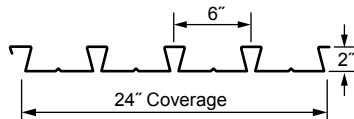


Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	Negative Moment Steel Reinforcing Required				
4000 PSI Normal-Weight Concrete (145 PCF)	6.25"	22	439	344	281	195	112 / 137	57 / 96	105 / 114	60 / 84	- / 62	- / 45	-
	71 PSF	20	461	362	296	218 / 244	122 / 174	64 / 126	114 / 147	67 / 112	- / 85	- / 64	- / 48
	1.81 cu.yd/(100sq.ft)	18	500	395	323	245 / 272	139 / 233	76 / 178	131 / 174	80 / 154	44 / 125	- / 98	- / 77
	6x6 - W2.0 x W2.0	16	500	429	352	271 / 296	157 / 255	87 / 223	145 / 197	92 / 158	53 / 124	- / 97	- / 76
	6.5"	22	459	360	294	205	131 / 144	69 / 101	119	73 / 89	- / 65	- / 47	-
	74 PSF	20	483	379	310	250 / 257	142 / 183	77 / 133	133 / 154	81 / 117	44 / 89	- / 68	- / 50
	1.89 cu.yd/(100sq.ft)	18	500	413	338	279 / 285	161 / 245	90 / 188	152 / 182	95 / 162	55 / 132	- / 104	- / 81
	4x4 - W1.4 x W1.4	16	500	449	368	308 / 310	180 / 267	103 / 233	167 / 206	108 / 177	65 / 139	- / 110	- / 87
	7"	22	500	392	321	224	157	99 / 111	131	97	62 / 72	- / 52	-
	80 PSF	20	500	413	338	281	189 / 201	108 / 145	169	114 / 129	69 / 98	- / 75	- / 56
	2.04 cu.yd/(100sq.ft)	18	500	450	369	310	212 / 267	124 / 206	199	130 / 176	81 / 145	45 / 114	- / 90
	6x6 - W2.9 x W2.9	16	500	490	402	339	235 / 291	140 / 254	218	146 / 194	93 / 172	55 / 138	- / 110
	7.5"	22	500	425	347	243	171	121	142	106	79	49 / 57	-
	86 PSF	20	500	447	365	305	218	142 / 158	184	140	95 / 107	55 / 82	- / 61
	2.2 cu.yd/(100sq.ft)	18	500	487	399	336	268 / 289	161 / 225	215	169 / 191	109 / 159	66 / 125	- / 99
	6x6 - W2.9 x W2.9	16	500	500	435	367	296 / 315	180 / 276	237	188 / 211	124 / 189	78 / 168	44 / 135
	8"	22	500	457	373	263	185	131	154	115	85	62	-
	92 PSF	20	500	480	393	330	236	171	199	152	116	78 / 89	43 / 67
	2.35 cu.yd/(100sq.ft)	18	500	500	429	362	311	204 / 243	232	206	142 / 172	92 / 136	54 / 107
	6x6 - W2.9 x W2.9	16	500	500	468	395	340	227 / 297	255	227	160 / 204	105 / 184	64 / 149
	8.25"	22	500	473	386	272	191	136	160	119	89	65	-
	95 PSF	20	500	497	407	342	244	178	206	158	121	90 / 92	53 / 69
	2.43 cu.yd/(100sq.ft)	18	500	500	445	374	322	228 / 253	240	213	160 / 179	105 / 141	64 / 112
	6x6 - W2.9 x W2.9	16	500	500	485	409	352	252 / 308	264	235	179 / 211	120 / 190	76 / 155
4000 PSI Lightweight Concrete (110 PCF)	6.25"	22	444	350	277 / 287	154 / 208	84 / 150	42 / 109	79 / 127	45 / 97	- / 75	- / 58	- / 44
	54 PSF	20	492	367	299 / 301	167 / 255	93 / 187	49 / 139	87 / 160	51 / 124	- / 98	- / 77	- / 61
	1.81 cu.yd/(100sq.ft)	18	500	399	328	190 / 277	108 / 239	59 / 191	100 / 186	62 / 162	- / 138	- / 111	- / 90
	6x6 - W2.0 x W2.0	16	500	459	355	212 / 301	122 / 260	68 / 228	113 / 202	70 / 171	42 / 137	- / 110	- / 89
	6.5"	22	465	366	301	176 / 218	98 / 157	52 / 115	92 / 133	55 / 102	- / 79	- / 61	- / 46
	56 PSF	20	487	384	316	191 / 267	108 / 196	58 / 146	102 / 168	62 / 131	- / 103	- / 81	- / 64
	1.89 cu.yd/(100sq.ft)	18	500	417	343	216 / 290	125 / 250	70 / 201	118 / 190	73 / 170	43 / 145	- / 117	- / 95
	4x4 - W1.4 x W1.4	16	500	481	372	240 / 315	141 / 272	81 / 239	131 / 212	82 / 190	51 / 153	- / 123	- / 100
	7"	22	500	399	328	229 / 239	132 / 172	74 / 126	125 / 145	78 / 112	46 / 87	- / 67	- / 51
	61 PSF	20	500	419	344	246 / 291	144 / 215	82 / 160	136 / 184	86 / 143	52 / 113	- / 89	- / 70
	2.04 cu.yd/(100sq.ft)	18	500	455	374	276 / 316	164 / 273	96 / 221	155 / 207	100 / 185	62 / 160	- / 129	- / 105
	6x6 - W2.9 x W2.9	16	500	500	406	306 / 344	183 / 297	109 / 261	171 / 231	114 / 202	73 / 182	43 / 152	- / 124
	7.5"	22	500	432	354	259	169 / 186	98 / 137	158	103 / 122	64 / 94	- / 73	- / 56
	65 PSF	20	500	453	372	307 / 315	183 / 234	108 / 174	173 / 200	113 / 156	71 / 123	42 / 97	- / 77
	2.2 cu.yd/(100sq.ft)	18	500	493	405	343	207 / 296	124 / 240	196 / 225	130 / 201	84 / 174	51 / 141	- / 114
	6x6 - W2.9 x W2.9	16	500	500	440	372	230 / 322	141 / 282	216 / 251	147 / 219	97 / 198	61 / 180	- / 151
	8"	22	500	464	381	279	201	126 / 148	171	132	85 / 102	52 / 79	- / 61
	70 PSF	20	500	488	401	339	227 / 252	138 / 188	216	144 / 169	94 / 133	59 / 105	- / 83
	2.35 cu.yd/(100sq.ft)	18	500	500	436	369	255 / 318	157 / 260	242	164 / 216	109 / 189	70 / 153	41 / 124
	6x6 - W2.9 x W2.9	16	500	500	474	401	283 / 347	176 / 304	267 / 270	184 / 237	124 / 213	82 / 194	50 / 166
	8.25"	22	500	481	395	290	209	142 / 153	177	136	97 / 106	60 / 82	- / 63
	72 PSF	20	500	500	415	351	251 / 262	154 / 195	224	161 / 175	106 / 138	68 / 109	- / 87
	2.43 cu.yd/(100sq.ft)	18	500	500	452	382	282 / 330	175 / 270	251	183 / 224	123 / 196	80 / 158	49 / 129
	6x6 - W2.9 x W2.9	16	500	500	491	415	312 / 359	196 / 315	280	204 / 245	139 / 221	93 / 201	59 / 172

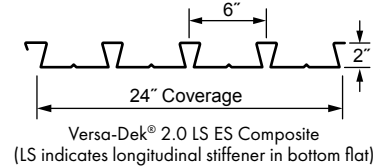
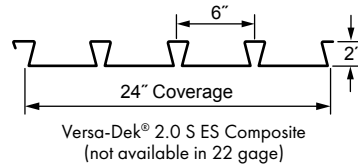
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
4000 PSI Normal-Weight Concrete (145 PCF)	4	22	13' - 7" / 17' - 5"	16' - 9" / 19' - 6"	20' - 1" / 20' - 6"	12' - 10" / 14' - 3"	15' - 8"	16' - 6"
		20	13' - 10" / 18' - 1"	17' - 1" / 19' - 5"	20' - 6"	13' - 1" / 15' - 6"	15' - 8"	16' - 6"
		18	14' - 3" / 19' - 2"	17' - 8" / 19' - 4"	20' - 5"	13' - 6" / 17' - 1"	15' - 7"	16' - 6"
		16	14' - 8" / 20' - 2"	18' - 1" / 19' - 4"	20' - 4"	13' - 11" / 16' - 6"	15' - 7"	16' - 5"
	4.5	22	14' - 9" / 18' - 8"	18' - 3" / 21' - 11"	21' - 11" / 23' - 4"	14' - 0" / 15' - 2"	17' - 4" / 17' - 9"	19' - 0"
		20	15' - 1" / 19' - 7"	18' - 8" / 22' - 2"	22' - 4" / 23' - 4"	14' - 4" / 16' - 6"	17' - 8" / 18' - 0"	18' - 11"
		18	15' - 6" / 20' - 9"	19' - 2" / 22' - 1"	23' - 0" / 23' - 3"	14' - 9" / 18' - 6"	17' - 11"	18' - 11"
		16	15' - 11" / 21' - 10"	19' - 8" / 22' - 0"	23' - 2"	15' - 2" / 19' - 6"	17' - 11"	18' - 10"
	5	22	15' - 11" / 19' - 6"	19' - 9" / 22' - 10"	23' - 8" / 26' - 1"	15' - 2" / 15' - 11"	18' - 8"	21' - 4"
		20	16' - 3" / 21' - 0"	20' - 1" / 24' - 8"	24' - 1" / 26' - 1"	15' - 6" / 17' - 5"	19' - 2" / 20' - 3"	21' - 4"
		18	16' - 9" / 22' - 2"	20' - 8" / 24' - 7"	24' - 10" / 25' - 11"	16' - 0" / 19' - 8"	19' - 9" / 20' - 2"	21' - 3"
		16	17' - 2" / 23' - 4"	21' - 3" / 24' - 6"	25' - 6" / 25' - 10"	16' - 5" / 21' - 0"	20' - 2"	21' - 3"
	5.25	22	16' - 7" / 19' - 10"	20' - 6" / 23' - 3"	24' - 7" / 27' - 5"	15' - 9" / 16' - 4"	19' - 1"	22' - 6"
		20	16' - 11" / 21' - 8"	20' - 10" / 25' - 5"	25' - 0" / 27' - 4"	16' - 1" / 17' - 9"	19' - 11" / 20' - 10"	22' - 6"
		18	17' - 5" / 22' - 11"	21' - 6" / 25' - 10"	25' - 9" / 27' - 3"	16' - 7" / 20' - 1"	20' - 6" / 21' - 3"	22' - 5"
		16	17' - 10" / 24' - 1"	22' - 0" / 25' - 9"	26' - 5" / 27' - 2"	17' - 0" / 21' - 8"	21' - 0" / 21' - 3"	22' - 5"
	5.5	22	17' - 2" / 20' - 2"	21' - 2" / 23' - 8"	25' - 5" / 28' - 5"	16' - 4" / 16' - 8"	19' - 6"	23' - 5"
		20	17' - 5" / 22' - 0"	21' - 7" / 25' - 10"	25' - 11" / 28' - 8"	16' - 8" / 18' - 2"	20' - 7" / 21' - 4"	23' - 7"
		18	18' - 0" / 23' - 8"	22' - 2" / 27' - 1"	26' - 8" / 28' - 7"	17' - 2" / 20' - 7"	21' - 2" / 22' - 4"	23' - 7"
		16	18' - 5" / 24' - 10"	22' - 9" / 27' - 0"	27' - 4" / 28' - 6"	17' - 7" / 22' - 5"	21' - 9" / 22' - 4"	23' - 6"
	6	22	18' - 3" / 20' - 10"	22' - 7" / 24' - 5"	27' - 1" / 29' - 4"	17' - 3"	20' - 3"	24' - 4"
		20	18' - 7" / 22' - 9"	22' - 11" / 26' - 8"	27' - 6" / 31' - 2"	17' - 9" / 18' - 11"	21' - 11" / 22' - 2"	25' - 10"
		18	19' - 1" / 25' - 0"	23' - 7" / 29' - 6"	28' - 4" / 31' - 1"	18' - 3" / 21' - 5"	22' - 7" / 24' - 6"	25' - 10"
		16	19' - 7" / 26' - 3"	24' - 2" / 29' - 4"	29' - 0" / 31' - 0"	18' - 9" / 23' - 8"	23' - 2" / 24' - 5"	25' - 9"
4000 PSI Lightweight Concrete (110 PCF)	4	22	13' - 0" / 17' - 2"	16' - 1" / 20' - 5"	19' - 3" / 21' - 6"	12' - 2" / 14' - 8"	15' - 1" / 16' - 2"	17' - 0"
		20	13' - 3" / 17' - 11"	16' - 5" / 20' - 4"	19' - 8" / 21' - 6"	12' - 6" / 15' - 5"	15' - 5" / 16' - 1"	17' - 0"
		18	13' - 9" / 19' - 2"	16' - 11" / 20' - 3"	20' - 4" / 21' - 5"	12' - 11" / 16' - 7"	15' - 11" / 16' - 1"	16' - 11"
		16	14' - 1" / 20' - 4"	17' - 5" / 20' - 2"	20' - 11" / 21' - 3"	13' - 3" / 17' - 0"	16' - 0"	16' - 11"
	4.5	22	14' - 2" / 18' - 7"	17' - 6" / 22' - 11"	21' - 0" / 24' - 7"	13' - 4" / 15' - 8"	16' - 6" / 18' - 4"	19' - 7"
		20	14' - 6" / 19' - 4"	17' - 11" / 23' - 3"	21' - 6" / 24' - 6"	13' - 8" / 16' - 11"	16' - 11" / 18' - 7"	19' - 7"
		18	15' - 0" / 20' - 8"	18' - 6" / 23' - 2"	22' - 2" / 24' - 5"	14' - 1" / 18' - 2"	17' - 5" / 18' - 6"	19' - 6"
		16	15' - 4" / 21' - 11"	19' - 0" / 23' - 1"	22' - 10" / 24' - 4"	14' - 6" / 19' - 4"	17' - 11" / 18' - 6"	19' - 6"
	5	22	15' - 4" / 20' - 0"	18' - 11" / 24' - 1"	22' - 9" / 27' - 6"	14' - 6" / 16' - 6"	17' - 11" / 19' - 4"	21' - 6" / 22' - 1"
		20	15' - 8" / 20' - 10"	19' - 4" / 25' - 8"	23' - 3" / 27' - 6"	14' - 10" / 18' - 0"	18' - 3" / 20' - 11"	21' - 11" / 22' - 1"
		18	16' - 2" / 22' - 2"	20' - 0" / 26' - 0"	24' - 0" / 27' - 5"	15' - 4" / 19' - 8"	18' - 11" / 20' - 11"	22' - 0"
		16	16' - 7" / 23' - 6"	20' - 6" / 25' - 11"	24' - 7" / 27' - 3"	15' - 9" / 20' - 11"	19' - 5" / 20' - 10"	22' - 0"
	5.25	22	15' - 11" / 20' - 8"	19' - 8" / 24' - 7"	23' - 7" / 29' - 0"	15' - 1" / 16' - 11"	18' - 7" / 19' - 10"	22' - 4" / 23' - 4"
		20	16' - 3" / 21' - 6"	20' - 1" / 26' - 7"	24' - 1" / 28' - 11"	15' - 5" / 18' - 5"	19' - 0" / 21' - 8"	22' - 10" / 23' - 4"
		18	16' - 9" / 22' - 11"	20' - 9" / 27' - 4"	24' - 11" / 28' - 10"	15' - 11" / 20' - 5"	19' - 8" / 22' - 1"	23' - 3"
		16	17' - 3" / 24' - 3"	21' - 4" / 27' - 3"	25' - 7" / 28' - 9"	16' - 4" / 21' - 7"	20' - 2" / 22' - 0"	23' - 2"
	5.5	22	16' - 6" / 21' - 4"	20' - 4" / 25' - 1"	24' - 5" / 30' - 1"	15' - 7" / 17' - 4"	19' - 3" / 20' - 3"	23' - 2" / 24' - 4"
		20	16' - 10" / 22' - 2"	20' - 9" / 27' - 4"	24' - 11" / 30' - 4"	15' - 11" / 18' - 11"	19' - 8" / 22' - 2"	23' - 8" / 24' - 6"
		18	17' - 4" / 23' - 7"	21' - 5" / 28' - 8"	25' - 9" / 30' - 3"	16' - 6" / 21' - 1"	20' - 4" / 23' - 3"	24' - 5" / 24' - 6"
		16	17' - 10" / 24' - 11"	22' - 0" / 28' - 7"	26' - 5" / 30' - 1"	16' - 11" / 22' - 3"	20' - 11" / 23' - 2"	24' - 5"
	6	22	17' - 7" / 22' - 2"	21' - 8" / 25' - 11"	26' - 0" / 31' - 2"	16' - 8" / 18' - 0"	20' - 7" / 21' - 1"	24' - 8" / 25' - 4"
		20	17' - 11" / 23' - 6"	22' - 2" / 28' - 4"	26' - 7" / 33' - 1"	17' - 0" / 19' - 8"	21' - 0" / 23' - 1"	25' - 3" / 26' - 11"
		18	18' - 6" / 24' - 11"	22' - 10" / 30' - 10"	27' - 5" / 33' - 0"	17' - 7" / 22' - 4"	21' - 9" / 25' - 6"	26' - 1" / 26' - 11"
		16	19' - 0" / 26' - 4"	23' - 5" / 31' - 2"	28' - 2" / 32' - 10"	18' - 1" / 23' - 7"	22' - 4" / 25' - 5"	26' - 9" / 26' - 10"

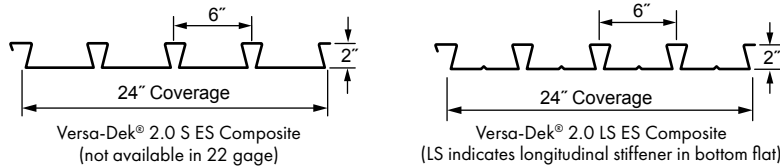
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
4000 PSI Normal-Weight Concrete (145 PCF)	6.25	22	18' - 9" / 21' - 1"	23' - 2" / 24' - 9"	27' - 10" / 29' - 9"	17' - 7"	20' - 7"	24' - 9"
		20	19' - 1" / 23' - 1"	23' - 7" / 27' - 1"	28' - 4" / 32' - 5"	18' - 4" / 19' - 3"	22' - 6"	27' - 0"
		18	19' - 8" / 25' - 8"	24' - 3" / 30' - 7"	29' - 2" / 32' - 3"	18' - 10" / 21' - 10"	23' - 3" / 25' - 6"	26' - 11"
		16	20' - 2" / 26' - 11"	24' - 11" / 30' - 6"	29' - 10" / 32' - 2"	19' - 4" / 24' - 1"	23' - 10" / 25' - 6"	26' - 10"
	6.5	22	19' - 4" / 21' - 5"	23' - 10" / 25' - 1"	28' - 8" / 30' - 1"	17' - 10"	20' - 11"	25' - 2"
		20	19' - 8" / 23' - 5"	24' - 3" / 27' - 5"	29' - 2" / 32' - 11"	18' - 10" / 19' - 6"	22' - 11"	27' - 6"
		18	20' - 2" / 26' - 4"	25' - 0" / 31' - 1"	29' - 11" / 33' - 6"	19' - 5" / 22' - 2"	23' - 11" / 26' - 0"	28' - 0"
		16	20' - 8" / 27' - 7"	25' - 7" / 31' - 8"	30' - 8" / 33' - 5"	19' - 10" / 24' - 6"	24' - 7" / 26' - 6"	27' - 11"
	7	22	20' - 5" / 21' - 11"	25' - 3" / 25' - 8"	30' - 4" / 30' - 10"	18' - 5"	21' - 7"	25' - 11"
		20	20' - 9" / 24' - 0"	25' - 8" / 28' - 1"	30' - 10" / 33' - 9"	19' - 11" / 20' - 2"	23' - 7"	28' - 4"
		18	21' - 4" / 27' - 2"	26' - 4" / 31' - 11"	31' - 7" / 35' - 10"	20' - 6" / 22' - 11"	25' - 4" / 26' - 10"	30' - 1"
		16	21' - 10" / 28' - 11"	27' - 0" / 33' - 10"	32' - 5" / 35' - 8"	21' - 0" / 25' - 4"	25' - 11" / 28' - 6"	30' - 1"
	7.5	22	21' - 5" / 22' - 4"	26' - 3"	31' - 6"	18' - 11"	22' - 2"	26' - 7"
		20	21' - 10" / 24' - 6"	26' - 11" / 28' - 8"	32' - 4" / 34' - 5"	20' - 8"	24' - 3"	29' - 1"
		18	22' - 4" / 27' - 10"	27' - 8" / 32' - 7"	33' - 2" / 38' - 1"	21' - 6" / 23' - 6"	26' - 7" / 27' - 7"	31' - 11" / 32' - 2"
		16	22' - 11" / 30' - 2"	28' - 4" / 36' - 0"	33' - 11" / 38' - 0"	22' - 1" / 26' - 1"	27' - 3" / 30' - 6"	32' - 1"
	8	22	22' - 5" / 22' - 10"	26' - 9"	32' - 1"	19' - 4"	22' - 8"	27' - 3"
		20	22' - 10" / 24' - 11"	28' - 2" / 29' - 3"	33' - 10" / 35' - 1"	21' - 2"	24' - 10"	29' - 10"
		18	23' - 5" / 28' - 5"	28' - 11" / 33' - 3"	34' - 8" / 39' - 11"	22' - 6" / 24' - 1"	27' - 10" / 28' - 3"	33' - 5" / 33' - 11"
		16	23' - 11" / 31' - 5"	29' - 7" / 36' - 11"	35' - 6" / 40' - 2"	23' - 1" / 26' - 9"	28' - 6" / 31' - 5"	34' - 2"
	8.25	22	22' - 11" / 23' - 0"	27' - 0"	32' - 4"	19' - 7"	22' - 11"	27' - 6"
		20	23' - 3" / 25' - 2"	28' - 9" / 29' - 6"	34' - 6" / 35' - 5"	21' - 5"	25' - 2"	30' - 2"
		18	23' - 10" / 28' - 8"	29' - 6" / 33' - 7"	35' - 5" / 40' - 4"	23' - 0" / 24' - 5"	28' - 5" / 28' - 7"	34' - 2" / 34' - 4"
		16	24' - 5" / 31' - 9"	30' - 2" / 37' - 3"	36' - 3" / 41' - 3"	23' - 7" / 27' - 1"	29' - 2" / 31' - 9"	35' - 0" / 35' - 2"
4000 PSI Lightweight Concrete (110 PCF)	6.25	22	18' - 1" / 22' - 6"	22' - 4" / 26' - 4"	26' - 10" / 31' - 8"	17' - 2" / 18' - 4"	21' - 3" / 21' - 6"	25' - 6" / 25' - 10"
		20	18' - 5" / 24' - 2"	22' - 10" / 28' - 10"	27' - 4" / 34' - 5"	17' - 7" / 20' - 1"	21' - 8" / 23' - 6"	26' - 0" / 28' - 1"
		18	19' - 0" / 25' - 7"	23' - 6" / 31' - 8"	28' - 3" / 34' - 4"	18' - 1" / 22' - 9"	22' - 5" / 26' - 7"	26' - 10" / 28' - 1"
		16	19' - 7" / 27' - 0"	24' - 2" / 32' - 5"	29' - 0" / 34' - 3"	18' - 7" / 24' - 3"	23' - 0" / 26' - 7"	27' - 7" / 28' - 0"
	6.5	22	18' - 7" / 22' - 10"	23' - 0" / 26' - 9"	27' - 7" / 32' - 1"	17' - 8" / 18' - 8"	21' - 10" / 21' - 11"	26' - 3" / 26' - 3"
		20	19' - 0" / 24' - 9"	23' - 6" / 29' - 3"	28' - 2" / 35' - 1"	18' - 1" / 20' - 5"	22' - 4" / 23' - 11"	26' - 10" / 28' - 9"
		18	19' - 7" / 26' - 3"	24' - 2" / 32' - 6"	29' - 0" / 35' - 8"	18' - 8" / 23' - 2"	23' - 1" / 27' - 2"	27' - 8" / 29' - 3"
		16	20' - 1" / 27' - 9"	24' - 10" / 33' - 8"	29' - 10" / 35' - 6"	19' - 2" / 24' - 11"	23' - 8" / 27' - 8"	28' - 5" / 29' - 2"
	7	22	19' - 9" / 23' - 5"	24' - 4" / 27' - 5"	29' - 3" / 32' - 11"	18' - 9" / 19' - 3"	22' - 7"	27' - 1"
		20	20' - 1" / 25' - 7"	24' - 10" / 30' - 0"	29' - 9" / 36' - 0"	19' - 2" / 21' - 1"	23' - 8" / 24' - 9"	28' - 4" / 29' - 8"
		18	20' - 8" / 27' - 7"	25' - 7" / 34' - 1"	30' - 8" / 38' - 3"	19' - 9" / 23' - 11"	24' - 5" / 28' - 1"	29' - 3" / 31' - 6"
		16	21' - 3" / 29' - 0"	26' - 3" / 35' - 10"	31' - 6" / 38' - 1"	20' - 3" / 26' - 2"	25' - 1" / 29' - 10"	30' - 1" / 31' - 5"
	7.5	22	20' - 8" / 24' - 0"	25' - 7" / 28' - 1"	30' - 8" / 33' - 9"	19' - 9" / 19' - 10"	23' - 3"	27' - 11"
		20	21' - 1" / 26' - 3"	26' - 1" / 30' - 9"	31' - 3" / 36' - 11"	20' - 2" / 21' - 8"	24' - 11" / 25' - 5"	29' - 10" / 30' - 6"
		18	21' - 9" / 28' - 10"	26' - 10" / 34' - 11"	32' - 3" / 40' - 9"	20' - 9" / 24' - 8"	25' - 8" / 28' - 11"	30' - 9" / 33' - 9"
		16	22' - 3" / 30' - 4"	27' - 6" / 37' - 5"	33' - 1" / 40' - 7"	21' - 4" / 27' - 4"	26' - 4" / 32' - 0"	31' - 7" / 33' - 8"
	8	22	21' - 8" / 24' - 6"	26' - 9" / 28' - 8"	32' - 2" / 34' - 5"	20' - 4"	23' - 10"	28' - 8"
		20	22' - 1" / 26' - 9"	27' - 3" / 31' - 5"	32' - 9" / 37' - 8"	21' - 1" / 22' - 3"	26' - 1" / 26' - 2"	31' - 4" / 31' - 4"
		18	22' - 9" / 30' - 0"	28' - 1" / 35' - 8"	33' - 8" / 42' - 10"	21' - 9" / 25' - 4"	26' - 11" / 29' - 9"	32' - 3" / 35' - 8"
		16	23' - 4" / 31' - 7"	28' - 10" / 39' - 0"	34' - 7" / 43' - 1"	22' - 4" / 28' - 2"	27' - 7" / 33' - 0"	33' - 1" / 35' - 11"
	8.25	22	22' - 2" / 24' - 9"	27' - 4" / 29' - 0"	32' - 10" / 34' - 9"	20' - 7"	24' - 2"	29' - 0"
		20	22' - 7" / 27' - 1"	27' - 10" / 31' - 9"	33' - 5" / 38' - 1"	21' - 7" / 22' - 7"	26' - 5"	31' - 9"
		18	23' - 3" / 30' - 7"	28' - 8" / 36' - 1"	34' - 5" / 43' - 3"	22' - 3" / 25' - 8"	27' - 6" / 30' - 1"	33' - 0" / 36' - 1"
		16	23' - 10" / 32' - 2"	29' - 5" / 39' - 9"	35' - 4" / 44' - 3"	22' - 10" / 28' - 6"	28' - 3" / 33' - 5"	33' - 10" / 37' - 0"

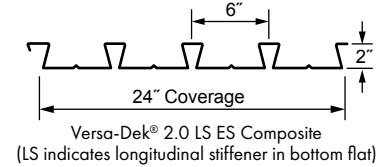
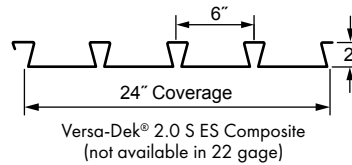
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
4000 PSI Normal-Weight Concrete (145 PCF)	4	22	8.69 / 11.57	4.16 / 5.52	6.43 / 8.54	5.617	7.020	1.767
		20	9 / 12.51	4.77 / 6.67	6.89 / 9.59	6.661	7.020	1.849
		18	9.54 / 14.23	5.78 / 8.83	7.66 / 11.53	8.440	7.020	1.999
		16	10.08 / 16.06	6.71 / 11.21	8.39 / 13.63	7.632	7.020	2.159
	4.5	22	12.21 / 15.86	5.59 / 7.21	8.9 / 11.54	6.549	7.850	2.048
		20	12.61 / 17.07	6.43 / 8.69	9.52 / 12.88	7.792	7.850	2.143
		18	13.31 / 19.29	7.8 / 11.47	10.55 / 15.38	9.937	7.850	2.319
		16	14.02 / 21.65	9.08 / 14.5	11.55 / 18.07	12.025	7.850	2.505
	5	22	16.56 / 21.1	7.28 / 9.16	11.92 / 15.13	7.481	8.451	2.328
		20	17.08 / 22.62	8.38 / 11.02	12.73 / 16.82	8.923	8.680	2.437
		18	17.98 / 25.41	10.19 / 14.49	14.09 / 19.95	11.435	8.680	2.638
		16	18.9 / 28.37	11.89 / 18.27	15.4 / 23.32	13.914	8.680	2.851
	5.25	22	19.09 / 24.1	8.21 / 10.23	13.65 / 17.16	7.947	8.658	2.468
		20	19.67 / 25.79	9.46 / 12.3	14.56 / 19.04	9.488	9.096	2.584
		18	20.69 / 28.89	11.53 / 16.15	16.11 / 22.52	12.183	9.096	2.797
		16	21.72 / 32.18	13.47 / 20.33	17.59 / 26.26	14.858	9.096	3.024
	5.5	22	21.86 / 27.37	9.22 / 11.37	15.54 / 19.37	8.413	8.866	2.608
		20	22.51 / 29.24	10.63 / 13.66	16.57 / 21.45	10.054	9.511	2.731
		18	23.65 / 32.66	12.96 / 17.91	18.3 / 25.29	12.932	9.511	2.957
		16	24.8 / 36.31	15.16 / 22.52	19.98 / 29.41	15.803	9.511	3.197
	6	22	28.19 / 34.77	11.42 / 13.84	19.8 / 24.31	9.345	9.281	2.888
		20	28.98 / 37.02	13.19 / 16.61	21.09 / 26.82	11.185	10.135	3.025
		18	30.39 / 41.16	16.13 / 21.73	23.26 / 31.44	14.429	10.341	3.276
		16	31.82 / 45.55	18.91 / 27.26	25.36 / 36.41	17.692	10.341	3.543
4000 PSI Lightweight Concrete (110 PCF)	4	22	6.22 / 9.14	3.67 / 5.5	4.95 / 7.32	5.617	5.265	1.751
		20	6.5 / 10.08	4.17 / 6.71	5.34 / 8.39	6.661	5.265	1.830
		18	6.99 / 11.79	4.98 / 8.99	5.98 / 10.39	8.440	5.265	1.974
		16	7.47 / 13.61	5.72 / 11.53	6.59 / 12.57	7.632	5.265	2.128
	4.5	22	8.69 / 12.41	4.95 / 7.15	6.82 / 9.78	6.549	5.888	2.031
		20	9.06 / 13.62	5.64 / 8.69	7.35 / 11.15	7.792	5.888	2.123
		18	9.7 / 15.83	6.74 / 11.6	8.22 / 13.71	9.937	5.888	2.291
		16	10.33 / 18.18	7.75 / 14.83	9.04 / 16.5	12.025	5.888	2.471
	5	22	11.75 / 16.37	6.47 / 9.04	9.11 / 12.71	7.481	6.510	2.310
		20	12.22 / 17.88	7.38 / 10.96	9.8 / 14.42	8.923	6.510	2.416
		18	13.05 / 20.66	8.84 / 14.58	10.94 / 17.62	11.435	6.510	2.609
		16	13.86 / 23.61	10.19 / 18.58	12.02 / 21.09	13.914	6.510	2.814
	5.25	22	13.52 / 18.62	7.32 / 10.08	10.42 / 14.35	7.947	6.822	2.450
		20	14.05 / 20.3	8.35 / 12.21	11.2 / 16.25	9.488	6.822	2.562
		18	14.98 / 23.39	10.02 / 16.21	12.5 / 19.8	12.183	6.822	2.768
		16	15.9 / 26.67	11.56 / 20.62	13.73 / 23.65	14.858	6.822	2.986
	5.5	22	15.45 / 21.06	8.23 / 11.19	11.84 / 16.13	8.413	7.133	2.589
		20	16.05 / 22.93	9.4 / 13.53	12.73 / 18.23	10.054	7.133	2.709
		18	17.09 / 26.34	11.29 / 17.93	14.19 / 22.14	12.932	7.133	2.927
		16	18.12 / 29.97	13.04 / 22.79	15.58 / 26.38	15.803	7.133	3.158
	6	22	19.87 / 26.57	10.23 / 13.58	15.05 / 20.07	9.345	7.755	2.869
		20	20.61 / 28.82	11.71 / 16.39	16.16 / 22.6	11.185	7.755	3.002
		18	21.9 / 32.94	14.11 / 21.67	18 / 27.3	14.429	7.755	3.245
		16	23.18 / 37.32	16.33 / 27.46	19.75 / 32.39	17.692	7.755	3.503

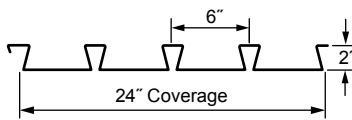
ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

NOTES:

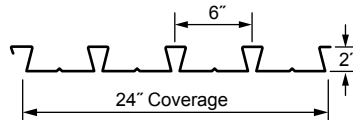
- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

Versa-Dek® 2.0 S ES and LS ES Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
4000 PSI Normal-Weight Concrete (145 PCF)	6.25	22	31.77 / 38.92	12.62 / 15.18	22.19 / 27.05	9.811	9.489	3.028
		20	32.64 / 41.38	14.59 / 18.21	23.62 / 29.79	11.750	10.342	3.172
		18	34.2 / 45.9	17.86 / 23.79	26.03 / 34.84	15.178	10.756	3.436
		16	35.77 / 50.7	20.96 / 29.82	28.37 / 40.26	18.636	10.756	3.716
	6.5	22	35.64 / 43.39	13.88 / 16.58	24.76 / 29.99	10.277	9.696	3.168
		20	36.6 / 46.07	16.06 / 19.88	26.33 / 32.97	12.316	10.550	3.319
		18	38.31 / 50.98	19.69 / 25.95	29 / 38.47	15.927	11.171	3.595
		16	40.04 / 56.2	23.14 / 32.5	31.59 / 44.35	19.581	11.171	3.889
	7	22	44.31 / 53.32	16.62 / 19.59	30.46 / 36.46	11.209	10.111	3.448
		20	45.46 / 56.46	19.25 / 23.47	32.35 / 39.97	13.447	10.965	3.613
		18	47.49 / 62.22	23.65 / 30.59	35.57 / 46.41	17.424	12.001	3.915
		16	49.56 / 68.35	27.85 / 38.25	38.71 / 53.3	21.470	12.001	4.236
	7.5	22	54.29 / 64.67	19.62 / 22.88	36.95 / 43.77	12.141	10.526	3.727
		20	55.64 / 68.3	22.76 / 27.38	39.2 / 47.84	14.578	11.380	3.906
		18	58.04 / 74.98	28.02 / 35.64	43.03 / 55.31	18.921	12.831	4.234
		16	60.48 / 82.08	33.05 / 44.5	46.77 / 63.29	23.359	12.831	4.582
	8	22	65.68 / 77.51	22.89 / 26.43	44.28 / 51.97	13.072	10.941	4.007
		20	67.24 / 81.68	26.59 / 31.62	46.92 / 56.65	15.708	11.795	4.200
		18	70.03 / 89.34	32.8 / 41.11	51.42 / 65.23	20.419	13.345	4.553
		16	72.89 / 97.5	38.76 / 51.26	55.83 / 74.38	25.248	13.661	4.929
	8.25	22	71.92 / 84.52	24.63 / 28.31	48.28 / 56.41	13.538	11.149	4.147
		20	73.61 / 88.98	28.62 / 33.86	51.12 / 61.42	16.274	12.002	4.346
		18	76.61 / 97.16	35.35 / 44	55.98 / 70.58	21.167	13.552	4.713
		16	79.68 / 105.87	41.8 / 54.83	60.74 / 80.35	26.193	14.076	5.102
4000 PSI Lightweight Concrete (110 PCF)	6.25	22	22.36 / 29.64	11.33 / 14.87	16.85 / 22.26	9.811	8.067	3.008
		20	23.18 / 32.1	12.97 / 17.94	18.08 / 25.02	11.750	8.067	3.148
		18	24.61 / 36.6	15.65 / 23.68	20.13 / 30.14	15.178	8.067	3.404
		16	26.02 / 41.39	18.14 / 29.97	22.08 / 35.68	18.636	8.067	3.675
	6.5	22	25.06 / 32.94	12.49 / 16.23	18.77 / 24.58	10.277	8.300	3.148
		20	25.96 / 35.61	14.31 / 19.56	20.13 / 27.59	12.316	8.378	3.295
		18	27.52 / 40.51	17.29 / 25.79	22.41 / 33.15	15.927	8.378	3.563
		16	29.09 / 45.73	20.06 / 32.61	24.57 / 39.17	19.581	8.378	3.847
	7	22	31.08 / 40.24	14.99 / 19.13	23.03 / 29.69	11.209	8.611	3.427
		20	32.15 / 43.38	17.21 / 23.03	24.68 / 33.2	13.447	9.001	3.588
		18	34.03 / 49.12	20.85 / 30.29	27.44 / 39.71	17.424	9.001	3.881
		16	35.91 / 55.24	24.24 / 38.23	30.07 / 46.73	21.470	9.001	4.192
	7.5	22	37.99 / 48.53	17.75 / 22.3	27.87 / 35.42	12.141	8.922	3.707
		20	39.26 / 52.17	20.41 / 26.81	29.84 / 39.49	14.578	9.623	3.881
		18	41.48 / 58.83	24.79 / 35.2	33.13 / 47.01	18.921	9.623	4.199
		16	43.71 / 65.92	28.88 / 44.33	36.29 / 55.13	23.359	9.623	4.537
	8	22	45.86 / 57.88	20.77 / 25.73	33.32 / 41.8	13.072	9.234	3.986
		20	47.34 / 62.05	23.92 / 30.9	35.63 / 46.47	15.708	10.087	4.174
		18	49.93 / 69.7	29.11 / 40.5	39.52 / 55.1	20.419	10.246	4.518
		16	52.55 / 77.84	33.98 / 50.92	43.26 / 64.38	25.248	10.246	4.883
	8.25	22	50.17 / 62.96	22.38 / 27.54	36.27 / 45.25	13.538	9.389	4.126
		20	51.76 / 67.41	25.79 / 33.07	38.78 / 50.24	16.274	10.243	4.320
		18	54.56 / 75.58	31.42 / 43.3	42.99 / 59.44	21.167	10.557	4.677
		16	57.37 / 84.27	36.71 / 54.4	47.04 / 69.34	26.193	10.557	5.056

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

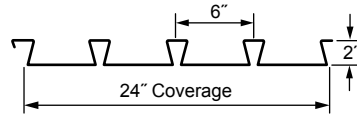
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 25500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

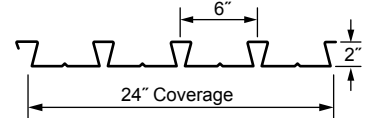


Versa-Dek® 2.0 S ES and LS ES Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
4000 PSI Normal-Weight Concrete (145 PCF)	4	18	5@8	5@9	5@10	-	-	-
		20	-	-	5@7	-	-	-
		22	-	-	-	-	-	-
		24	-	-	-	-	-	-
	4.5	18	5@9	5@10	5@11	-	5@6	5@7
		20	5@7	5@8	5@9	-	-	-
		22	-	5@6	5@7	-	-	-
		24	-	-	-	-	-	-
	5	18	5@10	5@11	4@8	5@6	5@7	5@8
		20	5@8	5@9	5@10	-	6@8	5@6
		22	5@6	5@7	5@8	-	-	-
		24	-	5@6	5@6	-	-	-
	5.25	18	5@10	4@8	4@8	5@7	5@8	5@8
		20	5@8	5@9	5@10	6@7	5@6	5@7
		22	5@7	5@7	5@8	-	-	6@7
		24	6@7	5@6	5@7	-	-	-
	5.5	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	6@8	5@6	5@7
		22	5@7	5@8	5@9	-	6@7	5@6
		24	5@6	5@6	5@7	-	-	4@3
	6	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@9	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	6@8	5@6
		24	5@6	5@7	5@8	-	6@6	6@7
4000 PSI Lightweight Concrete (110 PCF)	4	18	5@8	5@10	5@11	-	-	-
		20	-	5@7	5@8	-	-	-
		22	-	-	-	-	-	-
		24	-	-	-	-	-	-
	4.5	18	5@10	5@11	4@8	5@6	5@7	5@7
		20	5@8	5@9	5@10	-	-	-
		22	5@6	5@7	5@8	-	-	-
		24	-	-	5@6	-	-	-
	5	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	6@7	5@6	5@7
		22	5@7	5@8	5@9	-	-	6@7
		24	5@6	5@6	5@7	-	-	-
	5.25	18	4@8	4@9	4@10	5@7	5@8	5@9
		20	5@9	5@11	4@8	5@6	5@6	5@7
		22	5@7	5@8	5@9	-	6@7	5@6
		24	5@6	5@7	5@8	-	-	-
	5.5	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	6@8	5@6
		24	5@6	5@7	5@8	-	-	6@7
	6	18	4@9	4@10	4@11	5@9	5@10	5@11
		20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	6@8	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	6@8

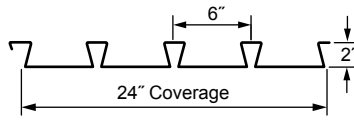
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

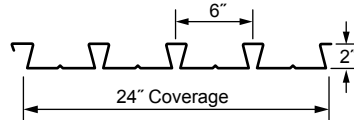


Versa-Dek® 2.0 S ES and LS ES Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
4000 PSI Normal-Weight Concrete (145 PCF)	6.25	20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@6	5@7	5@8	6@6	6@7	6@8
		26	6@8	5@6	5@7	-	6@5	6@6
	6.5	20	5@10	5@11	4@8	5@7	5@8	5@8
		22	5@8	5@9	5@10	6@8	5@6	5@7
		24	5@7	5@7	5@8	6@6	6@7	6@8
		26	6@8	5@6	5@7	4@2	6@6	6@6
	7	18	4@9	4@10	4@10	5@9	5@10	4@7
		22	5@9	5@10	5@11	5@6	5@7	5@7
		26	5@6	5@7	5@7	6@6	6@6	6@7
		30	6@6	6@7	6@8	-	-	6@5
	7.5	18	4@9	4@9	4@9	5@10	5@11	4@8
		22	5@9	5@10	5@11	5@6	5@7	5@8
		26	5@6	5@7	5@8	6@6	6@7	6@8
		30	6@6	6@7	5@6	4@2	6@5	6@5
	8	18	5@10	5@11	4@8	5@10	4@7	4@8
		22	5@10	5@11	4@8	5@7	5@7	5@8
		26	5@7	5@7	5@8	6@6	6@7	5@6
		30	6@7	6@8	5@6	6@4	6@5	6@6
	8.25	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@8	6@7	6@8	5@6
		30	6@7	6@8	5@6	6@5	6@5	6@6
4000 PSI Lightweight Concrete (110 PCF)	6.25	20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	5@6	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	5@6
		26	5@6	5@7	5@8	4@2	6@6	6@7
	6.5	18	4@10	4@10	4@10	5@10	5@11	4@8
		20	4@8	4@9	4@10	5@8	5@9	5@10
		22	5@10	5@11	4@8	5@6	5@7	5@8
		24	5@8	5@9	5@10	6@7	5@6	5@6
	7	18	4@10	4@10	4@10	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@6	5@7	5@8
		26	5@7	5@8	5@9	6@6	6@7	6@8
		30	6@7	5@6	5@6	-	6@5	6@6
	7.5	18	5@11	4@8	4@8	5@11	4@8	4@9
		22	5@11	4@8	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@7	6@5	6@5	6@6
	8	18	5@11	4@8	4@8	4@7	4@8	4@8
		22	5@11	4@8	4@8	5@7	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	5@6	5@6	5@7	6@5	6@6	6@7
	8.25	18	5@11	4@8	4@8	4@8	4@8	4@8
		22	5@11	4@8	4@8	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@6	5@7	6@5	6@6	6@7

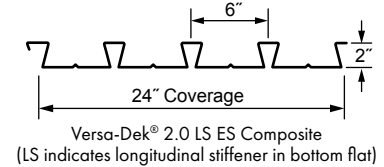
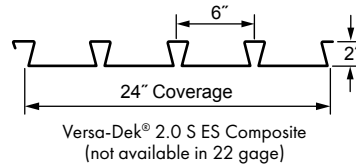
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM DESIGN NEGATIVE MOMENT CAPACITY OF COMPOSITE SLABS



4000 PSI OF ANY DENSITY

	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		4	4.5	5	5.25	5.5	6
4000 PSI of Any Density	4@12	2.537	2.987	3.437	3.662	3.887	4.337
	4@10	3.005	3.545	4.085	4.355	4.625	5.165
	4@8	3.683	4.358	5.033	5.371	5.708	6.383
	4@6	4.748	5.648	6.548	6.998	7.448	8.348
	5@12	3.706	4.404	5.101	5.450	5.799	6.496
	5@10	4.354	5.191	6.028	6.446	6.865	7.702
	5@8	5.266	6.312	7.359	7.882	8.405	9.451
	5@6	-	-	9.420	10.118	10.815	12.210
	6@12	4.904	5.894	6.884	7.379	7.874	8.864
	6@10	-	6.884	8.072	8.666	9.260	10.448
	6@8	-	-	9.735	10.477	11.220	12.705
	6@6	-	-	-	-	-	-
	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		6.25	6.5	7	7.5	8	8.25
4000 PSI of Any Density	4@12	4.562	-	-	-	-	-
	4@10	5.435	5.705	6.245	-	-	-
	4@8	6.721	7.058	7.733	8.408	9.083	9.421
	4@6	8.798	9.248	10.148	11.048	11.948	12.398
	5@12	6.845	7.194	7.891	8.589	9.286	9.635
	5@10	8.120	8.539	9.376	10.213	11.050	11.468
	5@8	9.974	10.497	11.544	12.590	13.636	14.159
	5@6	12.908	13.605	15.000	16.395	17.790	18.488
	6@12	9.359	9.854	10.844	11.834	12.824	13.319
	6@10	11.042	11.636	12.824	14.012	15.200	15.794
	6@8	13.447	14.190	15.675	17.160	18.645	19.387
	6@6	17.141	18.131	20.111	22.091	24.071	25.061

NOTES:

1. Table is based on Grade 60 ASTM A615 reinforcing bars with 3/4" concrete cover over supports.
2. Slab self-weight has not been accounted for in the tabulated moment capacities.
It should be included into the loads applied to the slab.

INSTRUCTIONS ON HOW TO SELECT A REINFORCEMENT PATTERN:

Step 1 – Calculate required negative moment capacity, M_{req} , as follows:

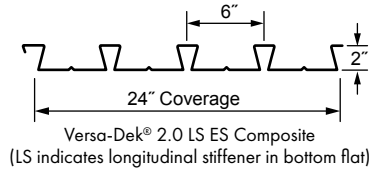
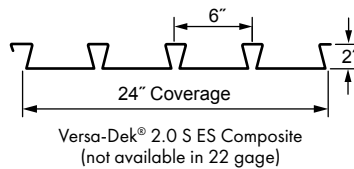
$$M_{req, LRFD} = [1.2(W_{slab} + W_D) + 1.6W_L]L^2/C \text{ (LRFD)}$$

Where: w_D = superimposed dead load, psf; w_L = live load, psf; w_{slab} = slab weight, psf; L = span length taken as the average of the adjacent span lengths (spans shall be approximately equal with the larger of two adjacent spans not greater than the shorter by more than 20%); $M_{req, LRFD}$ = required LRFD factored negative moment capacity, lb-ft/ft deck width; C = negative bending coefficient (9 for interior support of two span continuous composite slab; 10 for first interior support of composite slab continuous over more than two spans; 11 for other interior supports of composite slab continuous over more than two spans).

Step 2 – Select reinforcement size and spacing from table where $\phi M_n \geq M_{req, LRFD}$ (LRFD).

Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)											
			Simple Spans						Continuous Spans Negative Moment Steel Reinforcing Required					
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	
5000 PSI Normal-Weight Concrete (145 PCF)	4"	22	255	188 / 200	89 / 163	- / 112	- / 78	- / 54	- / 87	- / 64	- / 47	-	-	
	44 PSF	20	290	202 / 210	97 / 171	44 / 140	- / 99	- / 66	- / 90	- / 66	- / 49	-	-	
	1.12 cu.yd/(100sq.ft)	18	313	251	111 / 187	52 / 157	- / 128	- / 87	- / 89	- / 66	- / 48	-	-	
	6x6 - W1.4 x W1.4	16	338	271	125 / 203	61 / 171	- / 147	- / 105	46 / 89	- / 65	- / 47	-	-	
	4.5"	22	296	232	135 / 189	66 / 131	- / 91	- / 64	52 / 102	- / 76	- / 56	- / 41	-	
	50 PSF	20	336	244	147 / 199	73 / 164	- / 116	- / 84	56 / 125	- / 98	- / 74	- / 56	- / 42	
	1.27 cu.yd/(100sq.ft)	18	363	266	166 / 217	84 / 183	- / 157	- / 118	66 / 130	- / 98	- / 74	- / 56	- / 41	
	6x6 - W1.4 x W1.4	16	393	314	184 / 236	96 / 199	46 / 171	- / 140	76 / 129	40 / 97	- / 73	- / 55	- / 41	
	5"	22	337	264	193 / 216	100 / 150	48 / 105	- / 74	82 / 118	44 / 87	- / 64	- / 47	-	
	56 PSF	20	354	278	208 / 227	109 / 188	54 / 134	- / 96	90 / 137	49 / 112	- / 85	- / 65	- / 49	
	1.43 cu.yd/(100sq.ft)	18	413	303	233 / 248	125 / 208	64 / 179	- / 137	101 / 156	59 / 133	- / 104	- / 80	- / 62	
	6x6 - W1.4 x W1.4	16	447	357	258 / 269	140 / 227	74 / 195	- / 170	114 / 170	66 / 135	- / 103	- / 80	- / 61	
	5.25"	22	358	280	229	122 / 160	62 / 112	- / 79	101 / 125	57 / 93	- / 69	- / 50	-	
	59 PSF	20	376	295	241	132 / 200	68 / 143	- / 103	110 / 146	63 / 120	- / 91	- / 69	- / 52	
	1.5 cu.yd/(100sq.ft)	18	438	321	263	150 / 221	80 / 190	- / 146	123 / 165	74 / 141	40 / 121	- / 94	- / 73	
	6x6 - W2.0 x W2.0	16	474	379	286	167 / 241	91 / 207	45 / 181	138 / 181	82 / 156	48 / 120	- / 93	- / 73	
	5.5"	22	378	296	242	145 / 170	76 / 119	- / 84	120 / 133	70 / 99	- / 73	- / 54	-	
	62 PSF	20	397	312	255	156 / 213	83 / 151	- / 109	130 / 154	77 / 127	42 / 97	- / 74	- / 56	
	1.58 cu.yd/(100sq.ft)	18	463	340	278	176 / 234	96 / 201	48 / 155	145 / 175	90 / 149	51 / 132	- / 109	- / 86	
	6x6 - W2.0 x W2.0	16	500	401	303	195 / 255	109 / 219	56 / 191	162 / 191	99 / 169	60 / 138	- / 108	- / 85	
	6"	22	419	329	268	189	108 / 132	55 / 93	148	101 / 110	58 / 82	- / 60	- / 44	
	68 PSF	20	440	346	283	210 / 237	118 / 169	61 / 122	172	110 / 142	65 / 108	- / 83	- / 63	
	1.74 cu.yd/(100sq.ft)	18	500	377	308	235 / 260	134 / 223	73 / 174	194	126 / 166	77 / 147	42 / 122	- / 96	
	6x6 - W2.0 x W2.0	16	500	410	336	260 / 283	150 / 244	84 / 213	213	139 / 188	88 / 162	51 / 141	- / 112	
5000 PSI Lightweight Concrete (110 PCF)	4"	22	274	144 / 203	68 / 166	- / 120	- / 81	- / 50	- / 95	- / 72	- / 53	-	-	
	33 PSF	20	287	156 / 213	75 / 174	- / 138	- / 93	- / 61	- / 98	- / 74	- / 57	- / 41	-	
	1.12 cu.yd/(100sq.ft)	18	310	214 / 248	87 / 189	41 / 160	- / 114	- / 80	- / 97	- / 74	- / 56	- / 43	-	
	6x6 - W1.4 x W1.4	16	334	235 / 267	136 / 223	48 / 173	- / 137	- / 96	- / 97	- / 73	- / 55	- / 42	-	
	4.5"	22	299	207 / 236	103 / 193	50 / 140	- / 100	- / 73	- / 111	- / 85	- / 65	- / 50	-	
	38 PSF	20	333	224 / 247	113 / 203	56 / 171	- / 123	- / 87	43 / 129	- / 107	- / 83	- / 62	- / 40	
	1.27 cu.yd/(100sq.ft)	18	359	287	129 / 220	66 / 186	- / 151	- / 106	52 / 139	- / 107	- / 83	- / 65	- / 50	
	6x6 - W1.4 x W1.4	16	388	310	144 / 239	75 / 202	- / 174	- / 126	60 / 138	- / 106	- / 82	- / 64	- / 50	
	5"	22	341	269	147 / 220	76 / 160	- / 115	- / 84	62 / 128	- / 97	- / 74	- / 57	- / 44	
	42 PSF	20	378	282	159 / 231	84 / 195	41 / 144	- / 107	67 / 147	- / 123	- / 95	- / 75	- / 59	
	1.43 cu.yd/(100sq.ft)	18	409	327	181 / 251	97 / 212	49 / 183	- / 136	78 / 160	44 / 142	- / 114	- / 90	- / 72	
	6x6 - W1.4 x W1.4	16	441	353	201 / 272	109 / 230	58 / 199	- / 162	89 / 174	52 / 145	- / 113	- / 90	- / 71	
	5.25"	22	362	285	174 / 234	92 / 171	46 / 122	- / 89	76 / 136	43 / 103	- / 79	- / 61	- / 47	
	45 PSF	20	401	299	189 / 245	101 / 207	52 / 153	- / 114	82 / 156	48 / 131	- / 102	- / 80	- / 63	
	1.5 cu.yd/(100sq.ft)	18	434	347	213 / 267	116 / 225	62 / 194	- / 153	95 / 170	55 / 151	- / 131	- / 105	- / 84	
	6x6 - W2.0 x W2.0	16	468	375	236 / 289	130 / 245	71 / 211	- / 182	107 / 185	64 / 164	- / 131	- / 104	- / 83	
	5.5"	22	382	301	202 / 247	109 / 181	57 / 130	- / 95	91 / 144	53 / 110	- / 84	- / 65	- / 50	
	47 PSF	20	424	316	218 / 260	119 / 219	63 / 163	- / 121	98 / 165	59 / 139	- / 108	- / 85	- / 67	
	1.58 cu.yd/(100sq.ft)	18	459	367	246 / 282	136 / 238	74 / 206	- / 166	112 / 180	67 / 160	- / 139	- / 120	- / 97	
	6x6 - W2.0 x W2.0	16	495	396	272 / 306	152 / 259	85 / 223	44 / 196	126 / 196	77 / 174	45 / 150	- / 119	- / 96	
	6"	22	424	334	266 / 274	148 / 201	81 / 145	41 / 106	124 / 160	76 / 122	43 / 94	- / 73	- / 56	
	52 PSF	20	470	351	286 / 288	160 / 243	89 / 181	46 / 135	135 / 179	84 / 155	49 / 121	- / 95	- / 75	
	1.74 cu.yd/(100sq.ft)	18	500	381	313	181 / 265	103 / 228	56 / 186	152 / 200	95 / 178	59 / 155	- / 135	- / 109	
	6x6 - W2.0 x W2.0	16	500	439	340	202 / 287	117 / 248	65 / 218	170 / 218	108 / 193	66 / 173	40 / 152	- / 124	

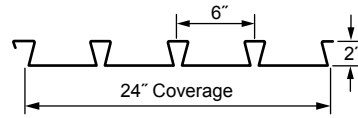
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

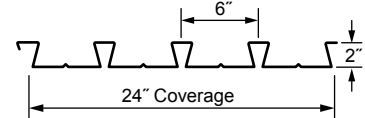


Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	6.25"	22	439	345	282	198	127 / 139	67 / 98	116	71 / 86	- / 64	- / 46	-
	71 PSF	20	462	363	296	241 / 249	137 / 178	74 / 129	129 / 150	78 / 114	43 / 87	- / 66	- / 49
	1.81 cu.yd/(100sq.ft)	18	500	395	324	269 / 272	155 / 234	87 / 183	147 / 174	91 / 155	53 / 129	- / 102	- / 80
	6x6 - W2.0 x W2.0	16	500	430	353	296 / 297	173 / 256	99 / 223	161 / 197	104 / 170	63 / 153	- / 127	- / 101
	6.5"	22	460	361	295	208	146	81 / 103	122	86 / 90	48 / 67	- / 49	-
	74 PSF	20	483	380	310	261	159 / 186	89 / 135	150 / 157	93 / 120	54 / 92	- / 70	- / 52
	1.89 cu.yd/(100sq.ft)	18	500	414	339	285	179 / 245	103 / 192	169 / 183	108 / 162	65 / 136	- / 107	- / 84
	4x4 - W1.4 x W1.4	16	500	451	369	311	199 / 268	116 / 234	185 / 207	122 / 178	76 / 160	42 / 142	- / 115
	7"	22	500	393	321	227	160	113	133	99	73	40 / 53	-
	80 PSF	20	500	413	338	284	204	123 / 148	172	129 / 131	81 / 101	46 / 76	- / 57
	2.04 cu.yd/(100sq.ft)	18	500	451	369	311	234 / 267	140 / 211	199	146 / 177	93 / 149	55 / 118	- / 93
	6x6 - W2.9 x W2.9	16	500	491	403	339	258 / 292	156 / 255	219	163 / 195	106 / 175	65 / 158	- / 129
	7.5"	22	500	425	347	247	173	123	144	108	80	58	-
	86 PSF	20	500	447	366	308	222	161	187	143	109	67 / 83	- / 63
	2.2 cu.yd/(100sq.ft)	18	500	488	400	337	289	181 / 230	216	189 / 192	124 / 162	78 / 128	45 / 101
	6x6 - W2.9 x W2.9	16	500	500	436	368	316	200 / 276	237	209 / 211	140 / 189	90 / 171	54 / 141
	8"	22	500	457	374	266	187	133	156	117	87	63	-
	92 PSF	20	500	481	394	331	239	174	202	155	118	90	54 / 68
	2.35 cu.yd/(100sq.ft)	18	500	500	430	362	311	227 / 248	232	206	160 / 176	106 / 139	66 / 110
	6x6 - W2.9 x W2.9	16	500	500	469	396	341	251 / 298	256	227	179 / 204	120 / 184	76 / 153
	8.25"	22	500	473	387	275	194	138	162	121	90	66	-
	95 PSF	20	500	498	407	343	248	180	209	160	123	94	65 / 71
	2.43 cu.yd/(100sq.ft)	18	500	500	445	375	322	253 / 257	241	214	180 / 182	121 / 144	77 / 114
	6x6 - W2.9 x W2.9	16	500	500	486	410	353	279 / 308	265	236	200 / 211	136 / 191	89 / 159
5000 PSI Lightweight Concrete (110 PCF)	6.25"	22	445	351	288	169 / 211	95 / 152	50 / 111	89 / 129	53 / 99	- / 76	- / 59	- / 45
	54 PSF	20	493	368	302	183 / 255	104 / 191	56 / 142	98 / 163	59 / 127	- / 100	- / 79	- / 62
	1.81 cu.yd/(100sq.ft)	18	500	400	329	207 / 278	120 / 240	67 / 196	111 / 186	70 / 162	41 / 142	- / 114	- / 93
	6x6 - W2.0 x W2.0	16	500	461	357	230 / 302	135 / 261	77 / 229	125 / 203	79 / 182	49 / 160	- / 140	- / 114
	6.5"	22	465	367	301	194 / 221	110 / 159	60 / 117	104 / 135	63 / 104	- / 80	- / 62	- / 47
	56 PSF	20	488	385	316	209 / 267	120 / 200	67 / 149	114 / 171	71 / 133	41 / 105	- / 83	- / 65
	1.89 cu.yd/(100sq.ft)	18	500	419	344	235 / 291	138 / 251	79 / 206	130 / 190	83 / 170	50 / 149	- / 120	- / 98
	4x4 - W1.4 x W1.4	16	500	482	374	261 / 316	155 / 273	90 / 240	144 / 213	92 / 191	59 / 168	- / 152	- / 128
	7"	22	500	400	328	242	147 / 174	85 / 128	139 / 147	89 / 114	54 / 88	- / 68	- / 52
	61 PSF	20	500	420	345	269 / 291	159 / 218	93 / 163	151 / 187	97 / 146	60 / 115	- / 91	- / 72
	2.04 cu.yd/(100sq.ft)	18	500	456	375	301 / 317	180 / 274	107 / 225	171 / 208	112 / 186	71 / 163	42 / 132	- / 107
	6x6 - W2.9 x W2.9	16	500	500	407	331 / 345	200 / 298	121 / 261	188 / 232	127 / 203	82 / 183	51 / 166	- / 144
	7.5"	22	500	432	355	262	187 / 189	111 / 139	160	116 / 123	74 / 96	44 / 74	- / 57
	65 PSF	20	500	454	373	315	201 / 237	121 / 177	191 / 203	127 / 159	82 / 125	50 / 99	- / 78
	2.2 cu.yd/(100sq.ft)	18	500	494	406	344	226 / 297	138 / 245	215 / 225	144 / 201	95 / 178	60 / 144	- / 117
	6x6 - W2.9 x W2.9	16	500	500	441	374	251 / 323	155 / 283	236 / 252	162 / 220	108 / 199	70 / 180	42 / 157
	8"	22	500	465	382	282	204	142 / 149	173	133	98 / 103	61 / 80	- / 62
	70 PSF	20	500	489	402	339	249 / 256	153 / 191	219	160 / 171	106 / 135	68 / 107	40 / 85
	2.35 cu.yd/(100sq.ft)	18	500	500	437	370	279 / 319	174 / 265	243	181 / 217	122 / 192	80 / 156	50 / 127
	6x6 - W2.9 x W2.9	16	500	500	475	402	308 / 348	194 / 305	271	202 / 237	138 / 214	93 / 194	59 / 170
	8.25"	22	500	482	396	293	211	155	179	138	107	71 / 83	42 / 64
	72 PSF	20	500	500	416	351	265	171 / 198	227	177	120 / 140	79 / 111	48 / 88
	2.43 cu.yd/(100sq.ft)	18	500	500	453	383	307 / 331	193 / 275	251	201 / 225	137 / 200	92 / 162	58 / 132
	6x6 - W2.9 x W2.9	16	500	500	492	417	339 / 360	215 / 316	281	224 / 246	155 / 222	105 / 202	69 / 176

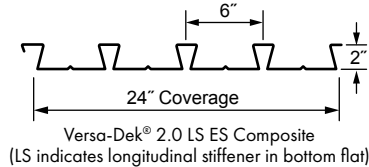
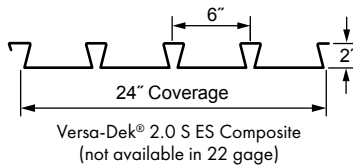
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
5000 PSI Normal-Weight Concrete (145 PCF)	4	22	13' - 11" / 17' - 8"	17' - 2" / 21' - 0"	20' - 7" / 22' - 5"	13' - 2" / 14' - 5"	16' - 3" / 16' - 11"	18' - 0"
		20	14' - 2" / 18' - 4"	17' - 6" / 21' - 3"	21' - 0" / 22' - 4"	13' - 5" / 15' - 8"	16' - 7" / 17' - 1"	18' - 0"
		18	14' - 7" / 19' - 5"	18' - 1" / 21' - 2"	21' - 8" / 22' - 3"	13' - 10" / 17' - 3"	17' - 1"	18' - 0"
		16	15' - 0" / 20' - 5"	18' - 6" / 21' - 1"	22' - 2"	14' - 2" / 18' - 2"	17' - 0"	17' - 11"
	4.5	22	15' - 2" / 18' - 10"	18' - 9" / 22' - 1"	22' - 6" / 25' - 6"	14' - 5" / 15' - 3"	17' - 9" / 17' - 11"	20' - 8"
		20	15' - 5" / 19' - 11"	19' - 1" / 24' - 1"	22' - 11" / 25' - 6"	14' - 8" / 16' - 8"	18' - 1" / 19' - 7"	20' - 8"
		18	15' - 11" / 21' - 0"	19' - 8" / 24' - 1"	23' - 7" / 25' - 4"	15' - 1" / 18' - 9"	18' - 8" / 19' - 7"	20' - 8"
		16	16' - 4" / 22' - 0"	20' - 2" / 24' - 0"	24' - 2" / 25' - 3"	15' - 6" / 19' - 9"	19' - 2" / 19' - 6"	20' - 7"
	5	22	16' - 4" / 19' - 8"	20' - 3" / 23' - 0"	24' - 3" / 27' - 8"	15' - 7" / 16' - 1"	18' - 10"	22' - 7"
		20	16' - 8" / 21' - 4"	20' - 7" / 25' - 2"	24' - 9" / 28' - 5"	15' - 10" / 17' - 7"	19' - 7" / 20' - 7"	23' - 3"
		18	17' - 2" / 22' - 6"	21' - 2" / 26' - 11"	25' - 5" / 28' - 4"	16' - 4" / 19' - 11"	20' - 2" / 22' - 0"	23' - 3"
		16	17' - 7" / 23' - 7"	21' - 9" / 26' - 9"	26' - 1" / 28' - 3"	16' - 9" / 21' - 3"	20' - 9" / 22' - 0"	23' - 2"
	5.25	22	17' - 0" / 20' - 0"	21' - 0" / 23' - 5"	25' - 3" / 28' - 2"	16' - 2" / 16' - 5"	19' - 3"	23' - 1"
		20	17' - 4" / 21' - 10"	21' - 5" / 25' - 7"	25' - 8" / 29' - 10"	16' - 6" / 17' - 11"	20' - 5" / 21' - 1"	24' - 5" / 24' - 6"
		18	17' - 9" / 23' - 3"	22' - 0" / 28' - 3"	26' - 5" / 29' - 9"	17' - 0" / 20' - 4"	21' - 0" / 23' - 3"	24' - 6"
		16	18' - 3" / 24' - 4"	22' - 6" / 28' - 2"	27' - 0" / 29' - 8"	17' - 5" / 22' - 0"	21' - 6" / 23' - 2"	24' - 5"
	5.5	22	17' - 7" / 20' - 4"	21' - 9" / 23' - 10"	26' - 1" / 28' - 7"	16' - 9"	19' - 8"	23' - 7"
		20	17' - 11" / 22' - 3"	22' - 1" / 26' - 1"	26' - 6" / 31' - 3"	17' - 1" / 18' - 4"	21' - 1" / 21' - 6"	25' - 4" / 25' - 9"
		18	18' - 5" / 24' - 0"	22' - 9" / 29' - 7"	27' - 3" / 31' - 2"	17' - 7" / 20' - 10"	21' - 8" / 24' - 5"	25' - 9"
		16	18' - 10" / 25' - 1"	23' - 3" / 29' - 6"	27' - 11" / 31' - 1"	18' - 0" / 22' - 8"	22' - 3" / 24' - 4"	25' - 8"
	6	22	18' - 9" / 21' - 0"	23' - 2" / 24' - 7"	27' - 9" / 29' - 6"	17' - 5"	20' - 5"	24' - 6"
		20	19' - 0" / 22' - 11"	23' - 6" / 26' - 11"	28' - 3" / 32' - 3"	18' - 2" / 19' - 0"	22' - 4"	26' - 9"
		18	19' - 7" / 25' - 5"	24' - 2" / 30' - 6"	29' - 0" / 33' - 11"	18' - 9" / 21' - 8"	23' - 2" / 25' - 4"	27' - 9" / 28' - 2"
		16	20' - 0" / 26' - 7"	24' - 9" / 32' - 1"	29' - 8" / 33' - 10"	19' - 2" / 24' - 0"	23' - 9" / 26' - 8"	28' - 1"
5000 PSI Lightweight Concrete (110 PCF)	4	22	13' - 3" / 17' - 4"	16' - 5" / 21' - 5"	19' - 8" / 23' - 6"	12' - 6" / 14' - 10"	15' - 5" / 17' - 5"	18' - 6" / 18' - 7"
		20	13' - 7" / 18' - 1"	16' - 9" / 22' - 3"	20' - 2" / 23' - 5"	12' - 9" / 15' - 7"	15' - 9" / 17' - 7"	18' - 7"
		18	14' - 0" / 19' - 4"	17' - 4" / 22' - 2"	20' - 10" / 23' - 4"	13' - 2" / 16' - 8"	16' - 4" / 17' - 7"	18' - 6"
		16	14' - 5" / 20' - 6"	17' - 10" / 22' - 0"	21' - 4" / 23' - 3"	13' - 7" / 17' - 9"	16' - 9" / 17' - 6"	18' - 5"
	4.5	22	14' - 6" / 18' - 10"	17' - 11" / 23' - 3"	21' - 6" / 26' - 10"	13' - 8" / 15' - 9"	16' - 11" / 18' - 6"	20' - 3" / 21' - 5"
		20	14' - 10" / 19' - 7"	18' - 4" / 24' - 3"	22' - 0" / 26' - 9"	14' - 0" / 17' - 2"	17' - 3" / 20' - 3"	20' - 9" / 21' - 4"
		18	15' - 4" / 20' - 11"	18' - 11" / 25' - 4"	22' - 8" / 26' - 8"	14' - 5" / 18' - 4"	17' - 10" / 20' - 3"	21' - 4"
		16	15' - 9" / 22' - 1"	19' - 5" / 25' - 2"	23' - 4" / 26' - 7"	14' - 10" / 19' - 5"	18' - 4" / 20' - 2"	21' - 3"
	5	22	15' - 8" / 20' - 3"	19' - 5" / 24' - 4"	23' - 3" / 29' - 2"	14' - 10" / 16' - 8"	18' - 4" / 19' - 6"	22' - 0" / 23' - 5"
		20	16' - 0" / 21' - 1"	19' - 10" / 26' - 0"	23' - 9" / 30' - 0"	15' - 2" / 18' - 2"	18' - 9" / 21' - 4"	22' - 6" / 24' - 1"
		18	16' - 6" / 22' - 5"	20' - 5" / 27' - 8"	24' - 6" / 29' - 11"	15' - 8" / 19' - 11"	19' - 4" / 22' - 10"	23' - 2" / 24' - 1"
		16	17' - 0" / 23' - 8"	21' - 0" / 28' - 3"	25' - 2" / 29' - 9"	16' - 1" / 21' - 0"	19' - 10" / 22' - 9"	23' - 10" / 24' - 0"
	5.25	22	16' - 4" / 20' - 11"	20' - 2" / 24' - 10"	24' - 2" / 29' - 9"	15' - 5" / 17' - 0"	19' - 1" / 20' - 0"	22' - 10" / 24' - 0"
		20	16' - 8" / 21' - 9"	20' - 7" / 26' - 11"	24' - 8" / 31' - 7"	15' - 9" / 18' - 8"	19' - 5" / 21' - 10"	23' - 4" / 25' - 5"
		18	17' - 2" / 23' - 1"	21' - 2" / 28' - 7"	25' - 5" / 31' - 5"	16' - 3" / 20' - 7"	20' - 1" / 24' - 1"	24' - 1" / 25' - 5"
		16	17' - 7" / 24' - 5"	21' - 9" / 29' - 9"	26' - 1" / 31' - 4"	16' - 8" / 21' - 9"	20' - 8" / 24' - 0"	24' - 9" / 25' - 4"
	5.5	22	16' - 11" / 21' - 7"	20' - 10" / 25' - 3"	25' - 0" / 30' - 4"	16' - 0" / 17' - 5"	19' - 9" / 20' - 5"	23' - 8" / 24' - 6"
		20	17' - 3" / 22' - 6"	21' - 3" / 27' - 7"	25' - 6" / 33' - 1"	16' - 4" / 19' - 1"	20' - 2" / 22' - 4"	24' - 2" / 26' - 9"
		18	17' - 9" / 23' - 10"	21' - 11" / 29' - 5"	26' - 4" / 33' - 0"	16' - 10" / 21' - 3"	20' - 10" / 25' - 4"	25' - 0" / 26' - 9"
		16	18' - 3" / 25' - 2"	22' - 6" / 31' - 1"	27' - 0" / 32' - 11"	17' - 4" / 22' - 6"	21' - 4" / 25' - 4"	25' - 8" / 26' - 8"
	6	22	18' - 0" / 22' - 3"	22' - 3" / 26' - 1"	26' - 8" / 31' - 4"	17' - 1" / 18' - 1"	21' - 1" / 21' - 3"	25' - 4" / 25' - 6"
		20	18' - 4" / 23' - 10"	22' - 8" / 28' - 7"	27' - 2" / 34' - 3"	17' - 5" / 19' - 10"	21' - 6" / 23' - 3"	25' - 10" / 27' - 11"
		18	18' - 11" / 25' - 3"	23' - 4" / 31' - 2"	28' - 0" / 36' - 0"	18' - 0" / 22' - 6"	22' - 2" / 26' - 5"	26' - 8" / 29' - 4"
		16	19' - 5" / 26' - 7"	24' - 0" / 32' - 10"	28' - 9" / 35' - 11"	18' - 6" / 23' - 10"	22' - 10" / 27' - 9"	27' - 4" / 29' - 3"

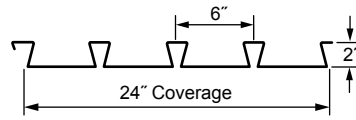
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

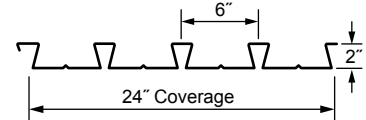


Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

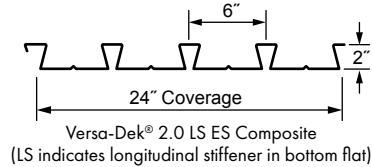
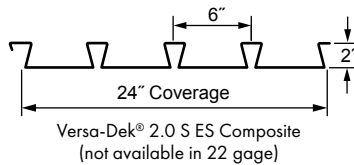
	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
5000 PSI Normal-Weight Concrete (145 PCF)	6.25	22	19' - 3" / 21' - 3"	23' - 10" / 24' - 11"	28' - 7" / 29' - 11"	17' - 8"	20' - 9"	24' - 11"
		20	19' - 7" / 23' - 3"	24' - 3" / 27' - 3"	29' - 1" / 32' - 9"	18' - 9" / 19' - 4"	22' - 8"	27' - 3"
		18	20' - 2" / 26' - 1"	24' - 10" / 31' - 0"	29' - 10" / 35' - 3"	19' - 3" / 22' - 0"	23' - 10" / 25' - 10"	28' - 7" / 29' - 4"
		16	20' - 7" / 27' - 3"	25' - 6" / 33' - 4"	30' - 7" / 35' - 2"	19' - 9" / 24' - 5"	24' - 5" / 27' - 10"	29' - 4"
	6.5	22	19' - 10" / 21' - 6"	24' - 6" / 25' - 3"	29' - 5" / 30' - 3"	18' - 0"	21' - 1"	25' - 3"
		20	20' - 2" / 23' - 7"	24' - 11" / 27' - 7"	29' - 11" / 33' - 2"	19' - 4" / 19' - 8"	23' - 1"	27' - 8"
		18	20' - 8" / 26' - 9"	25' - 7" / 31' - 5"	30' - 8" / 36' - 7"	19' - 10" / 22' - 5"	24' - 6" / 26' - 3"	29' - 5" / 30' - 7"
		16	21' - 2" / 28' - 0"	26' - 2" / 34' - 7"	31' - 5" / 36' - 5"	20' - 4" / 24' - 10"	25' - 2" / 28' - 11"	30' - 2" / 30' - 6"
	7	22	21' - 0" / 22' - 0"	25' - 10"	31' - 0"	18' - 6"	21' - 8"	26' - 0"
		20	21' - 4" / 24' - 1"	26' - 4" / 28' - 3"	31' - 7" / 33' - 11"	20' - 3"	23' - 9"	28' - 6"
		18	21' - 10" / 27' - 5"	27' - 0" / 32' - 2"	32' - 5" / 38' - 7"	21' - 0" / 23' - 1"	25' - 11" / 27' - 1"	31' - 1" / 32' - 6"
		16	22' - 4" / 29' - 4"	27' - 7" / 35' - 8"	33' - 2" / 39' - 0"	21' - 6" / 25' - 8"	26' - 7" / 30' - 1"	31' - 10" / 32' - 10"
	7.5	22	22' - 0" / 22' - 6"	26' - 4"	31' - 8"	19' - 0"	22' - 3"	26' - 9"
		20	22' - 4" / 24' - 8"	27' - 8" / 28' - 11"	33' - 2" / 34' - 8"	20' - 10"	24' - 5"	29' - 3"
		18	22' - 11" / 28' - 1"	28' - 4" / 32' - 11"	34' - 0" / 39' - 6"	22' - 1" / 23' - 9"	27' - 3" / 27' - 10"	32' - 8" / 33' - 4"
		16	23' - 5" / 30' - 8"	29' - 0" / 36' - 6"	34' - 9" / 41' - 5"	22' - 7" / 26' - 4"	27' - 11" / 30' - 11"	33' - 6" / 35' - 1"
	8	22	22' - 11"	26' - 10"	32' - 3"	19' - 5"	22' - 10"	27' - 4"
		20	23' - 5" / 25' - 1"	28' - 11" / 29' - 5"	34' - 8" / 35' - 4"	21' - 4"	25' - 0"	30' - 0"
		18	24' - 0" / 28' - 7"	29' - 7" / 33' - 6"	35' - 6" / 40' - 3"	23' - 1" / 24' - 4"	28' - 6"	34' - 2"
		16	24' - 6" / 31' - 9"	30' - 3" / 37' - 3"	36' - 4" / 43' - 10"	23' - 7" / 27' - 0"	29' - 2" / 31' - 8"	35' - 0" / 37' - 3"
	8.25	22	23' - 1"	27' - 1"	32' - 6"	19' - 8"	23' - 1"	27' - 8"
		20	23' - 11" / 25' - 4"	29' - 6" / 29' - 8"	35' - 5" / 35' - 7"	21' - 7"	25' - 3"	30' - 4"
		18	24' - 6" / 28' - 10"	30' - 3" / 33' - 10"	36' - 3" / 40' - 7"	23' - 7" / 24' - 7"	28' - 10"	34' - 7"
		16	25' - 0" / 32' - 1"	30' - 11" / 37' - 7"	37' - 1" / 45' - 0"	24' - 2" / 27' - 4"	29' - 10" / 32' - 1"	35' - 10" / 38' - 4"
5000 PSI Lightweight Concrete (110 PCF)	6.25	22	18' - 6" / 22' - 7"	22' - 11" / 26' - 6"	27' - 6" / 31' - 10"	17' - 7" / 18' - 5"	21' - 8"	26' - 0"
		20	18' - 11" / 24' - 6"	23' - 4" / 29' - 0"	28' - 0" / 34' - 10"	18' - 0" / 20' - 2"	22' - 2" / 23' - 8"	26' - 8" / 28' - 5"
		18	19' - 6" / 25' - 11"	24' - 1" / 32' - 0"	28' - 10" / 37' - 6"	18' - 6" / 23' - 0"	22' - 11" / 26' - 11"	27' - 6" / 30' - 8"
		16	20' - 0" / 27' - 3"	24' - 8" / 33' - 9"	29' - 8" / 37' - 4"	19' - 0" / 24' - 6"	23' - 6" / 29' - 0"	28' - 3" / 30' - 7"
	6.5	22	19' - 1" / 22' - 11"	23' - 7" / 26' - 11"	28' - 3" / 32' - 3"	18' - 2" / 18' - 9"	22' - 0"	26' - 5"
		20	19' - 5" / 25' - 1"	24' - 0" / 29' - 5"	28' - 10" / 35' - 4"	18' - 6" / 20' - 7"	22' - 10" / 24' - 1"	27' - 5" / 28' - 11"
		18	20' - 0" / 26' - 7"	24' - 9" / 32' - 10"	29' - 8" / 38' - 11"	19' - 1" / 23' - 5"	23' - 7" / 27' - 5"	28' - 4" / 31' - 11"
		16	20' - 7" / 28' - 0"	25' - 5" / 34' - 7"	30' - 6" / 38' - 9"	19' - 7" / 25' - 2"	24' - 3" / 30' - 2"	29' - 1" / 31' - 10"
	7	22	20' - 2" / 23' - 6"	25' - 0" / 27' - 7"	29' - 11" / 33' - 1"	19' - 3" / 19' - 4"	22' - 9"	27' - 3"
		20	20' - 7" / 25' - 9"	25' - 5" / 30' - 3"	30' - 6" / 36' - 3"	19' - 7" / 21' - 3"	24' - 3" / 24' - 11"	29' - 1" / 29' - 10"
		18	21' - 2" / 27' - 11"	26' - 2" / 34' - 4"	31' - 5" / 41' - 3"	20' - 2" / 24' - 2"	24' - 11" / 28' - 4"	29' - 11" / 34' - 0"
		16	21' - 8" / 29' - 4"	26' - 10" / 36' - 3"	32' - 2" / 41' - 7"	20' - 9" / 26' - 6"	25' - 7" / 31' - 5"	30' - 9" / 34' - 4"
	7.5	22	21' - 3" / 24' - 1"	26' - 3" / 28' - 3"	31' - 6" / 33' - 11"	19' - 11"	23' - 4"	28' - 0"
		20	21' - 7" / 26' - 5"	26' - 8" / 30' - 11"	32' - 0" / 37' - 1"	20' - 7" / 21' - 10"	25' - 6" / 25' - 7"	30' - 7" / 30' - 9"
		18	22' - 3" / 29' - 2"	27' - 6" / 35' - 2"	32' - 11" / 42' - 3"	21' - 3" / 24' - 10"	26' - 3" / 29' - 2"	31' - 6" / 35' - 0"
		16	22' - 9" / 30' - 8"	28' - 2" / 37' - 10"	33' - 10" / 44' - 4"	21' - 10" / 27' - 8"	26' - 11" / 32' - 5"	32' - 4" / 36' - 9"
	8	22	22' - 3" / 24' - 7"	27' - 5" / 28' - 10"	32' - 11" / 34' - 7"	20' - 5"	24' - 0"	28' - 9"
		20	22' - 7" / 26' - 11"	27' - 11" / 31' - 7"	33' - 6" / 37' - 11"	21' - 7" / 22' - 5"	26' - 3"	31' - 6"
		18	23' - 3" / 30' - 5"	28' - 9" / 36' - 0"	34' - 6" / 43' - 2"	22' - 3" / 25' - 7"	27' - 6" / 29' - 11"	33' - 0" / 35' - 11"
		16	23' - 10" / 31' - 11"	29' - 6" / 39' - 5"	35' - 4" / 47' - 0"	22' - 10" / 28' - 5"	28' - 3" / 33' - 4"	33' - 10" / 39' - 2"
	8.25	22	22' - 8" / 24' - 10"	28' - 1" / 29' - 1"	33' - 8" / 34' - 11"	20' - 8"	24' - 3"	29' - 1"
		20	23' - 1" / 27' - 2"	28' - 7" / 31' - 11"	34' - 3" / 38' - 3"	22' - 1" / 22' - 8"	26' - 7"	31' - 11"
		18	23' - 9" / 31' - 0"	29' - 4" / 36' - 4"	35' - 3" / 43' - 7"	22' - 9" / 25' - 10"	28' - 1" / 30' - 4"	33' - 9" / 36' - 5"
		16	24' - 4" / 32' - 6"	30' - 1" / 40' - 2"	36' - 1" / 48' - 3"	23' - 4" / 28' - 9"	28' - 10" / 33' - 9"	34' - 8" / 40' - 4"

NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

Versa-Dek® 2.0 S ES and LS ES Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
5000 PSI Normal-Weight Concrete (145 PCF)	4	22	9.55 / 12.41	4.29 / 5.54	6.92 / 8.97	5.737	7.849	1.771
		20	9.86 / 13.35	4.93 / 6.68	7.39 / 10.02	6.838	7.849	1.853
		18	10.41 / 15.07	5.99 / 8.82	8.2 / 11.95	8.750	7.849	2.005
		16	10.96 / 16.9	6.99 / 11.16	8.97 / 14.03	10.629	7.849	2.166
	4.5	22	13.42 / 17.06	5.76 / 7.24	9.59 / 12.15	6.669	8.499	2.051
		20	13.83 / 18.27	6.63 / 8.72	10.23 / 13.5	7.969	8.777	2.148
		18	14.55 / 20.49	8.08 / 11.47	11.31 / 15.98	10.247	8.777	2.325
		16	15.28 / 22.85	9.44 / 14.46	12.36 / 18.66	12.519	8.777	2.512
	5	22	18.22 / 22.74	7.49 / 9.21	12.85 / 15.98	7.601	8.963	2.332
		20	18.75 / 24.26	8.64 / 11.07	13.69 / 17.67	9.100	9.705	2.442
		18	19.67 / 27.05	10.54 / 14.51	15.11 / 20.78	11.745	9.705	2.644
		16	20.61 / 30.02	12.35 / 18.25	16.48 / 24.13	14.408	9.705	2.859
	5.25	22	21.01 / 26	8.45 / 10.29	14.73 / 18.15	8.067	9.195	2.472
		20	21.6 / 27.69	9.75 / 12.36	15.68 / 20.03	9.665	10.049	2.589
		18	22.64 / 30.79	11.92 / 16.18	17.28 / 23.49	12.494	10.169	2.804
		16	23.7 / 34.09	13.98 / 20.32	18.84 / 27.21	15.352	10.169	3.032
	5.5	22	24.07 / 29.56	9.47 / 11.44	16.77 / 20.5	8.533	9.427	2.612
		20	24.73 / 31.43	10.95 / 13.73	17.84 / 22.58	10.231	10.281	2.736
		18	25.89 / 34.86	13.4 / 17.95	19.65 / 26.41	13.242	10.633	2.964
		16	27.07 / 38.5	15.73 / 22.52	21.4 / 30.51	16.297	10.633	3.205
	6	22	31.06 / 37.62	11.72 / 13.94	21.39 / 25.78	9.465	9.891	2.892
		20	31.87 / 39.87	13.57 / 16.71	22.72 / 28.29	11.362	10.745	3.030
		18	33.3 / 44.01	16.66 / 21.8	24.98 / 32.91	14.740	11.561	3.283
		16	34.76 / 48.41	19.59 / 27.3	27.18 / 37.85	18.186	11.561	3.552
5000 PSI Lightweight Concrete (110 PCF)	4	22	6.79 / 9.7	3.81 / 5.5	5.3 / 7.6	5.737	5.887	1.756
		20	7.08 / 10.64	4.33 / 6.68	5.71 / 8.66	6.838	5.887	1.835
		18	7.58 / 12.35	5.19 / 8.93	6.39 / 10.64	8.750	5.887	1.982
		16	8.08 / 14.17	5.98 / 11.42	7.03 / 12.8	10.629	5.887	2.137
	4.5	22	9.5 / 13.21	5.13 / 7.16	7.32 / 10.18	6.669	6.583	2.036
		20	9.88 / 14.41	5.85 / 8.67	7.87 / 11.54	7.969	6.583	2.129
		18	10.54 / 16.63	7.02 / 11.54	8.78 / 14.08	10.247	6.583	2.299
		16	11.2 / 18.98	8.1 / 14.71	9.65 / 16.84	12.519	6.583	2.481
	5	22	12.86 / 17.45	6.69 / 9.06	9.78 / 13.26	7.601	7.279	2.315
		20	13.35 / 18.97	7.65 / 10.96	10.5 / 14.97	9.100	7.279	2.422
		18	14.2 / 21.75	9.2 / 14.53	11.7 / 18.14	11.745	7.279	2.617
		16	15.04 / 24.71	10.64 / 18.46	12.84 / 21.58	14.408	7.279	2.825
	5.25	22	14.8 / 19.88	7.57 / 10.11	11.19 / 14.99	8.067	7.627	2.455
		20	15.35 / 21.56	8.66 / 12.21	12 / 16.89	9.665	7.627	2.569
		18	16.31 / 24.66	10.43 / 16.16	13.37 / 20.41	12.494	7.627	2.777
		16	17.26 / 27.94	12.07 / 20.51	14.67 / 24.22	15.352	7.627	2.997
	5.5	22	16.94 / 22.51	8.5 / 11.22	12.72 / 16.87	8.533	7.975	2.595
		20	17.55 / 24.38	9.73 / 13.54	13.64 / 18.96	10.231	7.975	2.715
		18	18.62 / 27.8	11.75 / 17.89	15.18 / 22.85	13.242	7.975	2.936
		16	19.68 / 31.43	13.61 / 22.67	16.65 / 27.05	16.297	7.975	3.169
	6	22	21.79 / 28.46	10.56 / 13.63	16.18 / 21.04	9.465	8.446	2.875
		20	22.55 / 30.71	12.11 / 16.43	17.33 / 23.57	11.362	8.671	3.009
		18	23.87 / 34.83	14.66 / 21.65	19.27 / 28.24	14.740	8.671	3.254
		16	25.19 / 39.22	17.03 / 27.36	21.11 / 33.29	18.186	8.671	3.514

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

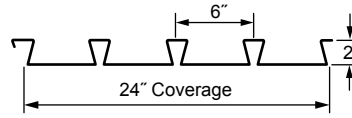
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

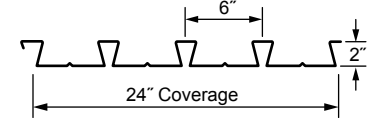


Versa-Dek® 2.0 S ES and LS ES Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
5000 PSI Normal-Weight Concrete (145 PCF)	6.25	22	35.02 / 42.15	12.95 / 15.29	23.98 / 28.72	9.931	10.123	3.032
		20	35.91 / 44.61	15 / 18.32	25.46 / 31.46	11.927	10.977	3.177
		18	37.49 / 49.13	18.44 / 23.88	27.96 / 36.5	15.488	12.025	3.443
		16	39.1 / 53.93	21.71 / 29.87	30.4 / 41.9	19.130	12.025	3.725
	6.5	22	39.3 / 47.02	14.24 / 16.71	26.77 / 31.87	10.397	10.355	3.172
		20	40.28 / 49.7	16.51 / 20.01	28.4 / 34.85	12.493	11.209	3.324
		18	42.01 / 54.62	20.32 / 26.07	31.16 / 40.34	16.237	12.489	3.603
		16	43.79 / 59.84	23.95 / 32.57	33.87 / 46.21	20.075	12.489	3.899
	7	22	48.89 / 57.87	17.03 / 19.75	32.96 / 38.81	11.329	10.819	3.452
		20	50.06 / 61.01	19.77 / 23.63	34.91 / 42.32	13.624	11.673	3.618
		18	52.12 / 66.78	24.38 / 30.74	38.25 / 48.76	17.734	13.223	3.922
		16	54.24 / 72.91	28.8 / 38.36	41.52 / 55.63	21.964	13.417	4.245
	7.5	22	59.94 / 70.28	20.09 / 23.06	40.01 / 46.67	12.261	11.283	3.732
		20	61.3 / 73.92	23.36 / 27.58	42.33 / 50.75	14.755	12.137	3.912
		18	63.74 / 80.59	28.86 / 35.84	46.3 / 58.22	19.232	13.687	4.241
		16	66.24 / 87.7	34.15 / 44.66	50.19 / 66.18	23.853	14.345	4.592
	8	22	72.54 / 84.33	23.43 / 26.65	47.98 / 55.49	13.193	11.747	4.011
		20	74.13 / 88.51	27.27 / 31.86	50.7 / 60.19	15.886	12.601	4.205
		18	76.96 / 96.18	33.76 / 41.36	55.36 / 68.77	20.729	14.151	4.561
		16	79.87 / 104.33	40.01 / 51.48	59.94 / 77.91	25.742	15.274	4.939
	8.25	22	79.46 / 92.01	25.2 / 28.55	52.33 / 60.28	13.659	11.979	4.151
		20	81.17 / 96.47	29.35 / 34.12	55.26 / 65.3	16.451	12.833	4.352
		18	84.21 / 104.66	36.36 / 44.28	60.29 / 74.47	21.478	14.383	4.720
		16	87.34 / 113.37	43.13 / 55.09	65.24 / 84.23	26.687	15.738	5.112
5000 PSI Lightweight Concrete (110 PCF)	6.25	22	24.54 / 31.78	11.68 / 14.94	18.11 / 23.36	9.931	8.620	3.014
		20	25.37 / 34.23	13.42 / 17.98	19.39 / 26.11	11.927	9.019	3.155
		18	26.83 / 38.74	16.26 / 23.67	21.54 / 31.2	15.488	9.019	3.413
		16	28.3 / 43.53	18.9 / 29.88	23.6 / 36.7	19.130	9.019	3.687
	6.5	22	27.5 / 35.34	12.87 / 16.3	20.19 / 25.82	10.397	8.794	3.154
		20	28.42 / 38.02	14.79 / 19.62	21.61 / 28.82	12.493	9.367	3.302
		18	30.03 / 42.92	17.95 / 25.79	23.99 / 34.35	16.237	9.367	3.573
		16	31.64 / 48.14	20.89 / 32.52	26.27 / 40.33	20.075	9.367	3.860
	7	22	34.13 / 43.25	15.44 / 19.24	24.79 / 31.24	11.329	9.142	3.434
		20	35.23 / 46.39	17.77 / 23.12	26.5 / 34.75	13.624	9.996	3.595
		18	37.15 / 52.14	21.62 / 30.33	29.39 / 41.23	17.734	10.063	3.891
		16	39.09 / 58.25	25.22 / 38.16	32.15 / 48.21	21.964	10.063	4.205
	7.5	22	41.75 / 52.24	18.27 / 22.43	30.01 / 37.34	12.261	9.490	3.713
		20	43.04 / 55.88	21.06 / 26.93	32.05 / 41.41	14.755	10.344	3.888
		18	45.32 / 62.54	25.68 / 35.27	35.5 / 48.9	19.232	10.759	4.210
		16	47.61 / 69.64	30.02 / 44.3	38.81 / 56.97	23.853	10.759	4.551
	8	22	50.43 / 62.39	21.36 / 25.89	35.9 / 44.14	13.193	9.838	3.992
		20	51.93 / 66.56	24.66 / 31.06	38.3 / 48.81	15.886	10.692	4.182
		18	54.59 / 74.21	30.13 / 40.61	42.36 / 57.41	20.729	11.455	4.528
		16	57.27 / 82.36	35.29 / 50.93	46.28 / 66.64	25.742	11.455	4.897
	8.25	22	55.19 / 67.92	23.01 / 27.72	39.1 / 47.82	13.659	10.012	4.132
		20	56.81 / 72.37	26.58 / 33.24	41.69 / 52.81	16.451	10.866	4.328
		18	59.66 / 80.54	32.5 / 43.43	46.08 / 61.99	21.478	11.803	4.688
		16	62.55 / 89.24	38.1 / 54.43	50.33 / 71.83	26.687	11.803	5.069

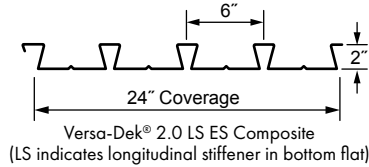
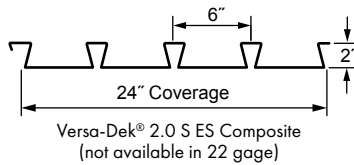
ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 25500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

Versa-Dek® 2.0 S ES and LS ES Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
5000 PSI Normal-Weight Concrete (145 PCF)	4	18	5@8	5@9	5@10	-	-	5@6
		20	5@6	5@7	5@8	-	-	-
		22	-	-	5@6	-	-	-
		24	-	-	-	-	-	-
	4.5	18	5@9	5@10	5@11	5@6	5@6	5@7
		20	5@7	5@8	5@9	-	-	6@8
		22	5@6	5@6	5@7	-	-	-
		24	-	6@7	5@6	-	-	-
	5	18	5@10	5@11	4@8	5@6	5@7	5@8
		20	5@8	5@9	5@10	6@7	5@6	5@6
		22	5@6	5@7	5@8	-	6@6	6@7
		24	6@7	5@6	5@7	-	-	-
	5.25	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@8	5@9	5@11	6@8	5@6	5@7
		22	5@7	5@8	5@9	6@6	6@7	6@8
		24	6@8	5@6	5@7	-	-	6@6
	5.5	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	5@6	5@6	5@7
		22	5@7	5@8	5@9	6@6	6@7	5@6
		24	5@6	5@7	5@7	-	6@6	6@7
	6	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@6	5@7	5@8	6@6	6@7	6@7
5000 PSI Lightweight Concrete (110 PCF)	4	18	5@9	5@10	5@11	-	-	5@6
		20	5@7	5@8	5@9	-	-	-
		22	-	5@6	5@7	-	-	-
		24	-	-	-	-	-	-
	4.5	18	5@10	5@11	4@8	5@6	5@7	5@8
		20	5@8	5@9	5@10	-	6@7	5@6
		22	5@6	5@7	5@8	-	-	-
		24	6@7	5@6	5@7	-	-	-
	5	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	6@8	5@6	5@7
		22	5@7	5@8	5@9	-	6@7	6@8
		24	5@6	5@7	5@7	-	-	6@6
	5.25	18	4@8	4@9	4@10	5@7	5@8	5@9
		20	5@10	5@11	4@8	5@6	5@7	5@7
		22	5@8	5@9	5@10	6@7	6@7	5@6
		24	5@6	5@7	5@8	-	6@6	6@7
	5.5	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@7	5@7	5@8	6@6	6@6	6@7
	6	18	4@9	4@10	4@11	5@9	5@10	5@11
		20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	6@8	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	5@6

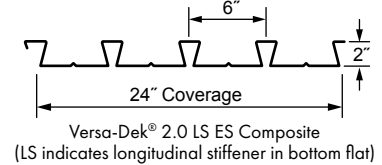
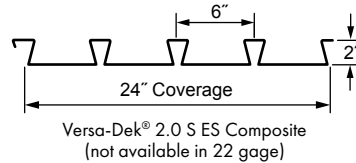
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.



Versa-Dek® 2.0 S ES and LS ES Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
5000 PSI Normal-Weight Concrete (145 PCF)	6.25	20	5@10	5@11	4@8	5@7	5@7	5@8
		22	5@8	5@9	5@10	6@8	5@6	5@7
		24	5@7	5@7	5@8	6@6	6@7	6@8
		26	6@8	5@6	5@7	6@5	6@6	6@6
	6.5	20	5@10	5@11	4@8	5@7	5@8	5@9
		22	5@8	5@9	5@10	6@8	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	5@6
		26	5@6	5@6	5@7	6@5	6@6	6@7
	7	18	4@9	4@9	4@9	5@9	5@10	4@7
		22	5@9	5@10	5@11	5@6	5@7	5@7
		26	5@6	5@7	5@8	6@6	6@7	6@7
		30	6@6	6@7	6@8	6@4	6@5	6@5
	7.5	18	5@9	5@10	4@7	5@10	5@11	4@8
		22	5@9	5@10	4@7	5@6	5@7	5@8
		26	5@6	5@7	5@8	6@6	6@7	6@8
		30	6@7	6@7	5@6	6@4	6@5	6@6
	8	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@8
		26	5@7	5@8	5@8	6@7	6@7	5@6
		30	6@7	6@8	5@6	6@5	6@5	6@6
	8.25	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@6	6@5	6@5	6@6
5000 PSI Lightweight Concrete (110 PCF)	6.25	20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	5@6	5@7	5@7
		24	5@8	5@8	5@9	6@7	6@8	5@6
		26	5@6	5@7	5@8	6@6	6@6	6@7
	6.75	18	4@10	4@10	4@10	5@10	5@11	4@8
		20	4@8	4@9	4@10	5@8	5@9	5@10
		22	5@10	5@11	4@8	5@6	5@7	5@8
		24	5@8	5@9	5@10	6@7	5@6	5@7
	7	18	5@10	5@11	4@8	5@10	4@7	4@8
		22	5@10	5@11	4@8	5@7	5@7	5@8
		26	5@7	5@8	5@9	6@6	6@7	5@6
		30	6@7	5@6	5@6	6@4	6@5	6@6
	7.5	18	5@11	4@8	4@9	5@11	4@8	4@9
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@8	5@6	5@7	6@5	6@6	6@6
	8	18	5@11	4@8	4@8	4@7	4@7	4@7
		22	5@11	4@8	4@8	5@8	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	5@6	5@6	5@7	6@5	6@6	6@7
	8.25	18	4@7	4@7	4@7	4@8	4@8	4@8
		22	4@7	4@7	4@7	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@7	6@5	6@6	6@7

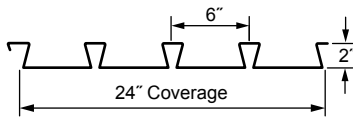
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
- Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

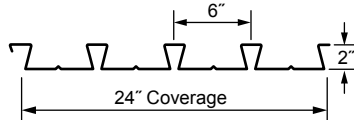


Versa-Dek® 2.0 S ES and LS ES Composite

MAXIMUM DESIGN NEGATIVE MOMENT CAPACITY OF COMPOSITE SLABS



Versa-Dek® 2.0 S ES Composite
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite
(LS indicates longitudinal stiffener in bottom flat)

5000 PSI OF ANY DENSITY

	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		4	4.5	5	5.25	5.5	6
5000 PSI of Any Density	4@12	2.570	3.020	3.470	3.695	3.920	4.370
	4@10	3.052	3.592	4.132	4.402	4.672	5.212
	4@8	3.757	4.432	5.107	5.444	5.782	6.457
	4@6	4.879	5.779	6.679	7.129	7.579	8.479
	5@12	3.785	4.482	5.180	5.528	5.877	6.575
	5@10	4.467	5.304	6.141	6.559	6.978	7.815
	5@8	5.442	6.489	7.535	8.058	8.581	9.627
	5@6	-	8.338	9.733	10.431	11.128	12.523
	6@12	5.062	6.052	7.042	7.537	8.032	9.022
	6@10	5.923	7.111	8.299	8.893	9.487	10.675
	6@8	-	8.605	10.090	10.832	11.575	13.060
	6@6	-	-	-	-	14.802	16.782
	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		6.25	6.5	7	7.5	8	8.25
5000 PSI of Any Density	4@12	-	-	-	-	-	-
	4@10	5.482	5.752	6.292	-	-	-
	4@8	6.794	7.132	7.807	8.482	9.157	9.494
	4@6	8.929	9.379	10.279	11.179	12.079	12.529
	5@12	6.923	7.272	7.970	8.667	9.365	9.713
	5@10	8.233	8.652	9.489	10.326	11.163	11.581
	5@8	10.150	10.674	11.720	12.766	13.812	14.335
	5@6	13.221	13.918	15.313	16.708	18.103	18.801
	6@12	9.517	10.012	11.002	11.992	12.982	13.477
	6@10	11.269	11.863	13.051	14.239	15.427	16.021
	6@8	13.802	14.545	16.030	17.515	19.000	19.742
	6@6	17.772	18.762	20.742	22.722	24.702	25.692

NOTES:

1. Table is based on Grade 60 ASTM A615 reinforcing bars with 3/4" concrete cover over supports.
2. Slab self-weight has not been accounted for in the tabulated moment capacities.
It should be included into the loads applied to the slab.

INSTRUCTIONS ON HOW TO SELECT A REINFORCEMENT PATTERN:

Step 1 – Calculate required negative moment capacity, M_{req} , as follows:

$$M_{req, LRFD} = [1.2(W_{slab} + W_D) + 1.6W_L]L^2/C \text{ (LRFD)}$$

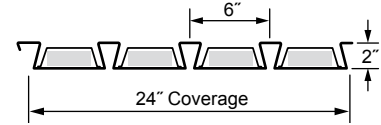
Where: W_D = superimposed dead load, psf; W_L = live load, psf; W_{slab} = slab weight, psf; L = span length taken as the average of the adjacent span lengths (spans shall be approximately equal with the larger of two adjacent spans not greater than the shorter by more than 20%), ft; $M_{req, LRFD}$ = required LRFD factored negative moment capacity, lb-ft/ft deck width; C = negative bending coefficient (9 for interior support of two span continuous composite slab; 10 for first interior support of composite slab continuous over more than two spans; 11 for other interior supports of composite slab continuous over more than two spans).

Step 2 – Select reinforcement size and spacing from table where $\phi M_n \geq M_{req, LRFD}$ (LRFD).



Versa-Dek® 2.0 S ES Composite Acoustical

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _D (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	2.51	40	0.737	0.483	0.483	0.383	0.345	5547	1427	2717
18	0.0474	24	3.32	40	0.975	0.637	0.637	0.506	0.473	7280	2389	4533
16	0.0598	24	4.18	40	1.228	0.802	0.802	0.636	0.612	9097	3657	6922

F_y is steel yield stress; A_s is area of deck; I_D is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
		Normal-Weight Concrete (145 PCF)	4.5" 39 PSF 1 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	- 20 18 16	- 9' - 1" 10' - 8" 11' - 7"		- 9' - 5" 10' - 11" 12' - 5"	- 9' - 9" 11' - 4" 12' - 10"	Lightweight Concrete (110 PCF)	4.5" 30 PSF 1 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	- 20 18 16
4.75" 42 PSF 1.08 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	- 20 18 16		- 8' - 10" 10' - 5" 11' - 5"	- 9' - 2" 10' - 8" 12' - 1"	- 9' - 6" 11' - 0" 12' - 6"	4.75" 32 PSF 1.08 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	- 20 18 16	- 9' - 8" 11' - 6" 12' - 2"		- 10' - 0" 11' - 8" 13' - 2"	- 10' - 4" 12' - 1" 13' - 8"
5" 45 PSF 1.16 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	- 20 18 16		- 8' - 7" 10' - 2" 11' - 3"	- 8' - 11" 10' - 5" 11' - 10"	- 9' - 3" 10' - 9" 12' - 2"	5" 34 PSF 1.16 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	- 20 18 16	- 9' - 6" 11' - 3" 12' - 0"		- 9' - 10" 11' - 5" 12' - 11"	- 10' - 2" 11' - 10" 13' - 4"
5.25" 48 PSF 1.23 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	- 20 18 16		- 8' - 5" 9' - 11" 11' - 0"	- 8' - 9" 10' - 2" 11' - 6"	- 9' - 0" 10' - 6" 11' - 11"	5.25" 37 PSF 1.23 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	- 20 18 16	- 9' - 3" 11' - 0" 11' - 9"		- 9' - 7" 11' - 2" 12' - 8"	- 9' - 11" 11' - 7" 13' - 1"
5.5" 51 PSF 1.31 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	- 20 18 16		- 8' - 3" 9' - 8" 10' - 10"	- 8' - 7" 10' - 0" 11' - 3"	- 8' - 10" 10' - 4" 11' - 8"	5.5" 39 PSF 1.31 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	- 20 18 16	- 9' - 1" 10' - 9" 11' - 8"		- 9' - 5" 11' - 0" 12' - 5"	- 9' - 9" 11' - 4" 12' - 10"
5.75" 54 PSF 1.39 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	- 20 18 16		- 8' - 0" 9' - 6" 10' - 7"	- 8' - 5" 9' - 9" 11' - 1"	- 8' - 8" 10' - 1" 11' - 5"	5.75" 41 PSF 1.39 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	- 20 18 16	- 8' - 11" 10' - 6" 11' - 6"		- 9' - 3" 10' - 9" 12' - 2"	- 9' - 7" 11' - 2" 12' - 7"

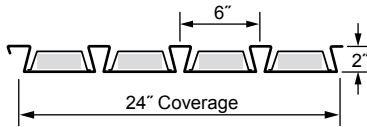
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 2.0 S ES Composite Acoustical

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	2.51	40	0.737	0.483	0.483	0.383	0.345	5547	1427	2717
18	0.0474	24	3.32	40	0.975	0.637	0.637	0.506	0.473	7280	2389	4533
16	0.0598	24	4.18	40	1.228	0.802	0.802	0.636	0.612	9097	3657	6922

F_y is steel yield stress; A_s is area of deck; I_b is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
		6"	-	-	-			-	6"	-	-
Normal-Weight Concrete (145 PCF)	57 PSF	20	7' - 11"	8' - 3"	8' - 6"	44 PSF	20	8' - 9"	9' - 1"	9' - 4"	
	1.47 cu.yd/(100sq.ft)	18	9' - 3"	9' - 7"	9' - 11"	1.47 cu.yd/(100sq.ft)	18	10' - 4"	10' - 7"	10' - 11"	
	6x6 - W2.0 x W2.0	16	10' - 5"	10' - 10"	11' - 3"	6x6 - W2.0 x W2.0	16	11' - 4"	12' - 0"	12' - 4"	
	6.25"	-	-	-	-	6.25"	-	-	-	-	
	60 PSF	20	7' - 9"	8' - 1"	8' - 4"	46 PSF	20	8' - 7"	8' - 11"	9' - 3"	
	1.54 cu.yd/(100sq.ft)	18	9' - 1"	9' - 5"	9' - 9"	1.54 cu.yd/(100sq.ft)	18	10' - 1"	10' - 5"	10' - 9"	
	6x6 - W2.0 x W2.0	16	10' - 3"	10' - 8"	11' - 0"	6x6 - W2.0 x W2.0	16	11' - 2"	11' - 9"	12' - 2"	
	6.5"	-	-	-	-	6.5"	-	-	-	-	
	63 PSF	20	7' - 7"	7' - 11"	8' - 2"	48 PSF	20	8' - 5"	8' - 9"	9' - 1"	
	1.62 cu.yd/(100sq.ft)	18	8' - 11"	9' - 3"	9' - 6"	1.62 cu.yd/(100sq.ft)	18	9' - 11"	10' - 3"	10' - 7"	
	4x4 - W1.4 x W1.4	16	10' - 2"	10' - 5"	10' - 10"	4x4 - W1.4 x W1.4	16	11' - 0"	11' - 7"	11' - 11"	
	6.75"	-	-	-	-	6.75"	-	-	-	-	
Lightweight Concrete (110 PCF)	66 PSF	20	7' - 5"	7' - 9"	8' - 0"	50 PSF	20	8' - 3"	8' - 7"	8' - 11"	
	1.7 cu.yd/(100sq.ft)	18	8' - 9"	9' - 1"	9' - 4"	1.7 cu.yd/(100sq.ft)	18	9' - 9"	10' - 0"	10' - 5"	
	6x6 - W2.9 x W2.9	16	10' - 0"	10' - 3"	10' - 7"	6x6 - W2.9 x W2.9	16	10' - 10"	11' - 4"	11' - 9"	
	7"	-	-	-	-	7"	-	-	-	-	
	69 PSF	20	7' - 4"	7' - 8"	7' - 11"	53 PSF	20	8' - 2"	8' - 6"	8' - 9"	
	1.77 cu.yd/(100sq.ft)	18	8' - 7"	8' - 11"	9' - 2"	1.77 cu.yd/(100sq.ft)	18	9' - 7"	9' - 11"	10' - 3"	
	6x6 - W2.9 x W2.9	16	9' - 10"	10' - 1"	10' - 5"	6x6 - W2.9 x W2.9	16	10' - 9"	11' - 2"	11' - 7"	
	7.25"	-	-	-	-	7.25"	-	-	-	-	
	73 PSF	20	7' - 2"	7' - 6"	7' - 9"	55 PSF	20	8' - 0"	8' - 4"	8' - 7"	
	1.85 cu.yd/(100sq.ft)	18	8' - 6"	8' - 9"	9' - 1"	1.85 cu.yd/(100sq.ft)	18	9' - 5"	9' - 9"	10' - 1"	
	6x6 - W2.9 x W2.9	16	9' - 8"	9' - 11"	10' - 3"	6x6 - W2.9 x W2.9	16	10' - 7"	11' - 0"	11' - 5"	

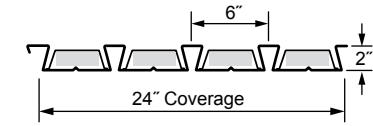
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
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- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 2.0 LS ES Composite Acoustical

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



(LS indicates longitudinal stiffener in bottom flat)

PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _D (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
22	0.0295	24	2.08	40	0.613	0.393	0.393	0.298	0.308	4594	999	1908
20	0.0358	24	2.53	40	0.743	0.476	0.476	0.379	0.377	5548	1427	2717
18	0.0474	24	3.34	40	0.982	0.628	0.628	0.500	0.5	7280	2389	4533
16	0.0598	24	4.21	40	1.237	0.789	0.789	0.629	0.629	9096	3657	6922

F_y is steel yield stress; A_s is area of deck; I_D is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

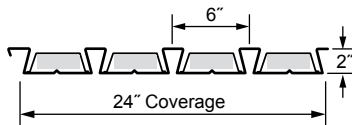
3000 PSI Normal-Weight Concrete (145 PCF)	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)			3000 PSI Lightweight Concrete (110 PCF)	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
		4.5"	22	7' - 9"	8' - 11"			9' - 2"	4.5"	22	8' - 6"
39 PSF	20	9' - 0"	9' - 10"	10' - 2"	30 PSF	20	9' - 11"	10' - 9"	11' - 1"		
1 cu.yd/(100sq.ft)	18	10' - 7"	11' - 3"	11' - 8"	1 cu.yd/(100sq.ft)	18	11' - 8"	12' - 3"	12' - 8"		
6x6 - W1.4 x W1.4	16	11' - 7"	12' - 6"	13' - 0"	6x6 - W1.4 x W1.4	16	12' - 4"	13' - 8"	14' - 2"		
4.75"	22	7' - 6"	8' - 8"	8' - 11"	4.75"	22	8' - 3"	9' - 6"	9' - 9"		
42 PSF	20	8' - 9"	9' - 7"	9' - 11"	32 PSF	20	9' - 8"	10' - 6"	10' - 10"		
1.08 cu.yd/(100sq.ft)	18	10' - 4"	11' - 0"	11' - 4"	1.08 cu.yd/(100sq.ft)	18	11' - 5"	12' - 0"	12' - 5"		
6x6 - W1.4 x W1.4	16	11' - 4"	12' - 3"	12' - 8"	6x6 - W1.4 x W1.4	16	12' - 1"	13' - 4"	13' - 10"		
5"	22	7' - 4"	8' - 6"	8' - 8"	5"	22	8' - 1"	9' - 4"	9' - 7"		
45 PSF	20	8' - 6"	9' - 4"	9' - 8"	34 PSF	20	9' - 5"	10' - 3"	10' - 7"		
1.16 cu.yd/(100sq.ft)	18	10' - 1"	10' - 9"	11' - 1"	1.16 cu.yd/(100sq.ft)	18	11' - 2"	11' - 9"	12' - 2"		
6x6 - W1.4 x W1.4	16	11' - 2"	11' - 11"	12' - 4"	6x6 - W1.4 x W1.4	16	11' - 11"	13' - 1"	13' - 6"		
5.25"	22	7' - 2"	8' - 3"	8' - 6"	5.25"	22	7' - 11"	9' - 1"	9' - 4"		
48 PSF	20	8' - 4"	9' - 2"	9' - 5"	37 PSF	20	9' - 2"	10' - 0"	10' - 5"		
1.23 cu.yd/(100sq.ft)	18	9' - 10"	10' - 6"	10' - 10"	1.23 cu.yd/(100sq.ft)	18	10' - 11"	11' - 6"	11' - 11"		
6x6 - W2.0 x W2.0	16	11' - 0"	11' - 8"	12' - 1"	6x6 - W2.0 x W2.0	16	11' - 9"	12' - 10"	13' - 3"		
5.5"	22	7' - 0"	8' - 1"	8' - 3"	5.5"	22	7' - 9"	8' - 11"	9' - 2"		
51 PSF	20	8' - 2"	8' - 11"	9' - 3"	39 PSF	20	9' - 0"	9' - 10"	10' - 2"		
1.31 cu.yd/(100sq.ft)	18	9' - 7"	10' - 3"	10' - 7"	1.31 cu.yd/(100sq.ft)	18	10' - 8"	11' - 3"	11' - 8"		
6x6 - W2.0 x W2.0	16	10' - 9"	11' - 5"	11' - 10"	6x6 - W2.0 x W2.0	16	11' - 7"	12' - 7"	13' - 0"		
5.75"	22	6' - 11"	7' - 11"	8' - 1"	5.75"	22	7' - 7"	8' - 9"	9' - 0"		
54 PSF	20	8' - 0"	8' - 9"	9' - 1"	41 PSF	20	8' - 10"	9' - 8"	10' - 0"		
1.39 cu.yd/(100sq.ft)	18	9' - 5"	10' - 0"	10' - 5"	1.39 cu.yd/(100sq.ft)	18	10' - 5"	11' - 1"	11' - 5"		
6x6 - W2.0 x W2.0	16	10' - 7"	11' - 3"	11' - 7"	6x6 - W2.0 x W2.0	16	11' - 5"	12' - 4"	12' - 9"		

NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
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Versa-Dek® 2.0 LS ES Composite Acoustical

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



(LS indicates longitudinal stiffener in bottom flat)

PROPERTIES					SECTION PROPERTIES			STRENGTHS (Bare Deck)				
Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
22	0.0295	24	2.08	40	0.613	0.393	0.393	0.298	0.308	4594	999	1908
20	0.0358	24	2.53	40	0.743	0.476	0.476	0.379	0.377	5548	1427	2717
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16	0.0598	24	4.21	40	1.237	0.789	0.789	0.629	0.629	9096	3657	6922

F_y is steel yield stress; A_s is area of deck; I_b is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

3000 PSI Normal-Weight Concrete (145 PCF)	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)			3000 PSI Lightweight Concrete (110 PCF)	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
	6"	22	6' - 9"	7' - 9"	7' - 11"		6"	22	7' - 6"	8' - 7"	8' - 10"
	57 PSF	20	7' - 10"	8' - 7"	8' - 10"		44 PSF	20	8' - 8"	9' - 6"	9' - 10"
	1.47 cu.yd/(100sq.ft)	18	9' - 3"	9' - 10"	10' - 2"		1.47 cu.yd/(100sq.ft)	18	10' - 3"	10' - 10"	11' - 3"
	6x6 - W2.0 x W2.0	16	10' - 5"	11' - 0"	11' - 4"		6x6 - W2.0 x W2.0	16	11' - 4"	12' - 1"	12' - 6"
	6.25"	22	6' - 8"	7' - 7"	7' - 10"		6.25"	22	7' - 4"	8' - 5"	8' - 8"
	60 PSF	20	7' - 8"	8' - 5"	8' - 8"		46 PSF	20	8' - 6"	9' - 4"	9' - 7"
	1.54 cu.yd/(100sq.ft)	18	9' - 0"	9' - 8"	10' - 0"		1.54 cu.yd/(100sq.ft)	18	10' - 0"	10' - 8"	11' - 0"
	6x6 - W2.0 x W2.0	16	10' - 3"	10' - 9"	11' - 2"		6x6 - W2.0 x W2.0	16	11' - 2"	11' - 11"	12' - 4"
6.5"	22	6' - 6"	7' - 6"	7' - 8"	6.5"	22	7' - 3"	8' - 3"	8' - 6"		
63 PSF	20	7' - 6"	8' - 3"	8' - 6"	48 PSF	20	8' - 4"	9' - 2"	9' - 6"		
1.62 cu.yd/(100sq.ft)	18	8' - 10"	9' - 6"	9' - 10"	1.62 cu.yd/(100sq.ft)	18	9' - 10"	10' - 6"	10' - 10"		
4x4 - W1.4 x W1.4	16	10' - 1"	10' - 7"	10' - 11"	4x4 - W1.4 x W1.4	16	11' - 0"	11' - 9"	12' - 1"		
6.75"	22	6' - 5"	7' - 4"	7' - 6"	6.75"	22	7' - 1"	8' - 2"	8' - 4"		
66 PSF	20	7' - 5"	8' - 1"	8' - 5"	50 PSF	20	8' - 3"	9' - 0"	9' - 4"		
1.7 cu.yd/(100sq.ft)	18	8' - 8"	9' - 4"	9' - 8"	1.7 cu.yd/(100sq.ft)	18	9' - 8"	10' - 4"	10' - 8"		
6x6 - W2.9 x W2.9	16	9' - 11"	10' - 5"	10' - 9"	6x6 - W2.9 x W2.9	16	10' - 10"	11' - 6"	11' - 11"		
7"	22	6' - 4"	7' - 3"	7' - 5"	7"	22	7' - 0"	8' - 0"	8' - 3"		
69 PSF	20	7' - 3"	8' - 0"	8' - 3"	53 PSF	20	8' - 1"	8' - 10"	9' - 2"		
1.77 cu.yd/(100sq.ft)	18	8' - 7"	9' - 2"	9' - 6"	1.77 cu.yd/(100sq.ft)	18	9' - 6"	10' - 2"	10' - 6"		
6x6 - W2.9 x W2.9	16	9' - 9"	10' - 3"	10' - 7"	6x6 - W2.9 x W2.9	16	10' - 8"	11' - 4"	11' - 9"		
7.25"	22	6' - 2"	7' - 1"	7' - 3"	7.25"	22	6' - 10"	7' - 11"	8' - 1"		
73 PSF	20	7' - 2"	7' - 10"	8' - 1"	55 PSF	20	7' - 11"	8' - 9"	9' - 0"		
1.85 cu.yd/(100sq.ft)	18	8' - 5"	9' - 0"	9' - 4"	1.85 cu.yd/(100sq.ft)	18	9' - 4"	10' - 0"	10' - 4"		
6x6 - W2.9 x W2.9	16	9' - 7"	10' - 1"	10' - 5"	6x6 - W2.9 x W2.9	16	10' - 6"	11' - 2"	11' - 6"		

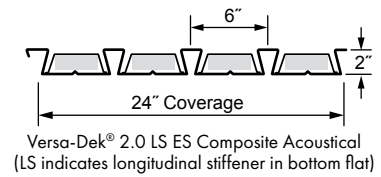
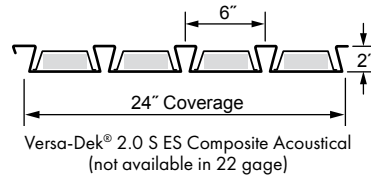
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

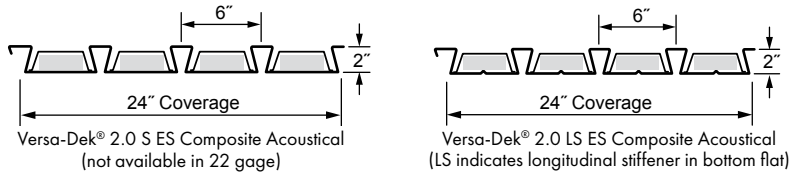
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			7' - 0"	8' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"
3000 PSI Normal-Weight Concrete (145 PCF)	4.5"	22	215	169	148	131	115 / 118	79 / 106	53 / 97	- / 88	- / 81	- / 75	- / 67
	39 PSF	20	225	197	156	138	124	90 / 112	62 / 102	41 / 93	- / 86	- / 79	- / 73
	1 cu.yd/(100sq.ft)	18	244	213	190	171	135	108 / 122	76 / 111	52 / 102	- / 94	- / 87	- / 80
	6x6 - W1.4 x W1.4	16	263	230	205	184	168	126 / 133	90 / 121	63 / 111	43 / 103	- / 95	- / 88
	4.75"	22	230	181	158	140	126	96 / 114	66 / 103	44 / 94	- / 87	- / 80	- / 74
	42 PSF	20	241	211	167	148	132	108 / 120	75 / 109	51 / 100	- / 92	- / 85	- / 78
	1.08 cu.yd/(100sq.ft)	18	261	228	203	183	145	129 / 131	92 / 119	64 / 109	44 / 100	- / 93	- / 86
	6x6 - W1.4 x W1.4	16	282	247	219	197	179	143	108 / 130	77 / 119	54 / 110	- / 102	- / 94
	5"	22	245	193	169	150	134	114 / 121	80 / 110	54 / 100	- / 92	- / 85	- / 75
	45 PSF	20	257	225	177	157	141	127	91 / 116	63 / 106	42 / 97	- / 90	- / 83
	1.16 cu.yd/(100sq.ft)	18	278	243	216	195	154	139	110 / 127	78 / 116	54 / 107	- / 99	- / 92
	6x6 - W1.4 x W1.4	16	300	263	234	210	191	152	128 / 139	93 / 127	66 / 117	46 / 108	- / 100
	5.25"	22	260	204	179	159	142	128	97 / 117	68 / 107	46 / 98	- / 90	- / 80
	48 PSF	20	273	239	188	167	150	135	110 / 123	78 / 112	54 / 103	- / 95	- / 88
	1.23 cu.yd/(100sq.ft)	18	295	258	229	182	164	148	131 / 135	95 / 123	67 / 113	46 / 105	- / 97
	6x6 - W2.0 x W2.0	16	319	279	248	223	178	161	147	111 / 135	80 / 124	57 / 115	- / 107
	5.5"	22	275	216	189	168	150	136	115 / 123	82 / 113	56 / 103	- / 95	- / 84
	51 PSF	20	288	252	199	177	158	143	129 / 130	93 / 119	65 / 109	44 / 101	- / 93
	1.31 cu.yd/(100sq.ft)	18	312	273	243	193	173	156	142	112 / 130	81 / 120	57 / 111	- / 103
	6x6 - W2.0 x W2.0	16	337	295	262	236	189	171	156	130 / 143	95 / 131	69 / 122	48 / 113
	5.75"	22	264	228	199	177	158	143	130	97 / 119	68 / 109	46 / 96	- / 89
	54 PSF	20	304	239	210	186	167	151	137	110 / 125	78 / 115	54 / 106	- / 99
	1.39 cu.yd/(100sq.ft)	18	329	288	256	203	182	165	150	131 / 138	96 / 127	68 / 117	47 / 109
	6x6 - W2.0 x W2.0	16	356	311	277	249	199	180	164	150	112 / 139	82 / 128	59 / 119
3000 PSI Lightweight Concrete (110 PCF)	4.5"	22	214	187	151	135	95 / 121	66 / 110	45 / 100	- / 92	- / 85	- / 78	- / 65
	30 PSF	20	223	195	174	141	107 / 127	75 / 115	52 / 105	- / 96	- / 89	- / 82	- / 76
	1 cu.yd/(100sq.ft)	18	241	211	187	169	153	90 / 125	64 / 114	44 / 105	- / 97	- / 90	- / 84
	6x6 - W1.4 x W1.4	16	260	227	202	182	165	139 / 151	75 / 124	53 / 114	- / 105	- / 98	- / 91
	4.75"	22	228	200	162	144	113 / 129	79 / 117	55 / 107	- / 98	- / 91	- / 84	- / 74
	32 PSF	20	239	209	186	151	127 / 136	90 / 123	63 / 112	44 / 103	- / 95	- / 88	- / 82
	1.08 cu.yd/(100sq.ft)	18	258	226	201	180	164	107 / 134	77 / 122	54 / 112	- / 104	- / 96	- / 90
	6x6 - W1.4 x W1.4	16	278	243	216	195	177	160 / 162	90 / 133	64 / 122	46 / 113	- / 105	- / 97
	5"	22	243	213	172	153	133 / 138	94 / 125	66 / 114	46 / 105	- / 97	- / 89	- / 83
	34 PSF	20	255	223	198	161	145	106 / 131	76 / 120	53 / 110	- / 101	- / 94	- / 88
	1.16 cu.yd/(100sq.ft)	18	275	240	214	192	175	127 / 143	91 / 130	66 / 120	46 / 111	- / 103	- / 95
	6x6 - W1.4 x W1.4	16	296	259	231	207	189	145 / 155	106 / 142	77 / 130	55 / 120	- / 112	- / 104
	5.25"	22	258	208	183	163	146	113 / 133	80 / 121	57 / 111	- / 102	- / 95	- / 88
	37 PSF	20	270	236	210	171	154	126 / 139	91 / 127	65 / 117	45 / 108	- / 100	- / 93
	1.23 cu.yd/(100sq.ft)	18	292	255	227	204	167	149 / 151	109 / 138	79 / 127	57 / 117	40 / 109	- / 101
	6x6 - W2.0 x W2.0	16	315	275	245	220	200	164	125 / 150	92 / 138	67 / 128	48 / 119	- / 110
	5.5"	22	273	220	193	172	155	132 / 140	95 / 128	68 / 117	47 / 108	- / 100	- / 93
	39 PSF	20	286	250	222	181	162	147	107 / 134	77 / 123	55 / 114	- / 106	- / 98
	1.31 cu.yd/(100sq.ft)	18	309	270	240	216	177	160	127 / 146	93 / 135	68 / 124	48 / 115	- / 107
	6x6 - W2.0 x W2.0	16	333	292	259	233	212	174	145 / 159	108 / 146	80 / 135	58 / 126	41 / 117
	5.75"	22	288	232	204	181	163	148	110 / 135	80 / 124	57 / 114	- / 106	- / 98
	41 PSF	20	302	264	214	191	171	155	124 / 142	90 / 130	65 / 120	46 / 111	- / 104
	1.39 cu.yd/(100sq.ft)	18	326	285	253	228	186	169	146 / 155	108 / 142	80 / 131	58 / 122	41 / 113
	6x6 - W2.0 x W2.0	16	352	308	273	246	224	184	168	125 / 154	93 / 143	69 / 133	50 / 123

NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			8' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"
3000 PSI Normal-Weight Concrete (145 PCF)	6"	22	239	210	186	166	150	137	114 / 125	81 / 115	57 / 101	- / 93	- / 86
	57 PSF	20	252	221	196	175	158	144	128 / 132	93 / 121	66 / 112	45 / 104	- / 91
	1.47 cu.yd/(100sq.ft)	18	303	269	214	192	174	158	145	112 / 133	81 / 123	58 / 114	- / 106
	6x6 - W2.0 x W2.0	16	328	291	262	209	190	173	158	131 / 146	97 / 135	70 / 125	49 / 117
	6.25"	22	251	220	195	175	158	143	131	96 / 120	68 / 106	46 / 98	- / 90
	60 PSF	20	264	231	205	184	166	151	138	108 / 127	78 / 117	55 / 104	- / 96
	1.54 cu.yd/(100sq.ft)	18	318	283	224	201	182	166	152	130 / 140	96 / 129	69 / 120	48 / 111
	6x6 - W2.0 x W2.0	16	344	306	275	220	199	181	166	151 / 153	113 / 142	83 / 132	60 / 123
	6.5"	22	263	230	204	183	165	150	137	112 / 120	81 / 111	57 / 102	- / 94
	63 PSF	20	276	242	215	193	174	158	145	126 / 133	92 / 123	66 / 108	45 / 100
	1.62 cu.yd/(100sq.ft)	18	333	265	235	211	191	174	159	146	111 / 135	82 / 125	58 / 117
	4x4 - W1.4 x W1.4	16	360	320	288	230	208	190	174	160	130 / 148	97 / 138	71 / 128
	6.75"	22	274	240	213	191	172	157	143	126	98 / 116	70 / 107	48 / 99
	66 PSF	20	289	253	225	201	182	165	151	139	110 / 128	80 / 113	56 / 105
	1.7 cu.yd/(100sq.ft)	18	348	277	246	220	199	181	166	153	130 / 141	97 / 131	71 / 122
	6x6 - W2.9 x W2.9	16	376	334	268	241	218	198	182	168	151 / 155	114 / 144	85 / 134
	7"	22	286	251	222	199	180	163	149	131	113 / 120	82 / 111	58 / 103
	69 PSF	20	301	264	234	210	190	172	158	145	126 / 128	93 / 118	67 / 109
	1.77 cu.yd/(100sq.ft)	18	363	288	256	230	208	189	173	159	147	112 / 137	83 / 127
	6x6 - W2.9 x W2.9	16	393	349	279	251	227	207	190	175	162	131 / 150	98 / 140
	7.25"	22	298	261	231	207	187	170	155	136	125	96 / 116	69 / 107
	73 PSF	20	313	275	244	218	197	179	164	151	133	108 / 123	79 / 114
	1.85 cu.yd/(100sq.ft)	18	378	300	267	239	216	197	180	166	153	128 / 142	96 / 132
	6x6 - W2.9 x W2.9	16	409	363	291	261	237	216	198	182	168	149 / 156	113 / 146
3000 PSI Lightweight Concrete (110 PCF)	6"	22	244	214	191	172	156	128 / 142	93 / 130	67 / 120	47 / 111	- / 103	- / 93
	44 PSF	20	278	225	200	180	163	143 / 149	105 / 137	77 / 126	55 / 117	- / 109	- / 102
	1.47 cu.yd/(100sq.ft)	18	300	267	240	196	178	163	125 / 149	93 / 138	68 / 128	49 / 119	- / 111
	6x6 - W2.0 x W2.0	16	324	288	259	235	193	177	144 / 163	108 / 150	80 / 139	59 / 130	42 / 122
	6.25"	22	256	225	200	180	163	146 / 149	108 / 137	78 / 126	56 / 117	- / 105	- / 97
	46 PSF	20	291	236	210	189	172	157	121 / 144	89 / 133	65 / 123	46 / 114	- / 107
	1.54 cu.yd/(100sq.ft)	18	315	280	252	206	187	171	143 / 157	107 / 145	80 / 134	58 / 125	41 / 117
	6x6 - W2.0 x W2.0	16	340	302	272	247	203	186	164 / 171	124 / 158	93 / 146	70 / 136	51 / 128
	6.5"	22	268	236	210	188	171	156	124 / 143	91 / 132	66 / 122	47 / 110	- / 102
	48 PSF	20	305	247	220	198	180	164	138 / 151	103 / 139	76 / 129	55 / 120	- / 112
	1.62 cu.yd/(100sq.ft)	18	330	293	240	216	196	179	163 / 164	123 / 152	92 / 141	68 / 131	49 / 122
	4x4 - W1.4 x W1.4	16	356	316	285	234	213	195	179	142 / 165	108 / 153	81 / 143	60 / 134
	6.75"	22	280	246	219	197	178	163	144 / 149	107 / 138	79 / 128	57 / 114	40 / 107
	50 PSF	20	319	259	230	207	188	171	157	120 / 145	90 / 135	66 / 125	47 / 117
	1.7 cu.yd/(100sq.ft)	18	345	306	251	225	205	187	172	142 / 159	107 / 147	80 / 137	59 / 128
	6x6 - W2.9 x W2.9	16	372	331	298	245	223	203	187	162 / 173	124 / 160	94 / 150	71 / 140
	7"	22	292	257	228	205	186	170	156	122 / 144	91 / 133	67 / 119	48 / 111
	53 PSF	20	332	270	240	216	196	179	164	136 / 151	103 / 140	76 / 131	56 / 117
	1.77 cu.yd/(100sq.ft)	18	360	320	261	235	213	195	179	160 / 165	122 / 154	92 / 143	69 / 134
	6x6 - W2.9 x W2.9	16	388	345	311	256	232	212	195	180	141 / 167	108 / 156	82 / 146
	7.25"	22	304	267	238	214	194	177	162	139 / 150	104 / 134	77 / 124	56 / 116
	55 PSF	20	319	281	250	225	204	186	171	154 / 158	117 / 146	88 / 136	65 / 122
	1.85 cu.yd/(100sq.ft)	18	374	333	272	245	222	203	187	172	138 / 160	105 / 149	79 / 139
	6x6 - W2.9 x W2.9	16	404	360	324	266	242	221	203	188	158 / 174	122 / 163	94 / 152

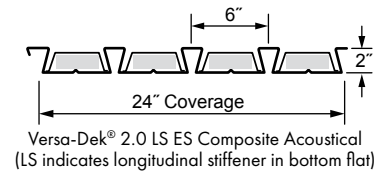
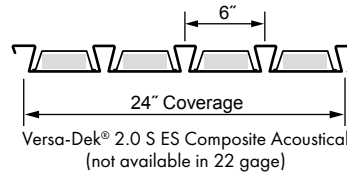
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

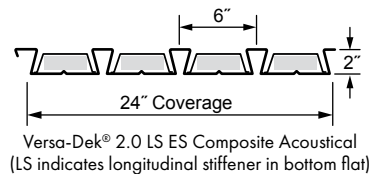
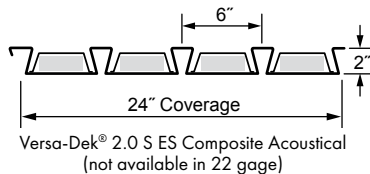
Total Slab Depth (in.)	Gage	Max. Service Stage Single Spans (ft.-in.)					
		3000 PSI Normal-Weight Concrete (145 PCF)			3000 PSI Lightweight Concrete (110 PCF)		
		LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf	LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf
4.5	22	13' - 7" / 17' - 4"	13' - 4" / 14' - 7"	12' - 3"	13' - 3" / 17' - 4"	12' - 11" / 15' - 2"	12' - 5" / 12' - 7"
	20	14' - 0" / 18' - 2"	13' - 9" / 15' - 3"	12' - 10"	13' - 8" / 18' - 3"	13' - 4" / 15' - 10"	12' - 9" / 13' - 2"
	18	14' - 7" / 19' - 6"	14' - 4" / 16' - 5"	13' - 10"	14' - 3" / 19' - 8"	13' - 11" / 17' - 0"	13' - 4" / 14' - 2"
	16	15' - 2" / 20' - 8"	14' - 10" / 17' - 8"	14' - 4" / 14' - 10"	14' - 9" / 21' - 1"	14' - 5" / 18' - 3"	13' - 10" / 15' - 2"
4.75	22	14' - 2" / 18' - 0"	13' - 10" / 15' - 5"	12' - 11"	13' - 9" / 18' - 0"	13' - 5" / 16' - 0"	12' - 11" / 13' - 4"
	20	14' - 7" / 18' - 10"	14' - 3" / 16' - 1"	13' - 6"	14' - 2" / 18' - 11"	13' - 10" / 16' - 9"	13' - 4" / 13' - 11"
	18	15' - 2" / 20' - 2"	14' - 11" / 17' - 4"	14' - 4" / 14' - 7"	14' - 10" / 20' - 5"	14' - 6" / 18' - 0"	13' - 11" / 15' - 0"
	16	15' - 9" / 21' - 5"	15' - 5" / 18' - 8"	14' - 11" / 15' - 9"	15' - 4" / 21' - 9"	15' - 0" / 19' - 4"	14' - 5" / 16' - 1"
5	22	14' - 8" / 18' - 8"	14' - 5" / 16' - 3"	13' - 8"	14' - 4" / 18' - 7"	14' - 0" / 16' - 11"	13' - 5" / 14' - 1"
	20	15' - 1" / 19' - 6"	14' - 10" / 16' - 11"	14' - 3"	14' - 9" / 19' - 7"	14' - 5" / 17' - 8"	13' - 10" / 14' - 9"
	18	15' - 9" / 20' - 10"	15' - 5" / 18' - 3"	14' - 11" / 15' - 5"	15' - 4" / 21' - 1"	15' - 0" / 19' - 0"	14' - 5" / 15' - 10"
	16	16' - 3" / 22' - 1"	16' - 0" / 19' - 8"	15' - 5" / 16' - 7"	15' - 11" / 22' - 6"	15' - 7" / 20' - 4"	15' - 0" / 17' - 0"
5.25	22	15' - 3" / 19' - 4"	14' - 11" / 17' - 0"	14' - 4"	14' - 10" / 19' - 3"	14' - 6" / 17' - 9"	14' - 0" / 14' - 10"
	20	15' - 8" / 20' - 2"	15' - 4" / 17' - 9"	14' - 10" / 15' - 0"	15' - 3" / 20' - 2"	14' - 11" / 18' - 6"	14' - 5" / 15' - 6"
	18	16' - 4" / 21' - 6"	16' - 0" / 19' - 2"	15' - 6" / 16' - 2"	15' - 11" / 21' - 9"	15' - 7" / 19' - 11"	15' - 0" / 16' - 8"
	16	16' - 10" / 22' - 10"	16' - 7" / 20' - 7"	16' - 0" / 17' - 5"	16' - 6" / 23' - 2"	16' - 1" / 21' - 5"	15' - 6" / 17' - 11"
5.5	22	15' - 9" / 19' - 11"	15' - 5" / 17' - 0"	14' - 11" / 15' - 0"	15' - 4" / 19' - 10"	15' - 0" / 18' - 0"	14' - 6" / 15' - 7"
	20	16' - 2" / 20' - 10"	15' - 11" / 18' - 6"	15' - 4" / 15' - 8"	15' - 10" / 20' - 10"	15' - 5" / 19' - 4"	14' - 11" / 16' - 3"
	18	16' - 10" / 22' - 2"	16' - 6" / 20' - 0"	16' - 0" / 16' - 11"	16' - 6" / 22' - 5"	16' - 1" / 20' - 10"	15' - 6" / 17' - 6"
	16	17' - 5" / 23' - 6"	17' - 1" / 21' - 6"	16' - 7" / 18' - 2"	17' - 0" / 23' - 11"	16' - 8" / 22' - 3"	16' - 1" / 18' - 10"
5.75	22	16' - 3" / 20' - 7"	16' - 0" / 17' - 9"	15' - 6" / 15' - 7"	15' - 10" / 20' - 6"	15' - 6" / 18' - 9"	15' - 0" / 16' - 3"
	20	16' - 8" / 21' - 5"	16' - 5" / 18' - 6"	15' - 11" / 16' - 4"	16' - 4" / 21' - 5"	16' - 0" / 19' - 7"	15' - 5" / 17' - 0"
	18	17' - 4" / 22' - 10"	17' - 1" / 20' - 10"	16' - 6" / 17' - 7"	17' - 0" / 23' - 1"	16' - 8" / 21' - 6"	16' - 1" / 18' - 4"
	16	18' - 0" / 24' - 2"	17' - 8" / 22' - 5"	17' - 1" / 19' - 0"	17' - 7" / 24' - 7"	17' - 3" / 22' - 10"	16' - 7" / 19' - 8"
6	22	16' - 9" / 21' - 2"	16' - 6" / 18' - 4"	15' - 8"	16' - 4" / 21' - 1"	16' - 0" / 19' - 6"	15' - 5" / 17' - 0"
	20	17' - 3" / 22' - 1"	16' - 11" / 19' - 2"	16' - 5" / 17' - 0"	16' - 10" / 22' - 1"	16' - 6" / 20' - 4"	15' - 11" / 17' - 9"
	18	17' - 11" / 23' - 6"	17' - 7" / 20' - 8"	17' - 1" / 18' - 4"	17' - 6" / 23' - 8"	17' - 2" / 21' - 11"	16' - 7" / 19' - 1"
	16	18' - 6" / 24' - 10"	18' - 2" / 22' - 3"	17' - 8" / 19' - 9"	18' - 1" / 25' - 3"	17' - 9" / 23' - 6"	17' - 2" / 20' - 6"
6.25	22	17' - 3" / 21' - 9"	17' - 0" / 19' - 0"	16' - 3"	16' - 10" / 21' - 8"	16' - 6" / 20' - 0"	15' - 11" / 17' - 1"
	20	17' - 9" / 22' - 8"	17' - 5" / 19' - 10"	16' - 11" / 17' - 0"	17' - 4" / 22' - 8"	17' - 0" / 21' - 1"	16' - 5" / 18' - 5"
	18	18' - 5" / 24' - 1"	18' - 1" / 21' - 5"	17' - 7" / 19' - 0"	18' - 0" / 24' - 4"	17' - 8" / 22' - 8"	17' - 1" / 19' - 10"
	16	19' - 0" / 25' - 6"	18' - 8" / 23' - 1"	18' - 2" / 20' - 6"	18' - 8" / 25' - 10"	18' - 3" / 24' - 2"	17' - 8" / 21' - 5"
6.5	22	17' - 9" / 22' - 0"	17' - 6" / 19' - 6"	16' - 10"	17' - 4" / 22' - 3"	17' - 0" / 20' - 4"	16' - 5" / 17' - 9"
	20	18' - 3" / 23' - 3"	17' - 11" / 20' - 6"	17' - 5" / 17' - 7"	17' - 10" / 23' - 3"	17' - 5" / 21' - 9"	16' - 11" / 18' - 7"
	18	18' - 11" / 24' - 9"	18' - 7" / 22' - 1"	18' - 1" / 19' - 0"	18' - 6" / 24' - 11"	18' - 2" / 23' - 4"	17' - 7" / 20' - 8"
	16	19' - 7" / 26' - 1"	19' - 3" / 23' - 10"	18' - 8" / 21' - 3"	19' - 2" / 26' - 6"	18' - 10" / 24' - 9"	18' - 2" / 22' - 2"
6.75	22	18' - 4" / 22' - 3"	18' - 0" / 19' - 9"	17' - 4"	17' - 11" / 22' - 10"	17' - 6" / 20' - 8"	16' - 11" / 18' - 4"
	20	18' - 9" / 23' - 11"	18' - 5" / 21' - 1"	17' - 11" / 18' - 2"	18' - 4" / 23' - 10"	18' - 0" / 22' - 4"	17' - 5" / 19' - 2"
	18	19' - 6" / 25' - 4"	19' - 2" / 22' - 9"	18' - 7" / 19' - 7"	19' - 1" / 25' - 7"	18' - 9" / 23' - 11"	18' - 1" / 20' - 8"
	16	20' - 1" / 26' - 9"	19' - 9" / 24' - 7"	19' - 3" / 21' - 1"	19' - 9" / 27' - 1"	19' - 4" / 25' - 5"	18' - 9" / 23' - 0"
7	22	18' - 10" / 22' - 6"	18' - 6" / 20' - 0"	17' - 10"	18' - 4" / 23' - 5"	18' - 0" / 21' - 0"	17' - 5" / 19' - 0"
	20	19' - 3" / 24' - 6"	18' - 11" / 21' - 9"	18' - 5" / 18' - 8"	18' - 10" / 24' - 5"	18' - 6" / 22' - 11"	17' - 11" / 19' - 10"
	18	20' - 0" / 25' - 11"	19' - 8" / 23' - 5"	19' - 1" / 20' - 2"	19' - 7" / 26' - 2"	19' - 2" / 24' - 6"	18' - 7" / 21' - 5"
	16	20' - 7" / 27' - 4"	20' - 3" / 25' - 3"	19' - 9" / 21' - 9"	20' - 3" / 27' - 9"	19' - 10" / 26' - 0"	19' - 3" / 23' - 0"
7.25	22	19' - 4" / 22' - 9"	19' - 0" / 20' - 3"	18' - 5"	18' - 10" / 24' - 0"	18' - 6" / 21' - 3"	17' - 10" / 19' - 7"
	20	19' - 9" / 24' - 10"	19' - 5" / 22' - 2"	18' - 11" / 19' - 3"	19' - 4" / 25' - 0"	18' - 11" / 23' - 3"	18' - 4" / 20' - 6"
	18	20' - 6" / 26' - 7"	20' - 2" / 24' - 1"	19' - 7" / 20' - 9"	20' - 1" / 26' - 9"	19' - 8" / 25' - 1"	19' - 1" / 22' - 1"
	16	21' - 1" / 27' - 11"	20' - 9" / 26' - 0"	20' - 3" / 22' - 5"	20' - 9" / 28' - 4"	20' - 4" / 26' - 7"	19' - 9" / 23' - 9"

NOTES:

- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
3000 PSI Normal-Weight Concrete (145 PCF)	4.5	22	7.33 / 9.67	4.95 / 6.5	6.14 / 8.08	6.349	4.395	1.206
		20	7.82 / 10.74	5.67 / 7.85	6.75 / 9.3	7.497	4.395	1.262
		18	8.69 / 12.71	6.87 / 10.38	7.78 / 11.55	9.420	4.395	1.365
		16	9.54 / 14.81	7.98 / 13.16	8.76 / 13.99	8.326	4.395	1.475
	4.75	22	8.61 / 11.27	5.67 / 7.36	7.14 / 9.31	6.815	4.755	1.290
		20	9.18 / 12.48	6.51 / 8.87	7.84 / 10.68	8.062	4.755	1.351
		18	10.15 / 14.7	7.9 / 11.71	9.02 / 13.21	10.169	4.755	1.461
		16	11.11 / 17.07	9.19 / 14.83	10.15 / 15.95	9.148	4.755	1.578
	5	22	10.06 / 13.05	6.46 / 8.27	8.26 / 10.66	7.281	5.114	1.374
		20	10.69 / 14.41	7.42 / 9.97	9.05 / 12.19	8.628	5.114	1.439
		18	11.78 / 16.89	9.01 / 13.14	10.4 / 15.02	10.917	5.114	1.557
		16	12.87 / 19.54	10.49 / 16.61	11.68 / 18.08	13.091	5.114	1.682
	5.25	22	11.67 / 15.02	7.3 / 9.25	9.48 / 12.14	7.747	5.474	1.458
		20	12.37 / 16.53	8.4 / 11.14	10.38 / 13.83	9.193	5.474	1.527
		18	13.59 / 19.3	10.21 / 14.65	11.9 / 16.98	11.666	5.474	1.652
		16	14.81 / 22.25	11.91 / 18.49	13.36 / 20.37	14.035	5.474	1.786
	5.5	22	13.45 / 17.19	8.21 / 10.29	10.83 / 13.74	8.213	5.833	1.542
		20	14.23 / 18.86	9.45 / 12.37	11.84 / 15.62	9.759	5.833	1.615
		18	15.59 / 21.93	11.5 / 16.26	13.54 / 19.09	12.415	5.833	1.748
		16	16.94 / 25.2	13.42 / 20.49	15.18 / 22.85	14.980	5.833	1.889
	5.75	22	15.43 / 19.57	9.17 / 11.38	12.3 / 15.48	8.679	6.193	1.626
		20	16.29 / 21.41	10.57 / 13.68	13.43 / 17.55	10.324	6.193	1.703
		18	17.79 / 24.79	12.88 / 17.96	15.33 / 21.37	13.163	6.193	1.844
		16	19.28 / 28.4	15.05 / 22.61	17.17 / 25.5	15.924	6.193	1.993
3000 PSI Lightweight Concrete (110 PCF)	4.5	22	5.61 / 8.1	4.36 / 6.47	4.99 / 7.28	6.349	3.297	1.196
		20	6.06 / 9.17	4.96 / 7.87	5.51 / 8.52	7.497	3.297	1.250
		18	6.81 / 11.14	5.91 / 10.54	6.36 / 10.84	9.420	3.297	1.349
		16	7.53 / 13.24	6.79 / 13.51	7.16 / 13.38	8.326	3.297	1.454
	4.75	22	6.56 / 9.37	5.02 / 7.3	5.79 / 8.34	6.815	3.566	1.279
		20	7.07 / 10.58	5.7 / 8.88	6.38 / 9.73	8.062	3.566	1.338
		18	7.92 / 12.8	6.81 / 11.86	7.36 / 12.33	10.169	3.566	1.444
		16	8.74 / 15.17	7.82 / 15.18	8.28 / 15.18	9.148	3.566	1.557
	5	22	7.62 / 10.78	5.72 / 8.19	6.67 / 9.49	7.281	3.836	1.363
		20	8.19 / 12.14	6.51 / 9.95	7.35 / 11.04	8.628	3.836	1.425
		18	9.15 / 14.62	7.78 / 13.27	8.47 / 13.95	10.917	3.836	1.539
		16	10.08 / 17.28	8.95 / 16.95	9.52 / 17.11	13.091	3.836	1.660
	5.25	22	8.8 / 12.33	6.48 / 9.14	7.64 / 10.73	7.747	4.105	1.447
		20	9.43 / 13.84	7.38 / 11.08	8.41 / 12.46	9.193	4.105	1.513
		18	10.51 / 16.61	8.84 / 14.76	9.68 / 15.68	11.666	4.105	1.634
		16	11.56 / 19.56	10.18 / 18.83	10.87 / 19.19	14.035	4.105	1.763
	5.5	22	10.1 / 14.02	7.3 / 10.15	8.7 / 12.08	8.213	4.375	1.531
		20	10.8 / 15.69	8.32 / 12.29	9.56 / 13.99	9.759	4.375	1.601
		18	12.01 / 18.76	9.98 / 16.34	10.99 / 17.55	12.415	4.375	1.729
		16	13.18 / 22.03	11.5 / 20.82	12.34 / 21.42	14.980	4.375	1.866
	5.75	22	11.53 / 15.87	8.17 / 11.21	9.85 / 13.54	8.679	4.645	1.614
		20	12.31 / 17.71	9.33 / 13.56	10.82 / 15.64	10.324	4.645	1.689
		18	13.64 / 21.09	11.2 / 18	12.42 / 19.55	13.163	4.645	1.825
		16	14.94 / 24.69	12.91 / 22.91	13.93 / 23.8	15.924	4.645	1.969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

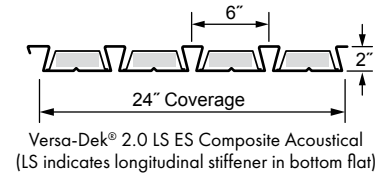
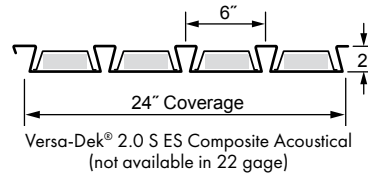
NOTES:

1. Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span.
2. Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
3. Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
4. Factored shear bond capacities of the slabs are based on physical testing.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



3000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
3000 PSI Normal-Weight Concrete (145 PCF)	6	22	17.6 / 22.17	10.19 / 12.54	13.9 / 17.35	9.145	6.552	1.710
		20	18.54 / 24.19	11.76 / 15.07	15.15 / 19.63	10.890	6.552	1.791
		18	20.19 / 27.9	14.35 / 19.75	17.27 / 23.82	13.912	6.552	1.939
		16	21.84 / 31.86	16.79 / 24.83	19.31 / 28.35	16.869	6.552	2.097
	6.25	22	19.98 / 24.99	11.28 / 13.76	15.63 / 19.38	9.611	6.912	1.794
		20	21.01 / 27.2	13.02 / 16.52	17.01 / 21.86	11.455	6.912	1.879
		18	22.81 / 31.26	15.91 / 21.63	19.36 / 26.45	14.661	6.912	2.035
		16	24.63 / 35.59	18.63 / 27.17	21.63 / 31.38	17.813	6.912	2.201
	6.5	22	22.57 / 28.06	12.42 / 15.04	17.5 / 21.55	10.076	7.271	1.878
		20	23.69 / 30.47	14.35 / 18.05	19.02 / 24.26	12.021	7.271	1.967
		18	25.67 / 34.89	17.56 / 23.61	21.61 / 29.25	15.409	7.271	2.131
		16	27.65 / 39.6	20.59 / 29.63	24.12 / 34.62	18.758	7.271	2.304
	6.75	22	25.39 / 31.38	13.63 / 16.39	19.51 / 23.88	10.542	7.630	1.962
		20	26.61 / 33.99	15.76 / 19.65	21.19 / 26.82	12.586	7.630	2.055
		18	28.76 / 38.79	19.3 / 25.69	24.03 / 32.24	16.158	7.630	2.226
		16	30.92 / 43.91	22.65 / 32.2	26.79 / 38.05	19.702	7.630	2.408
	7	22	28.45 / 34.95	14.9 / 17.79	21.68 / 26.37	11.008	7.990	2.046
		20	29.77 / 37.78	17.24 / 21.33	23.51 / 29.55	13.152	7.990	2.143
		18	32.1 / 42.97	21.13 / 27.85	26.62 / 35.41	16.907	7.990	2.322
		16	34.44 / 48.51	24.83 / 34.89	29.64 / 41.7	20.647	7.990	2.512
	7.25	22	31.76 / 38.79	16.23 / 19.26	23.99 / 29.03	11.474	8.285	2.130
		20	33.18 / 41.85	18.79 / 23.08	25.99 / 32.46	13.717	8.349	2.231
		18	35.7 / 47.45	23.06 / 30.12	29.38 / 38.78	17.655	8.349	2.418
		16	38.24 / 53.43	27.13 / 37.69	32.68 / 45.56	21.591	8.349	2.616
3000 PSI Lightweight Concrete (110 PCF)	6	22	13.09 / 17.87	9.1 / 12.33	11.1 / 15.1	9.145	4.914	1.698
		20	13.95 / 19.89	10.4 / 14.91	12.18 / 17.4	10.890	4.914	1.776
		18	15.43 / 23.6	12.5 / 19.76	13.96 / 21.68	13.912	4.914	1.920
		16	16.87 / 27.56	14.43 / 25.11	15.65 / 26.33	16.869	4.914	2.072
	6.25	22	14.8 / 20.04	10.09 / 13.51	12.45 / 16.77	9.611	5.184	1.782
		20	15.75 / 22.25	11.53 / 16.32	13.64 / 19.28	11.455	5.184	1.864
		18	17.37 / 26.31	13.88 / 21.6	15.63 / 23.95	14.661	5.184	2.015
		16	18.96 / 30.63	16.05 / 27.41	17.5 / 29.02	17.813	5.184	2.175
	6.5	22	16.66 / 22.38	11.13 / 14.75	13.9 / 18.56	10.076	5.453	1.866
		20	17.7 / 24.78	12.74 / 17.8	15.22 / 21.29	12.021	5.453	1.952
		18	19.47 / 29.21	15.36 / 23.53	17.41 / 26.37	15.409	5.453	2.110
		16	21.22 / 33.92	17.77 / 29.83	19.49 / 31.88	18.758	5.453	2.279
	6.75	22	18.68 / 24.9	12.24 / 16.05	15.46 / 20.47	10.542	5.723	1.949
		20	19.8 / 27.51	14.01 / 19.36	16.91 / 23.43	12.586	5.723	2.040
		18	21.74 / 32.31	16.91 / 25.55	19.33 / 28.93	16.158	5.723	2.206
		16	23.65 / 37.43	19.6 / 32.36	21.62 / 34.89	19.702	5.723	2.382
	7	22	20.86 / 27.6	13.4 / 17.41	17.13 / 22.5	11.008	5.992	2.033
		20	22.08 / 30.43	15.36 / 20.98	18.72 / 25.71	13.152	5.992	2.128
		18	24.19 / 35.63	18.55 / 27.67	21.37 / 31.65	16.907	5.992	2.301
		16	26.27 / 41.16	21.52 / 34.99	23.89 / 38.08	20.647	5.992	2.485
	7.25	22	23.21 / 30.5	14.62 / 18.82	18.91 / 24.66	11.474	6.262	2.117
		20	24.53 / 33.55	16.77 / 22.67	20.65 / 28.11	13.717	6.262	2.216
		18	26.81 / 39.16	20.28 / 29.87	23.55 / 34.51	17.655	6.262	2.397
		16	29.07 / 45.13	23.56 / 37.74	26.31 / 41.44	21.591	6.262	2.589

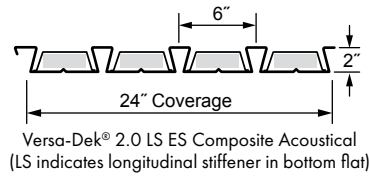
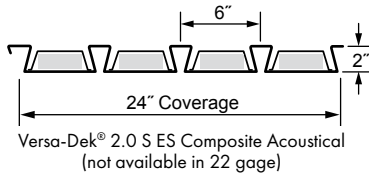
ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			7' - 0"	8' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	4.5"	22	216	170	149	132	118	88 / 107	60 / 97	40 / 89	- / 81	- / 75	- / 70
	39 PSF	20	226	198	156	139	124	100 / 112	69 / 102	47 / 93	- / 86	- / 79	- / 73
	1 cu.yd/(100sq.ft)	18	245	214	190	171	136	119 / 123	85 / 112	59 / 102	40 / 94	- / 87	- / 81
	6x6 - W1.4 x W1.4	16	264	231	206	185	168	134	99 / 122	71 / 112	49 / 103	- / 95	- / 89
	4.75"	22	231	181	159	141	126	107 / 114	74 / 104	51 / 95	- / 87	- / 80	- / 74
	42 PSF	20	242	212	167	148	133	120	85 / 109	59 / 100	- / 92	- / 85	- / 79
	1.08 cu.yd/(100sq.ft)	18	262	229	204	183	145	131	102 / 120	73 / 110	50 / 101	- / 93	- / 86
	6x6 - W1.4 x W1.4	16	283	248	220	198	180	143	119 / 131	86 / 120	61 / 110	42 / 102	- / 95
	5"	22	246	193	169	150	134	121	90 / 110	63 / 101	42 / 93	- / 85	- / 75
	45 PSF	20	258	225	178	158	141	128	102 / 116	72 / 106	49 / 98	- / 90	- / 84
	1.16 cu.yd/(100sq.ft)	18	279	244	217	195	155	140	122 / 127	88 / 117	62 / 107	43 / 99	- / 92
	6x6 - W1.4 x W1.4	16	302	264	235	211	192	153	139	103 / 128	74 / 117	53 / 109	- / 101
	5.25"	22	261	205	179	159	142	129	110 / 117	78 / 107	54 / 98	- / 91	- / 80
	48 PSF	20	273	239	189	167	150	136	123	88 / 113	62 / 104	42 / 96	- / 89
	1.23 cu.yd/(100sq.ft)	18	296	259	230	183	164	148	135	106 / 124	76 / 114	54 / 105	- / 98
	6x6 - W2.0 x W2.0	16	320	280	249	224	179	162	148	123 / 135	90 / 125	65 / 115	45 / 107
	5.5"	22	276	216	190	168	151	136	124	93 / 113	66 / 104	45 / 96	- / 84
	51 PSF	20	289	253	200	177	159	143	130	105 / 119	75 / 110	52 / 101	- / 94
	1.31 cu.yd/(100sq.ft)	18	313	274	244	194	174	157	143	125 / 131	91 / 120	65 / 111	45 / 103
	6x6 - W2.0 x W2.0	16	339	296	263	237	189	171	156	143	107 / 132	78 / 122	56 / 113
	5.75"	22	265	228	200	177	159	143	130	110 / 119	79 / 109	55 / 96	- / 89
	54 PSF	20	305	240	210	187	167	151	137	123 / 126	89 / 116	64 / 107	43 / 99
	1.39 cu.yd/(100sq.ft)	18	330	289	257	204	183	166	151	138	107 / 127	78 / 117	56 / 109
	6x6 - W2.0 x W2.0	16	357	313	278	250	200	181	165	151	125 / 139	93 / 129	68 / 120
4000 PSI Lightweight Concrete (110 PCF)	4.5"	22	214	187	152	135	104 / 121	73 / 110	51 / 100	- / 92	- / 85	- / 79	- / 67
	30 PSF	20	224	196	174	142	117 / 127	83 / 116	58 / 105	40 / 97	- / 89	- / 83	- / 77
	1 cu.yd/(100sq.ft)	18	242	212	188	169	154	99 / 126	71 / 115	50 / 105	- / 97	- / 90	- / 84
	6x6 - W1.4 x W1.4	16	261	228	203	183	166	149 / 152	83 / 125	59 / 115	42 / 106	- / 98	- / 92
	4.75"	22	229	201	162	144	124 / 130	88 / 118	62 / 107	42 / 99	- / 91	- / 84	- / 77
	32 PSF	20	240	210	186	152	136	99 / 124	70 / 113	49 / 104	- / 96	- / 89	- / 82
	1.08 cu.yd/(100sq.ft)	18	259	227	201	181	165	118 / 134	85 / 123	61 / 113	43 / 104	- / 97	- / 90
	6x6 - W1.4 x W1.4	16	279	245	217	196	178	163	99 / 133	72 / 123	52 / 113	- / 105	- / 98
	5"	22	244	214	173	154	138	104 / 125	74 / 114	52 / 105	- / 97	- / 90	- / 83
	34 PSF	20	255	224	199	162	145	117 / 132	84 / 120	60 / 110	42 / 102	- / 94	- / 88
	1.16 cu.yd/(100sq.ft)	18	276	242	215	193	176	139 / 143	101 / 131	73 / 120	52 / 111	- / 103	- / 96
	6x6 - W1.4 x W1.4	16	298	261	232	209	190	156	117 / 142	86 / 131	62 / 121	45 / 112	- / 105
	5.25"	22	259	209	183	163	147	124 / 133	90 / 121	64 / 111	45 / 103	- / 95	- / 89
	37 PSF	20	271	237	211	171	154	139 / 140	101 / 128	73 / 117	52 / 108	- / 100	- / 93
	1.23 cu.yd/(100sq.ft)	18	293	256	228	205	168	152	120 / 139	88 / 128	64 / 118	46 / 109	- / 102
	6x6 - W2.0 x W2.0	16	316	277	246	221	201	165	138 / 151	102 / 139	75 / 128	55 / 119	- / 111
	5.5"	22	274	221	194	173	155	141	105 / 128	76 / 118	54 / 109	- / 101	- / 94
	39 PSF	20	287	251	223	181	163	148	118 / 135	86 / 124	62 / 114	44 / 106	- / 99
	1.31 cu.yd/(100sq.ft)	18	310	271	241	217	177	161	139 / 147	103 / 135	76 / 125	55 / 116	- / 108
	6x6 - W2.0 x W2.0	16	335	293	260	234	213	175	160	119 / 147	89 / 136	65 / 126	47 / 118
	5.75"	22	289	233	205	182	164	148	122 / 135	89 / 124	64 / 115	45 / 106	- / 99
	41 PSF	20	303	265	215	191	172	156	137 / 142	101 / 131	74 / 121	53 / 112	- / 104
	1.39 cu.yd/(100sq.ft)	18	327	286	254	229	187	170	155	120 / 143	89 / 132	65 / 122	47 / 114
	6x6 - W2.0 x W2.0	16	353	309	275	247	225	185	169	138 / 155	104 / 144	77 / 133	57 / 124

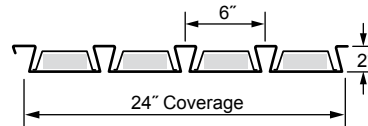
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

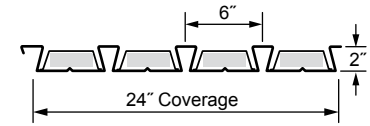


Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



Versa-Dek® 2.0 S ES Composite Acoustical
(not available in 22 gage)



Versa-Dek® 2.0 LS ES Composite Acoustical
(LS indicates longitudinal stiffener in bottom flat)

4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

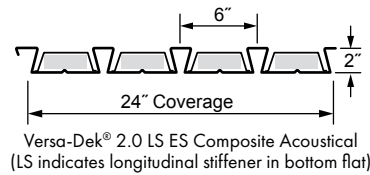
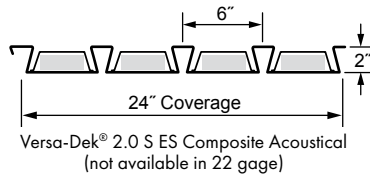
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			8' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	6"	22	240	210	186	167	151	137	125	94 / 115	67 / 101	46 / 93	- / 86
	57 PSF	20	252	221	196	176	159	145	132	105 / 122	76 / 112	53 / 104	- / 92
	1.47 cu.yd/(100sq.ft)	18	304	270	215	193	174	159	145	126 / 134	93 / 123	67 / 115	47 / 107
	6x6 - W2.0 x W2.0	16	329	292	263	210	190	173	159	145 / 146	109 / 136	80 / 126	58 / 117
	6.25"	22	252	220	195	175	158	144	131	110 / 120	79 / 106	56 / 98	- / 90
	60 PSF	20	265	232	206	185	167	152	139	123 / 127	90 / 118	65 / 104	44 / 96
	1.54 cu.yd/(100sq.ft)	18	319	283	225	202	183	166	152	140	108 / 130	80 / 120	57 / 112
	6x6 - W2.0 x W2.0	16	345	307	276	221	200	182	167	154	126 / 142	95 / 132	69 / 123
	6.5"	22	263	231	204	183	165	150	137	121	94 / 111	67 / 102	46 / 95
	63 PSF	20	277	243	216	193	174	159	145	133	106 / 123	77 / 109	54 / 101
	1.62 cu.yd/(100sq.ft)	18	334	295	236	211	191	174	159	147	126 / 136	94 / 126	68 / 117
	4x4 - W1.4 x W1.4	16	361	321	289	231	209	191	175	161	146 / 149	110 / 138	82 / 129
	6.75"	22	275	241	214	191	173	157	143	126	112 / 116	82 / 107	58 / 99
	66 PSF	20	289	254	225	202	182	166	152	139	125 / 129	93 / 114	67 / 105
	1.7 cu.yd/(100sq.ft)	18	349	277	246	221	200	182	167	153	142	111 / 131	82 / 122
	6x6 - W2.9 x W2.9	16	377	336	269	241	219	199	183	168	156	129 / 145	97 / 135
	7"	22	287	251	223	199	180	163	149	131	121	96 / 111	70 / 103
	69 PSF	20	302	265	235	210	190	173	158	145	128	107 / 118	79 / 110
	1.77 cu.yd/(100sq.ft)	18	364	289	257	230	208	190	174	160	148	127 / 137	96 / 128
	6x6 - W2.9 x W2.9	16	394	350	280	252	228	208	190	175	162	147 / 151	112 / 140
	7.25"	22	298	261	232	207	187	170	155	137	126	111 / 116	82 / 107
	73 PSF	20	314	275	244	219	198	180	164	151	133	123	92 / 114
	1.85 cu.yd/(100sq.ft)	18	379	301	267	240	217	198	181	166	154	143	110 / 133
	6x6 - W2.9 x W2.9	16	410	364	292	262	237	216	198	183	169	157	128 / 146
4000 PSI Lightweight Concrete (110 PCF)	6"	22	245	215	191	172	156	141 / 142	104 / 131	76 / 121	54 / 112	- / 104	- / 93
	44 PSF	20	278	226	201	181	164	150	117 / 138	86 / 127	63 / 118	45 / 109	- / 102
	1.47 cu.yd/(100sq.ft)	18	301	268	241	197	179	163	138 / 150	103 / 139	77 / 129	56 / 120	40 / 112
	6x6 - W2.0 x W2.0	16	325	289	260	237	194	178	158 / 163	120 / 151	90 / 140	67 / 131	49 / 122
	6.25"	22	257	226	201	181	164	149	120 / 137	89 / 126	64 / 117	46 / 105	- / 98
	46 PSF	20	292	237	211	190	172	157	134 / 144	100 / 133	74 / 123	53 / 115	- / 107
	1.54 cu.yd/(100sq.ft)	18	316	281	253	207	188	171	158	119 / 146	89 / 135	66 / 126	48 / 117
	6x6 - W2.0 x W2.0	16	341	303	273	248	204	187	172	137 / 159	104 / 147	79 / 137	58 / 128
	6.5"	22	269	236	210	189	171	156	138 / 143	103 / 132	76 / 123	55 / 110	- / 102
	48 PSF	20	306	248	221	199	180	165	151	115 / 139	86 / 129	63 / 120	45 / 112
	1.62 cu.yd/(100sq.ft)	18	331	294	241	217	197	180	165	136 / 152	103 / 141	77 / 132	57 / 123
	4x4 - W1.4 x W1.4	16	358	318	286	236	214	196	180	157 / 166	120 / 154	91 / 144	68 / 134
	6.75"	22	281	247	220	197	179	163	150	120 / 138	90 / 128	66 / 115	47 / 107
	50 PSF	20	320	259	231	208	188	172	158	134 / 146	101 / 135	75 / 126	55 / 117
	1.7 cu.yd/(100sq.ft)	18	346	307	252	226	205	188	172	157 / 159	120 / 148	91 / 138	68 / 129
	6x6 - W2.9 x W2.9	16	374	332	299	246	224	204	188	174	138 / 161	106 / 150	81 / 140
	7"	22	293	257	229	206	187	170	156	137 / 144	103 / 134	77 / 120	56 / 111
	53 PSF	20	333	270	241	217	196	179	165	152	115 / 141	87 / 131	64 / 118
	1.77 cu.yd/(100sq.ft)	18	361	321	262	236	214	196	180	166	136 / 154	104 / 144	79 / 134
	6x6 - W2.9 x W2.9	16	390	347	312	257	233	213	196	181	156 / 168	121 / 157	93 / 147
	7.25"	22	305	268	238	214	194	177	163	150	118 / 134	88 / 125	66 / 116
	55 PSF	20	320	282	251	226	204	187	171	158	131 / 147	99 / 136	75 / 123
	1.85 cu.yd/(100sq.ft)	18	376	334	273	246	223	204	187	173	153 / 161	118 / 149	90 / 140
	6x6 - W2.9 x W2.9	16	406	361	325	268	243	222	204	189	175	136 / 163	105 / 153

NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

Total Slab Depth (in.)	Gage	Max. Service Stage Single Spans (ft.-in.)					
		4000 PSI Normal-Weight Concrete (145 PCF)			4000 PSI Lightweight Concrete (110 PCF)		
		LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf	LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf
4.5	22	14' - 0" / 17' - 7"	13' - 8" / 14' - 8"	12' - 3"	13' - 7" / 17' - 6"	13' - 3" / 15' - 2"	12' - 8"
	20	14' - 4" / 18' - 5"	14' - 1" / 15' - 4"	12' - 10"	14' - 0" / 18' - 5"	13' - 8" / 15' - 10"	13' - 1" / 13' - 2"
	18	15' - 9" / 19' - 8"	14' - 8" / 16' - 6"	13' - 10"	14' - 7" / 19' - 10"	14' - 3" / 17' - 1"	13' - 8" / 14' - 2"
	16	15' - 6" / 20' - 10"	15' - 2" / 17' - 9"	14' - 8" / 14' - 11"	15' - 1" / 21' - 2"	14' - 9" / 18' - 4"	14' - 2" / 15' - 3"
4.75	22	14' - 6" / 18' - 4"	14' - 3" / 15' - 6"	13' - 0"	14' - 1" / 18' - 2"	13' - 9" / 16' - 1"	13' - 3" / 13' - 5"
	20	14' - 11" / 19' - 1"	14' - 7" / 16' - 6"	13' - 7"	14' - 6" / 19' - 1"	14' - 2" / 16' - 9"	13' - 8" / 14' - 0"
	18	15' - 7" / 20' - 5"	15' - 3" / 17' - 5"	14' - 8"	15' - 2" / 20' - 6"	14' - 10" / 18' - 1"	14' - 3" / 15' - 1"
	16	16' - 1" / 21' - 7"	15' - 9" / 18' - 9"	15' - 3" / 15' - 9"	15' - 8" / 21' - 11"	15' - 4" / 19' - 5"	14' - 9" / 16' - 2"
5	22	15' - 1" / 19' - 0"	14' - 9" / 16' - 3"	13' - 8"	14' - 8" / 18' - 10"	14' - 4" / 16' - 11"	13' - 9" / 14' - 2"
	20	15' - 6" / 19' - 9"	15' - 2" / 17' - 0"	14' - 3"	15' - 1" / 19' - 9"	14' - 9" / 17' - 8"	14' - 2" / 14' - 9"
	18	16' - 1" / 21' - 1"	15' - 10" / 18' - 4"	15' - 3" / 15' - 5"	15' - 9" / 21' - 3"	15' - 4" / 19' - 1"	14' - 10" / 15' - 11"
	16	16' - 8" / 22' - 4"	16' - 4" / 19' - 9"	15' - 10" / 16' - 7"	16' - 3" / 22' - 7"	15' - 11" / 20' - 6"	15' - 4" / 17' - 1"
5.25	22	15' - 8" / 19' - 8"	15' - 4" / 17' - 0"	14' - 4"	15' - 3" / 19' - 6"	14' - 10" / 17' - 10"	14' - 4" / 14' - 11"
	20	16' - 1" / 20' - 5"	15' - 9" / 17' - 9"	15' - 0"	15' - 8" / 20' - 5"	15' - 4" / 18' - 7"	14' - 9" / 15' - 6"
	18	16' - 9" / 21' - 9"	16' - 5" / 19' - 2"	15' - 10" / 16' - 2"	16' - 4" / 21' - 11"	15' - 11" / 20' - 0"	15' - 4" / 16' - 9"
	16	17' - 3" / 23' - 0"	17' - 0" / 20' - 8"	16' - 5" / 17' - 5"	16' - 10" / 23' - 4"	16' - 6" / 21' - 6"	15' - 11" / 18' - 0"
5.5	22	16' - 2" / 20' - 4"	15' - 10" / 17' - 1"	15' - 0"	15' - 9" / 20' - 2"	15' - 5" / 18' - 1"	14' - 10" / 15' - 7"
	20	16' - 7" / 21' - 1"	16' - 3" / 18' - 7"	15' - 8"	16' - 2" / 21' - 1"	15' - 10" / 19' - 5"	15' - 3" / 16' - 4"
	18	17' - 3" / 22' - 6"	16' - 11" / 20' - 0"	16' - 5" / 16' - 11"	16' - 10" / 22' - 7"	16' - 6" / 20' - 11"	15' - 11" / 17' - 7"
	16	17' - 10" / 23' - 9"	17' - 6" / 21' - 7"	17' - 0" / 18' - 3"	17' - 5" / 24' - 0"	17' - 1" / 22' - 4"	16' - 6" / 18' - 11"
5.75	22	16' - 9" / 21' - 0"	16' - 5" / 17' - 9"	15' - 8"	16' - 3" / 20' - 9"	15' - 11" / 18' - 10"	15' - 4" / 16' - 4"
	20	17' - 2" / 21' - 9"	16' - 10" / 18' - 7"	16' - 4" / 16' - 4"	16' - 9" / 21' - 9"	16' - 4" / 19' - 8"	15' - 9" / 17' - 0"
	18	17' - 10" / 23' - 2"	17' - 6" / 20' - 10"	16' - 11" / 17' - 8"	17' - 5" / 23' - 3"	17' - 1" / 21' - 8"	16' - 5" / 18' - 4"
	16	18' - 5" / 24' - 5"	18' - 1" / 22' - 6"	17' - 6" / 19' - 1"	18' - 0" / 24' - 9"	17' - 8" / 23' - 0"	17' - 0" / 19' - 9"
6	22	17' - 3" / 21' - 7"	16' - 11" / 18' - 5"	15' - 8"	16' - 9" / 21' - 5"	16' - 5" / 19' - 7"	15' - 10" / 17' - 0"
	20	17' - 8" / 22' - 5"	17' - 4" / 19' - 3"	16' - 10" / 17' - 0"	17' - 3" / 22' - 4"	16' - 11" / 20' - 5"	16' - 4" / 17' - 9"
	18	18' - 4" / 23' - 10"	18' - 0" / 20' - 9"	17' - 6" / 18' - 5"	17' - 11" / 23' - 11"	17' - 7" / 22' - 0"	17' - 0" / 19' - 2"
	16	19' - 1" / 25' - 1"	18' - 8" / 22' - 4"	18' - 1" / 19' - 10"	18' - 7" / 25' - 5"	18' - 2" / 23' - 8"	17' - 7" / 20' - 8"
6.25	22	17' - 9" / 21' - 11"	17' - 5" / 19' - 0"	16' - 3"	17' - 3" / 22' - 0"	16' - 11" / 20' - 3"	16' - 4" / 17' - 2"
	20	18' - 2" / 23' - 1"	17' - 11" / 19' - 11"	17' - 0"	17' - 9" / 23' - 0"	17' - 5" / 21' - 2"	16' - 10" / 18' - 6"
	18	18' - 11" / 24' - 6"	18' - 7" / 21' - 6"	18' - 0" / 19' - 1"	18' - 6" / 24' - 7"	18' - 1" / 22' - 10"	17' - 6" / 19' - 11"
	16	19' - 6" / 25' - 9"	19' - 2" / 23' - 2"	18' - 7" / 20' - 7"	19' - 1" / 26' - 1"	18' - 9" / 24' - 4"	18' - 1" / 21' - 6"
6.5	22	18' - 3" / 22' - 3"	18' - 0" / 19' - 8"	16' - 10"	17' - 10" / 22' - 7"	17' - 5" / 20' - 7"	16' - 10" / 17' - 10"
	20	18' - 9" / 23' - 9"	18' - 5" / 20' - 6"	17' - 7"	18' - 3" / 23' - 7"	17' - 11" / 21' - 11"	17' - 4" / 18' - 7"
	18	19' - 5" / 25' - 1"	19' - 1" / 22' - 2"	18' - 7" / 19' - 0"	19' - 0" / 25' - 2"	18' - 8" / 23' - 7"	18' - 0" / 20' - 8"
	16	20' - 1" / 26' - 5"	19' - 9" / 23' - 11"	19' - 2" / 21' - 4"	19' - 8" / 26' - 9"	19' - 3" / 25' - 0"	18' - 8" / 22' - 4"
6.75	22	18' - 11" / 22' - 6"	18' - 6" / 19' - 11"	17' - 4"	18' - 4" / 23' - 3"	18' - 0" / 20' - 11"	17' - 5" / 18' - 5"
	20	19' - 4" / 24' - 4"	19' - 0" / 21' - 2"	18' - 2"	18' - 10" / 24' - 3"	18' - 5" / 22' - 8"	17' - 10" / 19' - 3"
	18	20' - 0" / 25' - 9"	19' - 8" / 22' - 10"	19' - 1" / 19' - 8"	19' - 7" / 25' - 10"	19' - 2" / 24' - 2"	18' - 7" / 20' - 9"
	16	20' - 7" / 27' - 1"	20' - 3" / 24' - 8"	19' - 9" / 21' - 2"	20' - 2" / 27' - 4"	19' - 10" / 25' - 7"	19' - 2" / 23' - 1"
7	22	19' - 5" / 22' - 9"	19' - 0" / 20' - 2"	17' - 11"	18' - 10" / 23' - 10"	18' - 6" / 21' - 2"	17' - 11" / 19' - 0"
	20	19' - 10" / 24' - 10"	19' - 6" / 21' - 9"	18' - 9"	19' - 4" / 24' - 10"	18' - 11" / 23' - 2"	18' - 4" / 19' - 11"
	18	20' - 6" / 26' - 4"	20' - 2" / 23' - 6"	19' - 7" / 20' - 3"	20' - 1" / 26' - 5"	19' - 8" / 24' - 9"	19' - 1" / 21' - 5"
	16	21' - 2" / 27' - 9"	20' - 10" / 25' - 4"	20' - 3" / 21' - 10"	20' - 9" / 28' - 0"	20' - 4" / 26' - 3"	19' - 9" / 23' - 1"
7.25	22	19' - 11" / 22' - 11"	19' - 6" / 20' - 5"	18' - 5"	19' - 4" / 24' - 5"	19' - 0" / 21' - 6"	18' - 4" / 19' - 8"
	20	20' - 4" / 25' - 1"	20' - 0" / 22' - 4"	19' - 3"	19' - 10" / 25' - 5"	19' - 5" / 23' - 6"	18' - 10" / 20' - 6"
	18	21' - 0" / 27' - 0"	20' - 8" / 24' - 2"	20' - 1" / 20' - 10"	20' - 7" / 27' - 1"	20' - 2" / 25' - 5"	19' - 7" / 22' - 2"
	16	21' - 8" / 28' - 4"	21' - 4" / 26' - 1"	20' - 9" / 22' - 6"	21' - 3" / 28' - 7"	20' - 10" / 26' - 10"	20' - 3" / 23' - 10"

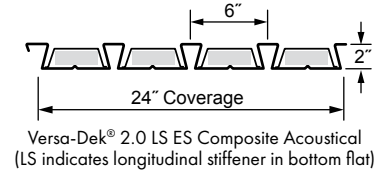
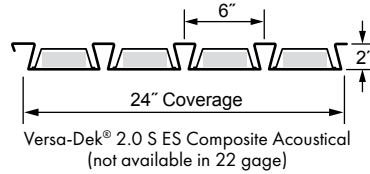
NOTES:

- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
4000 PSI Normal-Weight Concrete (145 PCF)	4.5	22	8.08 / 10.38	5.14 / 6.53	6.61 / 8.46	6.549	5.075	1.209
		20	8.6 / 11.46	5.92 / 7.87	7.26 / 9.66	7.792	5.075	1.266
		18	9.49 / 13.43	7.2 / 10.37	8.35 / 11.9	9.937	5.075	1.370
		16	10.39 / 15.53	8.4 / 13.1	9.39 / 14.32	12.025	5.075	1.481
	4.75	22	9.52 / 12.13	5.89 / 7.4	7.71 / 9.77	7.015	5.491	1.293
		20	10.1 / 13.34	6.79 / 8.91	8.44 / 11.13	8.358	5.491	1.354
		18	11.11 / 15.57	8.27 / 11.71	9.69 / 13.64	10.686	5.491	1.466
		16	12.12 / 17.93	9.66 / 14.78	10.89 / 16.35	12.969	5.491	1.585
	5	22	11.14 / 14.09	6.71 / 8.33	8.92 / 11.21	7.481	5.906	1.377
		20	11.79 / 15.44	7.73 / 10.01	9.76 / 12.73	8.923	5.906	1.443
		18	12.92 / 17.93	9.43 / 13.15	11.17 / 15.54	11.435	5.906	1.562
		16	14.05 / 20.58	11.03 / 16.56	12.54 / 18.57	13.914	5.906	1.689
	5.25	22	12.94 / 16.25	7.58 / 9.32	10.26 / 12.78	7.947	6.321	1.461
		20	13.67 / 17.76	8.74 / 11.19	11.2 / 14.48	9.488	6.321	1.531
		18	14.93 / 20.53	10.68 / 14.68	12.8 / 17.6	12.183	6.321	1.658
		16	16.2 / 23.48	12.5 / 18.46	14.35 / 20.97	14.858	6.321	1.792
	5.5	22	14.95 / 18.64	8.51 / 10.36	11.73 / 14.5	8.413	6.736	1.545
		20	15.75 / 20.31	9.83 / 12.45	12.79 / 16.38	10.054	6.736	1.619
		18	17.15 / 23.37	12.02 / 16.3	14.58 / 19.84	12.932	6.736	1.753
		16	18.56 / 26.64	14.09 / 20.48	16.33 / 23.56	15.803	6.736	1.896
	5.75	22	17.17 / 21.26	9.5 / 11.48	13.34 / 16.37	8.879	7.151	1.629
		20	18.05 / 23.1	10.98 / 13.77	14.52 / 18.43	10.619	7.151	1.707
		18	19.6 / 26.48	13.45 / 18.01	16.52 / 22.25	13.681	7.151	1.849
		16	21.16 / 30.09	15.79 / 22.6	18.47 / 26.35	16.747	7.151	2.000
4000 PSI Lightweight Concrete (110 PCF)	4.5	22	6.14 / 8.57	4.57 / 6.47	5.35 / 7.52	6.549	3.807	1.200
		20	6.6 / 9.64	5.21 / 7.85	5.91 / 8.75	7.792	3.807	1.255
		18	7.4 / 11.62	6.24 / 10.46	6.82 / 11.04	9.937	3.807	1.355
		16	8.16 / 13.72	7.2 / 13.36	7.68 / 13.54	12.025	3.807	1.462
	4.75	22	7.19 / 9.95	5.25 / 7.31	6.22 / 8.63	7.015	4.118	1.284
		20	7.72 / 11.15	5.99 / 8.86	6.85 / 10.01	8.358	4.118	1.343
		18	8.62 / 13.38	7.19 / 11.78	7.9 / 12.58	10.686	4.118	1.450
		16	9.49 / 15.74	8.29 / 15.02	8.89 / 15.38	12.969	4.118	1.565
	5	22	8.37 / 11.47	5.98 / 8.21	7.17 / 9.84	7.481	4.429	1.367
		20	8.96 / 12.82	6.83 / 9.94	7.9 / 11.38	8.923	4.429	1.430
		18	9.97 / 15.31	8.21 / 13.19	9.09 / 14.25	11.435	4.429	1.546
		16	10.96 / 17.96	9.48 / 16.79	10.22 / 17.38	13.914	4.429	1.668
	5.25	22	9.68 / 13.14	6.77 / 9.16	8.22 / 11.15	7.947	4.740	1.451
		20	10.34 / 14.65	7.74 / 11.08	9.04 / 12.86	9.488	4.740	1.518
		18	11.47 / 17.42	9.32 / 14.69	10.39 / 16.05	12.183	4.740	1.641
		16	12.57 / 20.37	10.77 / 18.67	11.67 / 19.52	14.858	4.740	1.771
	5.5	22	11.12 / 14.98	7.62 / 10.18	9.37 / 12.58	8.413	5.052	1.535
		20	11.86 / 16.65	8.72 / 12.3	10.29 / 14.47	10.054	5.052	1.606
		18	13.12 / 19.71	10.51 / 16.28	11.81 / 17.99	12.932	5.052	1.736
		16	14.35 / 22.98	12.16 / 20.66	13.26 / 21.82	15.803	5.052	1.875
	5.75	22	12.72 / 16.98	8.53 / 11.25	10.62 / 14.12	8.879	5.363	1.619
		20	13.53 / 18.82	9.76 / 13.58	11.65 / 16.2	10.619	5.363	1.694
		18	14.93 / 22.2	11.78 / 17.95	13.35 / 20.08	13.681	5.363	1.832
		16	16.3 / 25.81	13.66 / 22.75	14.98 / 24.28	16.747	5.363	1.978

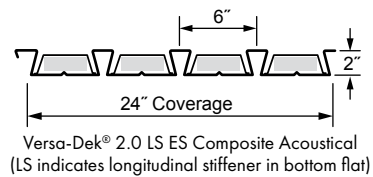
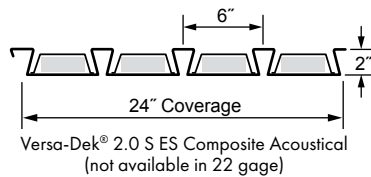
ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017. For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi. The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
4000 PSI Normal-Weight Concrete (145 PCF)	6	22	19.61 / 24.13	10.56 / 12.65	15.09 / 18.39	9.345	7.566	1.713
		20	20.58 / 26.15	12.21 / 15.17	16.4 / 20.66	11.185	7.566	1.795
		18	22.28 / 29.86	14.97 / 19.82	18.63 / 24.84	14.429	7.566	1.945
		16	24 / 33.82	17.59 / 24.85	20.8 / 29.33	17.692	7.566	2.104
	6.25	22	22.3 / 27.25	11.67 / 13.88	16.98 / 20.57	9.811	7.981	1.797
		20	23.35 / 29.46	13.51 / 16.64	18.43 / 23.05	11.750	7.981	1.883
		18	25.21 / 33.52	16.59 / 21.73	20.9 / 27.62	15.178	7.981	2.041
		16	27.09 / 37.85	19.51 / 27.21	23.3 / 32.53	18.636	7.981	2.208
	6.5	22	25.22 / 30.65	12.85 / 15.18	19.04 / 22.92	10.277	8.309	1.881
		20	26.37 / 33.06	14.89 / 18.19	20.63 / 25.62	12.316	8.396	1.971
		18	28.4 / 37.48	18.3 / 23.73	23.35 / 30.6	15.927	8.396	2.136
		16	30.46 / 42.19	21.55 / 29.69	26 / 35.94	19.581	8.396	2.312
	6.75	22	28.41 / 34.33	14.09 / 16.54	21.25 / 25.44	10.743	8.516	1.965
		20	29.66 / 36.94	16.34 / 19.81	23 / 28.38	12.881	8.811	2.059
		18	31.86 / 41.74	20.1 / 25.82	25.98 / 33.78	16.675	8.811	2.232
		16	34.1 / 46.86	23.69 / 32.28	28.9 / 39.57	20.525	8.811	2.416
	7	22	31.87 / 38.3	15.39 / 17.97	23.63 / 28.13	11.209	8.724	2.049
		20	33.22 / 41.13	17.86 / 21.51	25.54 / 31.32	13.447	9.226	2.148
		18	35.61 / 46.32	22 / 28.01	28.8 / 37.17	17.424	9.226	2.328
		16	38.03 / 51.86	25.96 / 35	32 / 43.43	21.470	9.226	2.520
	7.25	22	35.61 / 42.58	16.76 / 19.45	26.18 / 31.01	11.675	8.931	2.133
		20	37.07 / 45.63	19.46 / 23.28	28.26 / 34.46	14.012	9.641	2.236
		18	39.64 / 51.23	23.99 / 30.3	31.82 / 40.77	18.173	9.641	2.424
		16	42.27 / 57.21	28.34 / 37.83	35.3 / 47.52	22.415	9.641	2.624
4000 PSI Lightweight Concrete (110 PCF)	6	22	14.47 / 19.16	9.49 / 12.39	11.98 / 15.77	9.345	5.674	1.703
		20	15.36 / 21.18	10.88 / 14.94	13.12 / 18.06	11.185	5.674	1.782
		18	16.9 / 24.9	13.14 / 19.72	15.02 / 22.31	14.429	5.674	1.927
		16	18.42 / 28.85	15.25 / 24.96	16.83 / 26.91	17.692	5.674	2.081
	6.25	22	16.38 / 21.53	10.51 / 13.58	13.45 / 17.55	9.811	5.986	1.787
		20	17.36 / 23.74	12.06 / 16.36	14.71 / 20.05	11.750	5.986	1.870
		18	19.05 / 27.8	14.59 / 21.57	16.82 / 24.68	15.178	5.986	2.023
		16	20.72 / 32.13	16.95 / 27.27	18.84 / 29.7	18.636	5.986	2.185
	6.5	22	18.46 / 24.09	11.59 / 14.83	15.03 / 19.46	10.277	6.297	1.870
		20	19.53 / 26.5	13.31 / 17.86	16.42 / 22.18	12.316	6.297	1.958
		18	21.38 / 30.92	16.13 / 23.51	18.75 / 27.22	15.927	6.297	2.118
		16	23.21 / 35.63	18.75 / 29.7	20.98 / 32.66	19.581	6.297	2.288
	6.75	22	20.72 / 26.85	12.73 / 16.14	16.73 / 21.5	10.743	6.608	1.954
		20	21.88 / 29.46	14.63 / 19.43	18.26 / 24.45	12.881	6.608	2.046
		18	23.9 / 34.26	17.75 / 25.55	20.82 / 29.91	16.675	6.608	2.214
		16	25.9 / 39.38	20.66 / 32.23	23.28 / 35.81	20.525	6.608	2.392
	7	22	23.17 / 29.82	13.93 / 17.52	18.55 / 23.67	11.209	6.919	2.038
		20	24.43 / 32.64	16.02 / 21.07	20.22 / 26.86	13.447	6.919	2.134
		18	26.62 / 37.84	19.46 / 27.68	23.04 / 32.76	17.424	6.919	2.309
		16	28.79 / 43.38	22.68 / 34.88	25.74 / 39.13	21.470	6.919	2.495
	7.25	22	25.81 / 33	15.19 / 18.95	20.5 / 25.98	11.675	7.231	2.122
		20	27.17 / 36.05	17.48 / 22.78	22.33 / 29.42	14.012	7.231	2.222
		18	29.54 / 41.66	21.26 / 29.9	25.4 / 35.78	18.173	7.231	2.405
		16	31.9 / 47.63	24.81 / 37.64	28.35 / 42.64	22.415	7.231	2.599

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

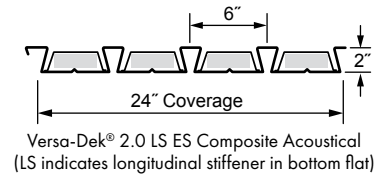
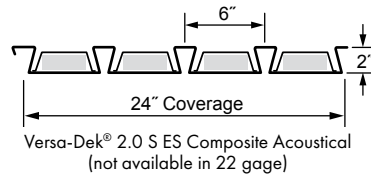
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			7' - 0"	8' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	4.5"	22	216	170	149	132	118	96 / 107	67 / 97	45 / 89	- / 82	- / 75	- / 70
	39 PSF	20	227	198	157	139	125	108 / 113	76 / 102	52 / 94	- / 86	- / 80	- / 74
	1 cu.yd/(100sq.ft)	18	245	215	191	172	136	123	92 / 112	65 / 103	45 / 94	- / 87	- / 81
	6x6 - W1.4 x W1.4	16	265	232	206	186	169	134	107 / 122	77 / 112	55 / 103	- / 96	- / 89
	4.75"	22	231	182	159	141	126	114	82 / 104	57 / 95	- / 87	- / 80	- / 74
	42 PSF	20	242	212	167	149	133	120	92 / 109	65 / 100	44 / 92	- / 85	- / 79
	1.08 cu.yd/(100sq.ft)	18	262	230	204	184	146	132	111 / 120	79 / 110	56 / 101	- / 93	- / 87
	6x6 - W1.4 x W1.4	16	284	248	221	199	181	144	128 / 131	93 / 120	67 / 111	47 / 102	- / 95
	5"	22	246	193	169	150	135	121	99 / 110	70 / 101	48 / 93	- / 86	- / 75
	45 PSF	20	258	226	178	158	142	128	111 / 117	79 / 107	55 / 98	- / 90	- / 84
	1.16 cu.yd/(100sq.ft)	18	280	245	217	196	155	140	128	96 / 117	69 / 108	48 / 99	- / 92
	6x6 - W1.4 x W1.4	16	302	265	235	212	192	153	140	112 / 128	82 / 118	58 / 109	40 / 101
	5.25"	22	261	205	180	159	143	129	117	86 / 107	60 / 98	41 / 91	- / 80
	48 PSF	20	274	240	189	168	150	136	124	97 / 113	69 / 104	48 / 96	- / 89
	1.23 cu.yd/(100sq.ft)	18	297	260	231	183	165	149	136	115 / 124	84 / 114	60 / 106	41 / 98
	6x6 - W2.0 x W2.0	16	321	281	250	225	180	163	148	133 / 136	98 / 125	72 / 116	51 / 108
5000 PSI Lightweight Concrete (110 PCF)	5"	22	276	217	190	168	151	136	124	103 / 113	73 / 104	51 / 96	- / 84
	51 PSF	20	290	253	200	177	159	144	131	115 / 120	83 / 110	59 / 101	40 / 94
	1.31 cu.yd/(100sq.ft)	18	314	275	244	194	174	157	143	131	100 / 121	73 / 112	51 / 104
	6x6 - W2.0 x W2.0	16	339	297	264	238	190	172	157	144	116 / 132	86 / 122	62 / 114
	5.75"	22	265	228	200	177	159	144	130	119	88 / 110	62 / 96	43 / 89
	54 PSF	20	305	240	211	187	168	151	138	126	99 / 116	71 / 107	50 / 99
	1.39 cu.yd/(100sq.ft)	18	331	290	257	205	184	166	151	138	118 / 127	87 / 118	63 / 109
	6x6 - W2.0 x W2.0	16	358	313	278	251	200	181	165	152	136 / 140	102 / 129	75 / 120
	4.5"	22	215	188	152	135	112 / 122	79 / 110	55 / 101	- / 92	- / 85	- / 79	- / 69
	30 PSF	20	225	197	175	142	126 / 128	89 / 116	63 / 106	44 / 97	- / 90	- / 83	- / 77
	1 cu.yd/(100sq.ft)	18	243	212	189	170	154	107 / 126	77 / 115	55 / 105	- / 98	- / 91	- / 84
	6x6 - W1.4 x W1.4	16	262	229	204	183	167	153	89 / 125	65 / 116	46 / 106	- / 99	- / 92
	4.75"	22	230	201	163	145	130	95 / 118	67 / 108	47 / 99	- / 91	- / 84	- / 79
	32 PSF	20	240	210	187	152	137	107 / 124	76 / 113	54 / 104	- / 96	- / 89	- / 83
	1.08 cu.yd/(100sq.ft)	18	260	227	202	182	165	126 / 135	92 / 123	66 / 113	47 / 105	- / 97	- / 90
	6x6 - W1.4 x W1.4	16	280	245	218	196	178	164	106 / 134	78 / 123	57 / 114	40 / 106	- / 98
5000 PSI Lightweight Concrete (110 PCF)	5"	22	245	214	173	154	139	112 / 126	81 / 115	57 / 105	40 / 97	- / 90	- / 84
	34 PSF	20	256	224	199	162	146	126 / 132	91 / 121	66 / 111	46 / 102	- / 95	- / 88
	1.16 cu.yd/(100sq.ft)	18	277	242	215	194	176	144	109 / 131	80 / 121	58 / 112	41 / 103	- / 96
	6x6 - W1.4 x W1.4	16	299	262	233	209	190	156	126 / 143	93 / 131	68 / 121	49 / 113	- / 105
	5.25"	22	260	209	184	164	147	133	97 / 122	70 / 112	50 / 103	- / 95	- / 89
	37 PSF	20	272	238	211	172	155	140	109 / 128	79 / 118	57 / 108	40 / 101	- / 94
	1.23 cu.yd/(100sq.ft)	18	294	257	229	206	168	153	129 / 140	95 / 128	70 / 118	50 / 110	- / 102
	6x6 - W2.0 x W2.0	16	317	278	247	222	202	166	148 / 152	110 / 140	82 / 129	60 / 120	43 / 112
	5.5"	22	275	221	194	173	156	141	114 / 129	83 / 118	60 / 109	42 / 101	- / 94
	39 PSF	20	288	252	224	182	164	148	127 / 135	94 / 124	68 / 115	49 / 106	- / 99
	1.31 cu.yd/(100sq.ft)	18	311	272	242	218	178	162	148	111 / 136	83 / 125	61 / 116	43 / 108
	6x6 - W2.0 x W2.0	16	336	294	261	235	214	176	161	128 / 148	96 / 137	72 / 127	53 / 118
	5.75"	22	290	233	205	182	164	149	133 / 136	97 / 125	71 / 115	51 / 106	- / 99
	41 PSF	20	303	265	215	192	172	156	143	109 / 131	81 / 121	59 / 112	42 / 104
	1.39 cu.yd/(100sq.ft)	18	328	287	255	230	188	170	156	129 / 143	97 / 132	72 / 123	52 / 114
	6x6 - W2.0 x W2.0	16	354	310	276	248	226	185	170	148 / 156	112 / 144	84 / 134	63 / 125

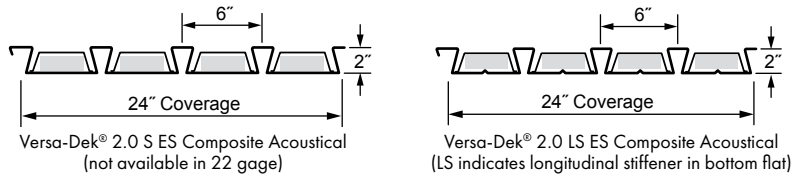
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)											
			Simple Spans											
			8' - 0"	9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	
5000 PSI Normal-Weight Concrete (145 PCF)	6"	22	240	210	187	167	151	137	125	104 / 115	75 / 101	53 / 93	- / 86	
	57 PSF	20	253	222	197	176	159	145	132	116 / 122	85 / 112	61 / 104	42 / 92	
	1.47 cu.yd/(100sq.ft)	18	304	271	215	193	175	159	146	134	102 / 124	75 / 115	54 / 107	
	6x6 - W2.0 x W2.0	16	330	293	264	211	191	174	159	147	119 / 136	89 / 126	65 / 118	
	6.25"	22	252	221	196	175	158	144	131	121	89 / 106	64 / 98	44 / 91	
	60 PSF	20	265	232	206	185	167	152	139	128	100 / 118	73 / 104	52 / 96	
	1.54 cu.yd/(100sq.ft)	18	319	284	226	202	183	167	153	140	119 / 130	89 / 120	65 / 112	
	6x6 - W2.0 x W2.0	16	346	307	277	221	200	183	167	154	138 / 143	104 / 132	77 / 123	
	6.5"	22	264	231	205	183	166	150	137	121	105 / 111	77 / 102	54 / 95	
	63 PSF	20	278	243	216	193	175	159	145	134	117 / 123	87 / 109	62 / 101	
	1.62 cu.yd/(100sq.ft)	18	334	266	236	212	192	175	160	147	136	104 / 126	77 / 117	
	4x4 - W1.4 x W1.4	16	362	322	290	232	210	191	175	161	149	121 / 139	91 / 129	
	6.75"	22	275	241	214	191	173	157	144	126	116	93 / 107	67 / 99	
	66 PSF	20	290	254	225	202	182	166	152	140	129	104 / 114	76 / 105	
	1.7 cu.yd/(100sq.ft)	18	349	278	247	221	200	182	167	154	142	122 / 132	92 / 123	
	6x6 - W2.9 x W2.9	16	378	336	270	242	219	200	183	169	156	141 / 145	107 / 135	
	7"	22	287	251	223	200	180	164	150	132	121	108 / 112	80 / 103	
	69 PSF	20	302	265	235	211	190	173	158	145	128	119	89 / 110	
	1.77 cu.yd/(100sq.ft)	18	364	290	257	231	209	190	174	160	148	137	107 / 128	
	6x6 - W2.9 x W2.9	16	395	351	281	252	228	208	191	176	163	151	124 / 141	
	7.25"	22	299	262	232	208	187	170	156	137	126	116	93 / 107	
	73 PSF	20	315	276	245	219	198	180	165	151	134	123	104 / 114	
	1.85 cu.yd/(100sq.ft)	18	379	302	268	240	217	198	181	167	154	143	122 / 133	
	6x6 - W2.9 x W2.9	16	411	365	293	263	238	217	199	183	169	157	141 / 147	
5000 PSI Lightweight Concrete (110 PCF)	6"	22	245	216	192	172	156	143	113 / 131	84 / 121	61 / 112	43 / 104	- / 93	
	44 PSF	20	279	226	202	181	164	150	126 / 138	94 / 127	69 / 118	50 / 110	- / 102	
	1.47 cu.yd/(100sq.ft)	18	302	268	242	198	179	164	149 / 151	112 / 139	84 / 129	62 / 120	45 / 112	
	6x6 - W2.0 x W2.0	16	326	290	261	237	195	178	164	130 / 152	98 / 141	74 / 131	55 / 123	
	6.25"	22	257	226	201	181	164	150	131 / 137	97 / 127	72 / 117	52 / 105	- / 98	
	46 PSF	20	293	238	212	190	173	158	145	109 / 133	81 / 124	60 / 115	43 / 107	
	1.54 cu.yd/(100sq.ft)	18	317	282	254	207	188	172	158	129 / 146	98 / 135	73 / 126	54 / 118	
	6x6 - W2.0 x W2.0	16	342	304	274	249	205	187	172	148 / 159	113 / 148	86 / 138	65 / 129	
	6.5"	22	269	237	211	189	172	157	144	112 / 133	84 / 123	61 / 110	44 / 103	
	48 PSF	20	307	249	222	199	181	165	151	125 / 140	94 / 130	70 / 121	51 / 113	
	1.62 cu.yd/(100sq.ft)	18	332	295	241	217	197	180	165	148 / 153	112 / 142	85 / 132	64 / 123	
	4x4 - W1.4 x W1.4	16	359	319	287	236	215	196	180	167	130 / 155	100 / 144	76 / 135	
	6.75"	22	281	247	220	198	179	164	150	132 / 139	99 / 128	74 / 115	54 / 107	
	50 PSF	20	320	260	231	208	189	172	158	146	111 / 135	83 / 126	62 / 118	
	1.7 cu.yd/(100sq.ft)	18	347	308	252	227	206	188	173	160	130 / 148	100 / 138	75 / 129	
	6x6 - W2.9 x W2.9	16	375	333	300	247	224	205	189	174	149 / 162	115 / 151	89 / 141	
	7"	22	293	258	229	206	187	171	157	144	114 / 134	86 / 120	63 / 112	
	53 PSF	20	334	271	241	217	197	180	165	152	126 / 141	96 / 131	72 / 118	
	1.77 cu.yd/(100sq.ft)	18	362	322	263	237	215	196	180	167	148 / 155	114 / 144	87 / 134	
	6x6 - W2.9 x W2.9	16	391	348	313	258	234	214	197	182	169	131 / 157	101 / 147	
	7.25"	22	305	268	239	215	195	178	163	150	129 / 135	98 / 125	74 / 116	
	55 PSF	20	321	282	251	226	205	187	172	159	143 / 147	109 / 137	83 / 123	
	1.85 cu.yd/(100sq.ft)	18	377	335	274	247	224	204	188	174	161	129 / 150	99 / 140	
	6x6 - W2.9 x W2.9	16	407	362	326	268	244	223	205	189	176	148 / 164	115 / 153	

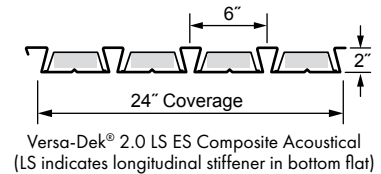
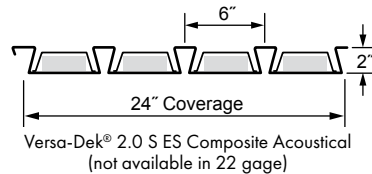
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

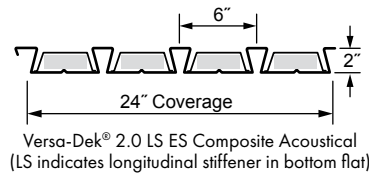
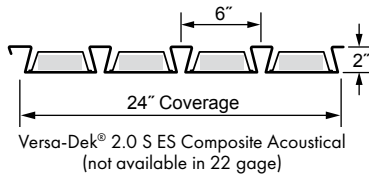
Total Slab Depth (in.)	Gage	Max. Service Stage Single Spans (ft.-in.)					
		5000 PSI Normal-Weight Concrete (145 PCF)			5000 PSI Lightweight Concrete (110 PCF)		
		LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf	LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf
4.5	22	14' - 3" / 17' - 10"	13' - 11" / 14' - 8"	12' - 4"	13' - 10" / 17' - 8"	13' - 6" / 15' - 3"	12' - 8"
	20	14' - 8" / 18' - 7"	14' - 4" / 15' - 4"	12' - 10"	14' - 3" / 18' - 6"	13' - 11" / 15' - 11"	13' - 3"
	18	15' - 3" / 19' - 10"	14' - 11" / 16' - 7"	13' - 11"	14' - 10" / 19' - 11"	14' - 6" / 17' - 1"	13' - 11" / 14' - 3"
	16	15' - 9" / 21' - 0"	15' - 6" / 17' - 10"	14' - 11" / 14' - 11"	15' - 4" / 21' - 3"	15' - 0" / 18' - 5"	14' - 5" / 15' - 4"
4.75	22	14' - 10" / 18' - 7"	14' - 6" / 15' - 6"	13' - 0"	14' - 4" / 18' - 4"	14' - 0" / 16' - 1"	13' - 5"
	20	15' - 3" / 19' - 4"	14' - 11" / 16' - 2"	13' - 7"	14' - 9" / 19' - 3"	14' - 5" / 16' - 10"	13' - 11" / 14' - 0"
	18	15' - 10" / 20' - 7"	15' - 6" / 17' - 6"	14' - 8"	15' - 5" / 20' - 8"	15' - 1" / 18' - 1"	14' - 6" / 15' - 1"
	16	16' - 5" / 21' - 9"	16' - 1" / 18' - 10"	15' - 6" / 15' - 10"	16' - 0" / 22' - 0"	15' - 7" / 19' - 6"	15' - 0" / 16' - 3"
5	22	15' - 5" / 19' - 3"	15' - 1" / 16' - 3"	13' - 8"	14' - 11" / 19' - 0"	14' - 7" / 17' - 0"	14' - 0" / 14' - 2"
	20	15' - 9" / 20' - 0"	15' - 6" / 17' - 0"	14' - 4"	15' - 4" / 19' - 11"	15' - 0" / 17' - 9"	14' - 5" / 14' - 10"
	18	16' - 5" / 21' - 4"	16' - 1" / 18' - 4"	15' - 6"	16' - 0" / 21' - 4"	15' - 8" / 19' - 1"	15' - 1" / 16' - 0"
	16	17' - 0" / 22' - 6"	16' - 8" / 19' - 9"	16' - 1" / 16' - 8"	16' - 7" / 22' - 9"	16' - 3" / 20' - 7"	15' - 7" / 17' - 2"
5.25	22	16' - 0" / 19' - 11"	15' - 8" / 17' - 0"	14' - 4"	15' - 6" / 19' - 8"	15' - 2" / 17' - 10"	14' - 7" / 14' - 11"
	20	16' - 5" / 20' - 9"	16' - 1" / 17' - 10"	15' - 0"	15' - 11" / 20' - 7"	15' - 7" / 18' - 8"	15' - 0" / 15' - 7"
	18	17' - 0" / 22' - 0"	16' - 9" / 19' - 3"	16' - 2" / 16' - 3"	16' - 7" / 22' - 1"	16' - 3" / 20' - 1"	15' - 8" / 16' - 10"
	16	17' - 7" / 23' - 3"	17' - 3" / 20' - 9"	16' - 9" / 17' - 6"	17' - 2" / 23' - 5"	16' - 10" / 21' - 7"	16' - 3" / 18' - 1"
5.5	22	16' - 6" / 20' - 7"	16' - 3" / 17' - 1"	15' - 0"	16' - 1" / 20' - 4"	15' - 8" / 18' - 1"	15' - 1" / 15' - 8"
	20	16' - 11" / 21' - 5"	16' - 7" / 18' - 7"	15' - 9"	16' - 6" / 21' - 3"	16' - 2" / 19' - 6"	15' - 7" / 16' - 4"
	18	17' - 7" / 22' - 9"	17' - 3" / 20' - 1"	16' - 9" / 17' - 0"	17' - 2" / 22' - 9"	16' - 10" / 21' - 0"	16' - 3" / 17' - 7"
	16	18' - 2" / 23' - 11"	17' - 10" / 21' - 8"	17' - 4" / 18' - 4"	17' - 9" / 24' - 2"	17' - 5" / 22' - 6"	16' - 9" / 19' - 0"
5.75	22	17' - 1" / 21' - 4"	16' - 9" / 17' - 9"	15' - 8"	16' - 7" / 21' - 0"	16' - 3" / 18' - 10"	15' - 8" / 16' - 4"
	20	17' - 6" / 22' - 1"	17' - 2" / 18' - 7"	16' - 5"	17' - 1" / 21' - 11"	16' - 8" / 19' - 8"	16' - 1" / 17' - 1"
	18	18' - 2" / 23' - 5"	17' - 10" / 20' - 11"	17' - 3" / 17' - 8"	17' - 9" / 23' - 5"	17' - 4" / 21' - 10"	16' - 9" / 18' - 5"
	16	18' - 9" / 24' - 8"	18' - 5" / 22' - 6"	17' - 10" / 19' - 1"	18' - 4" / 24' - 10"	18' - 0" / 23' - 10"	17' - 4" / 19' - 10"
6	22	17' - 8" / 21' - 10"	17' - 4" / 18' - 5"	15' - 9"	17' - 1" / 21' - 8"	16' - 9" / 19' - 7"	16' - 2" / 17' - 0"
	20	18' - 1" / 22' - 9"	17' - 9" / 19' - 3"	17' - 1"	17' - 7" / 22' - 7"	17' - 3" / 20' - 6"	16' - 7" / 17' - 10"
	18	18' - 9" / 24' - 1"	18' - 5" / 20' - 10"	17' - 10" / 18' - 5"	18' - 3" / 24' - 1"	17' - 11" / 22' - 1"	17' - 4" / 19' - 3"
	16	19' - 4" / 25' - 4"	19' - 0" / 22' - 5"	18' - 5" / 19' - 11"	18' - 11" / 25' - 7"	18' - 6" / 23' - 10"	17' - 11" / 20' - 8"
6.25	22	18' - 2" / 22' - 1"	17' - 10" / 19' - 1"	16' - 3"	17' - 8" / 22' - 4"	17' - 3" / 20' - 4"	16' - 8" / 17' - 2"
	20	18' - 7" / 23' - 5"	18' - 3" / 19' - 11"	17' - 0"	18' - 1" / 23' - 3"	17' - 9" / 21' - 3"	17' - 2" / 18' - 6"
	18	19' - 3" / 24' - 9"	18' - 11" / 21' - 6"	18' - 5" / 19' - 1"	18' - 10" / 24' - 9"	18' - 6" / 22' - 11"	17' - 10" / 20' - 0"
	16	19' - 11" / 26' - 0"	19' - 7" / 23' - 2"	19' - 0" / 20' - 8"	19' - 6" / 26' - 3"	19' - 1" / 24' - 6"	18' - 5" / 21' - 6"
6.5	22	18' - 8" / 22' - 4"	18' - 4" / 19' - 8"	16' - 10"	18' - 2" / 22' - 11"	17' - 10" / 20' - 8"	17' - 2" / 17' - 10"
	20	19' - 2" / 24' - 1"	18' - 10" / 20' - 7"	17' - 8"	18' - 8" / 23' - 10"	18' - 3" / 22' - 0"	17' - 8" / 18' - 8"
	18	19' - 10" / 25' - 5"	19' - 6" / 22' - 3"	18' - 11" / 19' - 1"	19' - 4" / 25' - 5"	19' - 0" / 23' - 8"	18' - 4" / 20' - 9"
	16	20' - 5" / 26' - 9"	20' - 1" / 23' - 11"	19' - 7" / 21' - 5"	20' - 0" / 26' - 11"	19' - 8" / 25' - 2"	19' - 0" / 22' - 4"
6.75	22	19' - 4" / 22' - 7"	19' - 0" / 20' - 1"	17' - 5"	18' - 9" / 23' - 7"	18' - 4" / 21' - 0"	17' - 9" / 18' - 5"
	20	19' - 9" / 24' - 9"	19' - 5" / 21' - 2"	18' - 2"	19' - 3" / 24' - 6"	18' - 10" / 22' - 8"	18' - 3" / 19' - 3"
	18	20' - 5" / 26' - 1"	20' - 1" / 22' - 11"	19' - 6" / 19' - 8"	19' - 11" / 26' - 1"	19' - 7" / 24' - 5"	18' - 11" / 20' - 10"
	16	21' - 0" / 27' - 5"	20' - 8" / 24' - 8"	20' - 1" / 21' - 3"	20' - 7" / 27' - 7"	20' - 3" / 25' - 10"	19' - 7" / 23' - 2"
7	22	19' - 10" / 22' - 10"	19' - 6" / 20' - 4"	17' - 11"	19' - 3" / 24' - 2"	18' - 10" / 21' - 4"	18' - 3" / 19' - 1"
	20	20' - 3" / 25' - 0"	19' - 11" / 21' - 10"	18' - 9"	19' - 9" / 25' - 1"	19' - 4" / 23' - 4"	18' - 9" / 19' - 11"
	18	20' - 11" / 26' - 9"	20' - 7" / 23' - 7"	20' - 0" / 20' - 3"	20' - 6" / 26' - 9"	20' - 1" / 25' - 0"	19' - 5" / 21' - 6"
	16	21' - 7" / 28' - 1"	21' - 3" / 25' - 5"	20' - 8" / 21' - 11"	21' - 2" / 28' - 3"	20' - 9" / 26' - 5"	20' - 1" / 23' - 2"
7.25	22	20' - 4" / 23' - 1"	20' - 0" / 20' - 7"	18' - 5"	19' - 9" / 24' - 7"	19' - 4" / 21' - 7"	18' - 9" / 19' - 8"
	20	20' - 9" / 25' - 3"	20' - 5" / 22' - 5"	19' - 4"	20' - 3" / 25' - 9"	19' - 10" / 23' - 8"	19' - 3" / 20' - 7"
	18	21' - 5" / 27' - 5"	21' - 1" / 24' - 2"	20' - 7" / 20' - 10"	21' - 0" / 27' - 4"	20' - 7" / 25' - 8"	20' - 0" / 22' - 2"
	16	22' - 1" / 28' - 8"	21' - 9" / 26' - 1"	21' - 2" / 22' - 6"	21' - 8" / 28' - 10"	21' - 3" / 27' - 1"	20' - 7" / 23' - 11"

NOTES:

- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
5000 PSI Normal-Weight Concrete (145 PCF)	4.5	22	8.74 / 11.01	5.29 / 6.57	7.02 / 8.79	6.669	5.675	1.211
		20	9.27 / 12.09	6.1 / 7.9	7.69 / 9.99	7.969	5.675	1.269
		18	10.19 / 14.06	7.45 / 10.38	8.82 / 12.22	10.247	5.675	1.374
		16	11.11 / 16.16	8.73 / 13.08	9.92 / 14.62	12.519	5.675	1.485
	4.75	22	10.31 / 12.9	6.06 / 7.44	8.19 / 10.17	7.135	6.139	1.295
		20	10.91 / 14.11	7 / 8.94	8.95 / 11.52	8.535	6.139	1.357
		18	11.94 / 16.33	8.55 / 11.73	10.25 / 14.03	10.996	6.139	1.469
		16	12.99 / 18.7	10.03 / 14.76	11.51 / 16.73	13.463	6.139	1.589
	5	22	12.08 / 15	6.89 / 8.38	9.49 / 11.69	7.601	6.603	1.380
		20	12.74 / 16.35	7.96 / 10.06	10.35 / 13.21	9.100	6.603	1.445
		18	13.91 / 18.84	9.75 / 13.18	11.83 / 16.01	11.745	6.603	1.565
		16	15.08 / 21.49	11.44 / 16.55	13.26 / 19.02	14.408	6.603	1.693
	5.25	22	14.06 / 17.33	7.78 / 9.37	10.92 / 13.35	8.067	7.067	1.464
		20	14.8 / 18.84	9 / 11.25	11.9 / 15.04	9.665	7.067	1.533
		18	16.09 / 21.61	11.03 / 14.72	13.56 / 18.16	12.494	7.067	1.661
		16	17.4 / 24.56	12.97 / 18.47	15.18 / 21.51	15.352	7.067	1.797
	5.5	22	16.26 / 19.91	8.74 / 10.43	12.5 / 15.17	8.533	7.531	1.548
		20	17.07 / 21.58	10.11 / 12.51	13.59 / 17.05	10.231	7.531	1.622
		18	18.51 / 24.65	12.41 / 16.35	15.46 / 20.5	13.242	7.531	1.757
		16	19.96 / 27.92	14.6 / 20.49	17.28 / 24.2	16.297	7.531	1.901
	5.75	22	18.7 / 22.75	9.75 / 11.56	14.22 / 17.15	8.999	7.995	1.632
		20	19.59 / 24.59	11.3 / 13.85	15.45 / 19.22	10.796	7.995	1.710
		18	21.18 / 27.97	13.88 / 18.08	17.53 / 23.02	13.991	7.995	1.853
		16	22.78 / 31.57	16.35 / 22.64	19.56 / 27.1	17.241	7.995	2.005
5000 PSI Lightweight Concrete (110 PCF)	4.5	22	6.6 / 8.99	4.73 / 6.48	5.66 / 7.73	6.669	4.256	1.203
		20	7.08 / 10.06	5.4 / 7.84	6.24 / 8.95	7.969	4.256	1.258
		18	7.9 / 12.03	6.5 / 10.42	7.2 / 11.23	10.247	4.256	1.360
		16	8.7 / 14.13	7.52 / 13.26	8.11 / 13.7	12.519	4.256	1.467
	4.75	22	7.74 / 10.45	5.42 / 7.32	6.58 / 8.89	7.135	4.604	1.287
		20	8.28 / 11.66	6.21 / 8.86	7.24 / 10.26	8.535	4.604	1.346
		18	9.21 / 13.88	7.48 / 11.74	8.34 / 12.81	10.996	4.604	1.455
		16	10.12 / 16.25	8.66 / 14.93	9.39 / 15.59	13.463	4.604	1.571
	5	22	9.02 / 12.07	6.18 / 8.23	7.6 / 10.15	7.601	4.952	1.370
		20	9.62 / 13.42	7.08 / 9.94	8.35 / 11.68	9.100	4.952	1.434
		18	10.67 / 15.91	8.54 / 13.16	9.61 / 14.53	11.745	4.952	1.550
		16	11.7 / 18.56	9.9 / 16.7	10.8 / 17.63	14.408	4.952	1.674
	5.25	22	10.44 / 13.85	6.99 / 9.19	8.72 / 11.52	8.067	5.300	1.454
		20	11.12 / 15.36	8.02 / 11.09	9.57 / 13.23	9.665	5.300	1.522
		18	12.29 / 18.13	9.69 / 14.66	10.99 / 16.4	12.494	5.300	1.646
		16	13.44 / 21.08	11.24 / 18.58	12.34 / 19.83	15.352	5.300	1.778
	5.5	22	12.02 / 15.82	7.87 / 10.22	9.94 / 13.02	8.533	5.648	1.538
		20	12.77 / 17.49	9.02 / 12.32	10.9 / 14.9	10.231	5.648	1.610
		18	14.07 / 20.55	10.92 / 16.25	12.49 / 18.4	13.242	5.648	1.741
		16	15.36 / 23.83	12.69 / 20.57	14.02 / 22.2	16.297	5.648	1.881
	5.75	22	13.75 / 17.96	8.79 / 11.3	11.27 / 14.63	8.999	5.996	1.622
		20	14.59 / 19.8	10.1 / 13.61	12.34 / 16.71	10.796	5.996	1.698
		18	16.03 / 23.19	12.24 / 17.94	14.13 / 20.56	13.991	5.996	1.837
		16	17.45 / 26.79	14.23 / 22.67	15.84 / 24.73	17.241	5.996	1.985

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

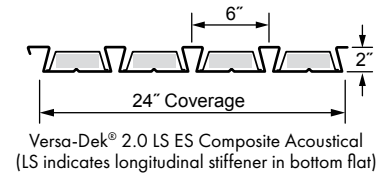
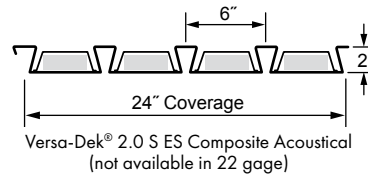
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.



Versa-Dek® 2.0 S ES and LS ES Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	$\phi V_{n, sb}$ (kips/ft)
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			
5000 PSI Normal-Weight Concrete (145 PCF)	6	22	21.38 / 25.85	10.83 / 12.74	16.1 / 19.3	9.465	8.340	1.716
		20	22.36 / 27.87	12.56 / 15.26	17.46 / 21.57	11.362	8.459	1.798
		18	24.1 / 31.59	15.45 / 19.9	19.78 / 25.75	14.740	8.459	1.949
		16	25.86 / 35.54	18.21 / 24.9	22.04 / 30.22	18.186	8.459	2.109
	6.25	22	24.33 / 29.24	11.97 / 13.99	18.15 / 21.62	9.931	8.572	1.800
		20	25.4 / 31.45	13.89 / 16.75	19.64 / 24.1	11.927	8.923	1.886
		18	27.3 / 35.51	17.11 / 21.83	22.2 / 28.67	15.488	8.923	2.045
		16	29.23 / 39.84	20.19 / 27.27	24.71 / 33.56	19.130	8.923	2.213
	6.5	22	27.55 / 32.93	13.17 / 15.3	20.36 / 24.12	10.397	8.804	1.884
		20	28.72 / 35.34	15.29 / 18.31	22.01 / 26.83	12.493	9.387	1.974
		18	30.79 / 39.76	18.86 / 23.84	24.82 / 31.8	16.237	9.387	2.140
		16	32.89 / 44.48	22.28 / 29.77	27.59 / 37.12	20.075	9.387	2.317
	6.75	22	31.06 / 36.93	14.44 / 16.67	22.75 / 26.8	10.863	9.036	1.968
		20	32.33 / 39.54	16.78 / 19.95	24.55 / 29.75	13.058	9.851	2.062
		18	34.57 / 44.34	20.71 / 25.96	27.64 / 35.15	16.986	9.851	2.236
		16	36.86 / 49.46	24.49 / 32.39	30.68 / 40.92	21.019	9.851	2.421
	7	22	34.87 / 41.25	15.76 / 18.11	25.32 / 29.68	11.329	9.268	2.052
		20	36.24 / 44.08	18.33 / 21.67	27.28 / 32.87	13.624	10.122	2.151
		18	38.67 / 49.28	22.66 / 28.17	30.66 / 38.72	17.734	10.315	2.332
		16	41.15 / 54.81	26.82 / 35.12	33.98 / 44.97	21.964	10.315	2.525
	7.25	22	38.99 / 45.91	17.16 / 19.61	28.07 / 32.76	11.795	9.500	2.135
		20	40.47 / 48.96	19.96 / 23.46	30.22 / 36.21	14.189	10.354	2.239
		18	43.09 / 54.57	24.7 / 30.48	33.9 / 42.52	18.483	10.779	2.428
		16	45.77 / 60.54	29.26 / 37.98	37.52 / 49.26	22.908	10.779	2.629
5000 PSI Lightweight Concrete (110 PCF)	6	22	15.66 / 20.3	9.78 / 12.44	12.72 / 16.37	9.465	6.344	1.706
		20	16.58 / 22.32	11.24 / 14.98	13.91 / 18.65	11.362	6.344	1.786
		18	18.17 / 26.04	13.64 / 19.71	15.9 / 22.87	14.740	6.344	1.933
		16	19.74 / 30	15.89 / 24.88	17.81 / 27.44	18.186	6.344	2.088
	6.25	22	17.75 / 22.85	10.83 / 13.65	14.29 / 18.25	9.931	6.692	1.790
		20	18.75 / 25.05	12.46 / 16.42	15.61 / 20.74	11.927	6.692	1.874
		18	20.5 / 29.11	15.14 / 21.58	17.82 / 25.35	15.488	6.692	2.028
		16	22.23 / 33.44	17.65 / 27.2	19.94 / 30.32	19.130	6.692	2.192
	6.5	22	20.03 / 25.6	11.94 / 14.91	15.99 / 20.25	10.397	7.040	1.874
		20	21.12 / 28	13.75 / 17.93	17.43 / 22.97	12.493	7.040	1.962
		18	23.03 / 32.43	16.72 / 23.53	19.87 / 27.98	16.237	7.040	2.124
		16	24.92 / 37.14	19.51 / 29.64	22.22 / 33.39	20.075	7.040	2.295
	6.75	22	22.51 / 28.57	13.11 / 16.24	17.81 / 22.4	10.863	7.388	1.958
		20	23.69 / 31.18	15.1 / 19.51	19.4 / 25.34	13.058	7.388	2.050
		18	25.76 / 35.98	18.39 / 25.58	22.08 / 30.78	16.986	7.388	2.219
		16	27.83 / 41.1	21.49 / 32.19	24.66 / 36.64	21.019	7.388	2.399
	7	22	25.19 / 31.77	14.34 / 17.62	19.76 / 24.69	11.329	7.736	2.041
		20	26.47 / 34.59	16.53 / 21.16	21.5 / 27.88	13.624	7.736	2.138
		18	28.72 / 39.79	20.16 / 27.73	24.44 / 33.76	17.734	7.736	2.315
		16	30.97 / 45.33	23.57 / 34.85	27.27 / 40.09	21.964	7.736	2.503
	7.25	22	28.08 / 35.2	15.63 / 19.07	21.85 / 27.14	11.795	8.084	2.125
		20	29.47 / 38.25	18.03 / 22.89	23.75 / 30.57	14.189	8.084	2.226
		18	31.9 / 43.86	22.01 / 29.96	26.96 / 36.91	18.483	8.084	2.410
		16	34.34 / 49.84	25.77 / 37.63	30.05 / 43.73	22.908	8.084	2.606

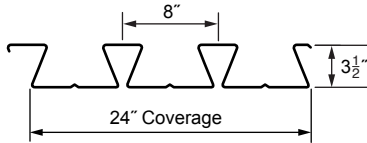
ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity; $\phi V_{n, sb}$ is factored shear bond capacity.

NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- Factored shear bond capacities of the slabs are based on physical testing.

Versa-Dek® 3.5 LS Composite

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	3.33	40	0.978	1.959	1.959	0.775	0.91	5501	952	1954
19	0.0418	24	3.88	40	1.141	2.324	2.324	0.946	1.09	7500	1275	2594
18	0.0474	24	4.40	40	1.293	2.664	2.664	1.113	1.226	9644	1615	3264
16	0.0598	24	5.54	40	1.629	3.394	3.394	1.504	1.573	13477	2496	4990

F_y is steel yield stress; A_s is area of deck; I_b is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
Normal-Weight Concrete (145 PCF)	5.5"	20	12' - 0"	12' - 10"	13' - 5"	Lightweight Concrete (110 PCF)	5.5"	20	13' - 5"	14' - 9"	15' - 3"
	56 PSF	19	13' - 6"	14' - 8"	15' - 2"		42 PSF	19	14' - 11"	16' - 2"	16' - 8"
	1.43 cu.yd/(100sq.ft)	18	14' - 5"	15' - 6"	16' - 0"		1.43 cu.yd/(100sq.ft)	18	15' - 5"	17' - 1"	17' - 8"
	6x6 - W1.4 x W1.4	16	15' - 3"	17' - 5"	17' - 11"		6x6 - W1.4 x W1.4	16	16' - 3"	19' - 2"	19' - 0"
	5.75"	20	11' - 9"	12' - 5"	12' - 11"		5.75"	20	13' - 2"	14' - 6"	15' - 0"
	59 PSF	19	13' - 2"	14' - 4"	14' - 10"		45 PSF	19	14' - 9"	15' - 10"	16' - 5"
	1.5 cu.yd/(100sq.ft)	18	14' - 3"	15' - 2"	15' - 8"		1.5 cu.yd/(100sq.ft)	18	15' - 3"	16' - 9"	17' - 4"
	6x6 - W1.4 x W1.4	16	15' - 1"	17' - 1"	17' - 8"		6x6 - W1.4 x W1.4	16	16' - 1"	18' - 10"	18' - 10"
	6"	20	11' - 7"	11' - 11"	12' - 5"		6"	20	12' - 11"	14' - 3"	14' - 9"
	62 PSF	19	12' - 11"	14' - 1"	14' - 7"		47 PSF	19	14' - 5"	15' - 7"	16' - 1"
	1.58 cu.yd/(100sq.ft)	18	14' - 1"	14' - 11"	15' - 5"		1.58 cu.yd/(100sq.ft)	18	15' - 0"	16' - 6"	17' - 0"
	6x6 - W1.4 x W1.4	16	14' - 11"	16' - 10"	17' - 4"		6x6 - W1.4 x W1.4	16	15' - 11"	18' - 6"	18' - 7"
	6.5"	20	11' - 1"	11' - 1"	11' - 7"		6.5"	20	12' - 5"	13' - 8"	14' - 3"
	68 PSF	19	12' - 5"	13' - 7"	14' - 1"		52 PSF	19	13' - 11"	15' - 1"	15' - 7"
	1.74 cu.yd/(100sq.ft)	18	13' - 7"	14' - 5"	14' - 11"		1.74 cu.yd/(100sq.ft)	18	14' - 9"	15' - 11"	16' - 6"
	6x6 - W1.4 x W1.4	16	14' - 7"	16' - 3"	16' - 9"		6x6 - W1.4 x W1.4	16	15' - 7"	17' - 11"	18' - 3"
	7"	20	10' - 9"	10' - 5"	10' - 10"		7"	20	12' - 0"	12' - 10"	13' - 4"
	74 PSF	19	12' - 0"	13' - 2"	13' - 7"		56 PSF	19	13' - 5"	14' - 7"	15' - 1"
	1.89 cu.yd/(100sq.ft)	18	13' - 1"	13' - 11"	14' - 5"		1.89 cu.yd/(100sq.ft)	18	14' - 5"	15' - 6"	16' - 0"
	6x6 - W2.0 x W2.0	16	14' - 4"	15' - 9"	16' - 3"		6x6 - W2.0 x W2.0	16	15' - 3"	17' - 5"	17' - 11"
	7.5"	20	10' - 5"	9' - 9"	10' - 2"		7.5"	20	11' - 8"	12' - 1"	12' - 7"
	80 PSF	19	11' - 7"	12' - 9"	13' - 2"		61 PSF	19	13' - 0"	14' - 2"	14' - 8"
	2.04 cu.yd/(100sq.ft)	18	12' - 8"	13' - 6"	14' - 0"		2.04 cu.yd/(100sq.ft)	18	14' - 2"	15' - 0"	15' - 6"
	6x6 - W2.0 x W2.0	16	14' - 1"	15' - 3"	15' - 9"		6x6 - W2.0 x W2.0	16	15' - 0"	16' - 11"	17' - 6"

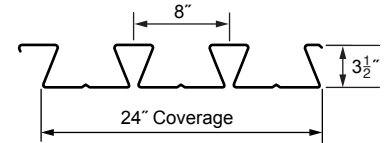
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 3.5 LS Composite

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _o (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	3.33	40	0.978	1.959	1.959	0.775	0.91	5501	952	1954
19	0.0418	24	3.88	40	1.141	2.324	2.324	0.946	1.09	7500	1275	2594
18	0.0474	24	4.40	40	1.293	2.664	2.664	1.113	1.226	9644	1615	3264
16	0.0598	24	5.54	40	1.629	3.394	3.394	1.504	1.573	13477	2496	4990

F_y is steel yield stress; A_s is area of deck; I_o is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

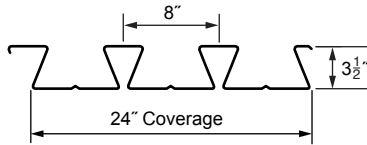
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
Normal-Weight Concrete (145 PCF)	7.75"	20	10' - 3"	9' - 6"	9' - 10"	Lightweight Concrete (110 PCF)	7.75"	20	11' - 6"	11' - 9"	12' - 3"
	83 PSF	19	11' - 5"	12' - 6"	13' - 0"		63 PSF	19	12' - 10"	14' - 0"	14' - 6"
	2.12 cu.yd/(100sq.ft)	18	12' - 6"	13' - 4"	13' - 9"		2.12 cu.yd/(100sq.ft)	18	14' - 0"	14' - 10"	15' - 4"
	6x6 - W2.0 x W2.0	16	13' - 11"	15' - 0"	15' - 6"		6x6 - W2.0 x W2.0	16	14' - 10"	16' - 8"	17' - 3"
	8"	20	10' - 1"	9' - 3"	9' - 7"		8"	20	11' - 4"	11' - 5"	11' - 11"
	86 PSF	19	11' - 3"	12' - 2"	12' - 8"		65 PSF	19	12' - 7"	13' - 10"	14' - 3"
	2.2 cu.yd/(100sq.ft)	18	12' - 3"	13' - 1"	13' - 7"		2.2 cu.yd/(100sq.ft)	18	13' - 10"	14' - 7"	15' - 1"
	4x4 - W1.4 x W1.4	16	13' - 10"	14' - 10"	15' - 4"		4x4 - W1.4 x W1.4	16	14' - 9"	16' - 6"	17' - 0"
	8.25"	20	9' - 11"	8' - 11"	9' - 4"		8.25"	20	11' - 2"	11' - 2"	11' - 7"
	89 PSF	19	11' - 1"	11' - 10"	12' - 4"		68 PSF	19	12' - 5"	13' - 8"	14' - 1"
	2.28 cu.yd/(100sq.ft)	18	12' - 1"	12' - 11"	13' - 4"		2.28 cu.yd/(100sq.ft)	18	13' - 7"	14' - 5"	14' - 11"
	6x6 - W2.9 x W2.9	16	13' - 9"	14' - 7"	15' - 1"		6x6 - W2.9 x W2.9	16	14' - 7"	16' - 3"	16' - 10"
	8.5"	20	9' - 9"	8' - 9"	9' - 1"		8.5"	20	11' - 0"	10' - 10"	11' - 4"
	92 PSF	19	10' - 11"	11' - 6"	12' - 0"		70 PSF	19	12' - 3"	13' - 6"	13' - 11"
	2.35 cu.yd/(100sq.ft)	18	11' - 11"	12' - 9"	13' - 2"		2.35 cu.yd/(100sq.ft)	18	13' - 5"	14' - 3"	14' - 9"
	6x6 - W2.9 x W2.9	16	13' - 7"	14' - 5"	14' - 11"		6x6 - W2.9 x W2.9	16	14' - 6"	16' - 1"	16' - 7"
9"	20	9' - 6"	8' - 3"	8' - 7"	9"	20	10' - 8"	10' - 4"	10' - 9"		
98 PSF	19	10' - 7"	10' - 11"	11' - 5"	74 PSF	19	11' - 11"	13' - 2"	13' - 7"		
2.51 cu.yd/(100sq.ft)	18	11' - 7"	12' - 5"	12' - 10"	2.51 cu.yd/(100sq.ft)	18	13' - 1"	13' - 11"	14' - 4"		
6x6 - W2.9 x W2.9	16	13' - 5"	14' - 0"	14' - 6"	6x6 - W2.9 x W2.9	16	14' - 4"	15' - 8"	16' - 2"		
9.5"	20	9' - 3"	7' - 10"	8' - 2"	9.5"	20	10' - 5"	9' - 10"	10' - 3"		
104 PSF	19	10' - 4"	10' - 5"	10' - 10"	79 PSF	19	11' - 8"	12' - 10"	13' - 3"		
2.66 cu.yd/(100sq.ft)	18	11' - 4"	12' - 2"	12' - 6"	2.66 cu.yd/(100sq.ft)	18	12' - 9"	13' - 7"	14' - 0"		
6x6 - W2.9 x W2.9	16	13' - 3"	13' - 8"	14' - 2"	6x6 - W2.9 x W2.9	16	14' - 1"	15' - 4"	15' - 10"		

NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.

Versa-Dek® 3.5 LS Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	Negative Moment Steel Reinforcing Required				
4000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	153	98	69	- / 50	-	-	50	-	-	-	-
	56 PSF	19	218	144 / 147	77 / 108	- / 82	- / 63	- / 49	82	63	- / 49	-	-
	1.43 cu.yd/(100sq.ft)	18	284	201	83 / 144	40 / 104	- / 76	- / 55	114	75 / 90	40 / 72	- / 58	- / 48
	6x6 - W1.4 x W1.4	16	351	234 / 246	95 / 177	48 / 130	- / 97	- / 72	143 / 172	87 / 130	49 / 100	- / 76	- / 58
	5.75"	20	152	104	73	40 / 53	-	-	53	-	-	-	-
	59 PSF	19	232	156	91 / 115	45 / 87	- / 67	- / 52	87	67	46 / 52	- / 41	-
	1.5 cu.yd/(100sq.ft)	18	301	220	98 / 157	50 / 121	- / 95	- / 76	121	89 / 95	50 / 76	- / 62	- / 51
	6x6 - W1.4 x W1.4	16	380	263 / 267	111 / 193	59 / 142	- / 106	- / 79	165 / 194	102 / 148	60 / 114	- / 88	- / 68
	6"	20	161	110	78	50 / 56	- / 41	-	56	41	-	-	-
	62 PSF	19	245	165	107 / 122	56 / 92	- / 71	- / 55	92	71	55	- / 44	-
	1.58 cu.yd/(100sq.ft)	18	319	233	115 / 166	61 / 128	- / 101	- / 81	128	101	62 / 81	- / 66	- / 54
	6x6 - W1.4 x W1.4	16	412	289	130 / 210	71 / 155	- / 116	- / 87	190 / 207	120 / 167	72 / 129	- / 101	- / 78
	6.5"	20	178	122	86	62	- / 46	-	62	46	-	-	-
	68 PSF	19	272	184	135	80 / 102	- / 79	- / 62	102	79	62	45 / 49	-
	1.74 cu.yd/(100sq.ft)	18	353	246	153 / 184	86 / 142	43 / 112	- / 90	142	112	88 / 90	50 / 73	- / 60
	6x6 - W1.4 x W1.4	16	500	367 / 393	172 / 291	99 / 229	52 / 185	- / 150	229	160 / 185	101 / 152	60 / 127	- / 101
	7"	20	196	134	95	69	50	-	69	50	-	-	-
	74 PSF	19	285	202	149	110 / 112	59 / 87	- / 68	112	87	68	54	- / 43
	1.89 cu.yd/(100sq.ft)	18	388	270	200 / 203	117 / 156	64 / 123	- / 99	156	123	99	73 / 81	40 / 66
	6x6 - W2.0 x W2.0	16	500	431	222 / 320	132 / 252	75 / 204	- / 168	252	204	135 / 168	85 / 140	49 / 119
	7.5"	20	214	147	104	75	52	-	75	52	-	-	-
	80 PSF	19	310	220	162	123	82 / 95	40 / 74	123	95	74	59	44
	2.04 cu.yd/(100sq.ft)	18	423	294	221	152 / 171	88 / 135	45 / 108	171	135	108	88	59 / 72
	6x6 - W2.0 x W2.0	16	500	470	279 / 348	171 / 275	101 / 222	55 / 183	275	222	175 / 183	114 / 153	70 / 129
4000 PSI Lightweight Concrete (110 PCF)	5.5"	20	153	100	54 / 71	- / 52	-	-	52	-	-	-	-
	42 PSF	19	218	158	60 / 111	- / 84	- / 65	- / 52	84	54 / 65	- / 52	- / 41	-
	1.43 cu.yd/(100sq.ft)	18	267 / 284	168 / 208	66 / 150	- / 114	- / 86	- / 65	100 / 116	59 / 92	- / 74	- / 61	- / 50
	6x6 - W1.4 x W1.4	16	298 / 361	188 / 256	126 / 187	40 / 140	- / 107	- / 82	116 / 182	71 / 140	41 / 110	- / 87	- / 68
	5.75"	20	163	106	65 / 76	- / 55	- / 41	-	55	41	-	-	-
	45 PSF	19	232	167	71 / 118	- / 89	- / 69	- / 55	89	64 / 69	- / 55	- / 44	-
	1.5 cu.yd/(100sq.ft)	18	299 / 301	188 / 220	77 / 159	- / 123	- / 98	- / 79	115 / 123	70 / 98	40 / 79	- / 65	- / 53
	6x6 - W1.4 x W1.4	16	330 / 391	208 / 277	139 / 203	47 / 153	- / 117	- / 90	132 / 198	82 / 159	48 / 125	- / 99	- / 79
	6"	20	172	113	76 / 80	- / 59	- / 43	-	59	43	-	-	-
	47 PSF	19	245	177	83 / 124	43 / 95	- / 74	- / 58	95	74	44 / 58	- / 46	-
	1.58 cu.yd/(100sq.ft)	18	319	210 / 233	89 / 169	47 / 131	- / 104	- / 84	131	82 / 104	48 / 84	- / 68	- / 57
	6x6 - W1.4 x W1.4	16	367 / 423	231 / 300	102 / 221	56 / 166	- / 127	- / 98	150 / 209	94 / 169	57 / 140	- / 112	- / 89
	6.5"	20	191	125	89	55 / 65	- / 48	-	65	48	-	-	-
	52 PSF	19	272	187	111 / 138	61 / 105	- / 82	- / 65	105	82	62 / 65	- / 52	- / 42
	1.74 cu.yd/(100sq.ft)	18	353	258	119 / 187	66 / 145	- / 115	- / 93	145	110 / 115	68 / 93	- / 76	- / 63
	6x6 - W1.4 x W1.4	16	454 / 500	286 / 393	134 / 294	77 / 232	41 / 188	- / 155	193 / 232	125 / 188	79 / 155	47 / 130	- / 111
	7"	20	210	138	98	72	40 / 53	- / 40	72	53	40	-	-
	56 PSF	19	298	205	145 / 152	84 / 116	45 / 90	- / 71	116	90	71	52 / 57	- / 46
	1.89 cu.yd/(100sq.ft)	18	388	284	154 / 206	90 / 159	49 / 126	- / 102	159	126	92 / 102	56 / 84	- / 69
	6x6 - W2.0 x W2.0	16	500	351 / 431	173 / 323	103 / 255	58 / 207	- / 171	246 / 255	162 / 207	105 / 171	66 / 143	- / 122
	7.5"	20	217	150	107	78	56 / 58	- / 44	78	58	44	-	-
	61 PSF	19	325	224	166	110 / 126	62 / 98	- / 78	126	98	78	62	41 / 50
	2.04 cu.yd/(100sq.ft)	18	423	309	194 / 224	117 / 174	68 / 138	- / 111	174	138	111	77 / 91	46 / 76
	6x6 - W2.0 x W2.0	16	500	424 / 470	217 / 352	133 / 278	79 / 226	42 / 186	278	204 / 226	136 / 186	89 / 156	55 / 133

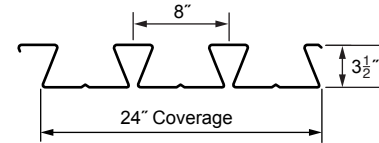
NOTES:

1. The slab weight has been subtracted from the loads listed above.
2. Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
3. Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
4. Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
5. Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
6. Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	7.75"	20	223	153	108	78	55	-	-	-	-	-	-
	83 PSF	19	323	229	169	128	94 / 99	49 / 77	77	61	46	-	-
	2.12 cu.yd/(100sq.ft)	18	440	307	230	172 / 178	101 / 140	54 / 113	113	92	70 / 75	41 / 60	- / 49
	6x6 - W2.0 x W2.0	16	500	474	311 / 363	192 / 286	116 / 231	65 / 191	191	130 / 159	82 / 135	47 / 115	- / 100
	8"	20	231	159	113	81	57	41	41	-	-	-	-
	86 PSF	19	336	239	176	133	103	59 / 80	80	64	48	-	-
	2.2 cu.yd/(100sq.ft)	18	458	319	239	185	116 / 146	65 / 117	117	95	78	51 / 62	- / 52
	4x4 - W1.4 x W1.4	16	500	493	345 / 377	215 / 298	132 / 241	76 / 198	198	148 / 166	96 / 140	57 / 120	- / 101
	8.25"	20	240	165	117	82	59	43	43	-	-	-	-
	89 PSF	19	349	248	182	138	107	71 / 84	84	63	50	-	-
	2.28 cu.yd/(100sq.ft)	18	475	331	248	192	133 / 151	77 / 122	122	99	79	61 / 65	- / 54
	6x6 - W2.9 x W2.9	16	500	500	384 / 392	241 / 309	150 / 250	89 / 206	206	168 / 172	111 / 146	69 / 125	41 / 105
	8.5"	20	249	171	121	85	61	44	44	-	-	-	-
	92 PSF	19	362	257	189	143	111	82 / 87	87	66	52	41	-
	2.35 cu.yd/(100sq.ft)	18	476	343	257	199	150 / 157	89 / 126	126	103	82	67	40 / 56
	6x6 - W2.9 x W2.9	16	500	500	406	268 / 321	168 / 259	102 / 213	213	178	126 / 151	80 / 129	50 / 109
	9"	20	267	183	130	91	66	47	47	-	-	-	-
	98 PSF	19	387	275	203	153	119	90	90	70	56	44	-
	2.51 cu.yd/(100sq.ft)	18	500	368	276	213	168	115 / 135	135	110	88	72	58 / 60
	6x6 - W2.9 x W2.9	16	500	500	435	325 / 343	208 / 278	131 / 229	229	191	159 / 162	106 / 139	69 / 116
	9.5"	20	285	195	135	97	70	51	51	-	-	-	-
	104 PSF	19	413	293	216	164	126	96	96	75	59	47	-
	2.66 cu.yd/(100sq.ft)	18	500	392	294	227	179	144	144	118	93	77	64
	6x6 - W2.9 x W2.9	16	500	500	464	366	253 / 296	163 / 244	244	204	173	138 / 144	92 / 124
4000 PSI Lightweight Concrete (110 PCF)	7.75"	20	226	156	112	82	61	- / 45	45	-	-	-	-
	63 PSF	19	339	233	173	124 / 131	72 / 102	- / 81	81	65	49 / 52	- / 42	-
	2.12 cu.yd/(100sq.ft)	18	440	322	217 / 234	132 / 181	78 / 144	42 / 116	116	88 / 95	54 / 79	- / 66	- / 54
	6x6 - W2.0 x W2.0	16	500	463 / 489	241 / 366	149 / 290	90 / 235	50 / 194	153 / 194	101 / 163	64 / 138	- / 119	- / 103
	8"	20	235	162	116	85	63	- / 47	47	-	-	-	-
	65 PSF	19	352	242	179	137	83 / 106	45 / 84	84	67	54	- / 42	-
	2.2 cu.yd/(100sq.ft)	18	458	322	241 / 243	148 / 188	89 / 149	49 / 121	121	99	63 / 82	- / 69	- / 56
	4x4 - W1.4 x W1.4	16	500	500	268 / 381	167 / 301	102 / 244	59 / 202	171 / 202	115 / 169	74 / 144	45 / 124	- / 107
	8.25"	20	244	169	121	88	66	48 / 49	49	-	-	-	-
	68 PSF	19	365	251	186	142	95 / 110	54 / 87	87	70	56	42 / 44	-
	2.28 cu.yd/(100sq.ft)	18	475	335	252	167 / 196	102 / 155	59 / 125	125	103	74 / 85	44 / 71	- / 58
	6x6 - W2.9 x W2.9	16	500	500	298 / 395	187 / 313	116 / 254	69 / 210	192 / 210	130 / 176	86 / 149	53 / 128	- / 111
	8.5"	20	253	175	125	92	68	49	49	-	-	-	-
	70 PSF	19	379	261	193	147	107 / 115	62 / 91	91	72	59	45	-
	2.35 cu.yd/(100sq.ft)	18	492	347	261	186 / 203	115 / 161	68 / 130	130	107	84 / 88	52 / 74	- / 60
	6x6 - W2.9 x W2.9	16	500	500	327 / 410	207 / 324	130 / 263	79 / 217	213 / 217	146 / 182	98 / 155	62 / 133	- / 115
	9"	20	271	187	134	98	73	52	52	-	-	-	-
	74 PSF	19	392	279	207	158	123	81 / 97	97	78	63	49	-
	2.51 cu.yd/(100sq.ft)	18	500	372	280	217	143 / 172	88 / 139	139	114	95	73 / 77	44 / 65
	6x6 - W2.9 x W2.9	16	500	500	391 / 439	251 / 347	161 / 282	101 / 233	233	179 / 195	123 / 166	82 / 143	51 / 124
	9.5"	20	289	200	143	105	75	56	56	41	-	-	-
	79 PSF	19	418	298	221	168	131	103 / 104	104	83	65	52	42
	2.66 cu.yd/(100sq.ft)	18	500	396	299	232	174 / 184	110 / 149	149	122	101	82	60 / 69
	6x6 - W2.9 x W2.9	16	500	500	463 / 468	300 / 371	196 / 300	126 / 248	248	208	152 / 177	104 / 152	68 / 132

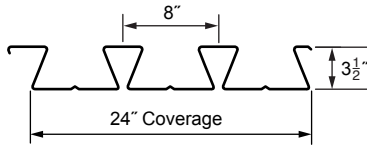
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
4000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	17' - 5"	17' - 5"	20' - 10"	13' - 8"	13' - 8"	16' - 5"
		19	17' - 9" / 21' - 1"	21' - 1"	25' - 4"	16' - 4"	16' - 4"	19' - 7"
		18	18' - 0" / 21' - 11"	22' - 2" / 24' - 7"	26' - 8" / 28' - 0"	17' - 2" / 18' - 0"	18' - 9"	22' - 6"
		16	18' - 5" / 23' - 9"	22' - 10" / 26' - 5"	27' - 4" / 27' - 10"	17' - 7" / 19' - 6"	21' - 8"	22' - 11"
	5.75	20	17' - 9"	17' - 9"	21' - 4"	14' - 0"	14' - 0"	16' - 10"
		19	18' - 3" / 21' - 7"	21' - 7"	25' - 11"	16' - 9"	16' - 9"	20' - 1"
		18	18' - 6" / 24' - 8"	22' - 11" / 25' - 3"	27' - 6" / 29' - 2"	17' - 8" / 19' - 3"	19' - 3"	23' - 1"
		16	19' - 0" / 24' - 5"	23' - 6" / 27' - 7"	28' - 2" / 29' - 1"	18' - 2" / 20' - 2"	22' - 5" / 22' - 9"	24' - 0"
	6	20	18' - 1"	18' - 1"	21' - 9"	14' - 4"	14' - 4"	17' - 2"
		19	18' - 10" / 22' - 1"	22' - 1"	26' - 6"	17' - 1"	17' - 1"	20' - 7"
		18	19' - 1" / 25' - 5"	23' - 7" / 25' - 10"	28' - 3" / 30' - 5"	18' - 3" / 19' - 9"	19' - 9"	23' - 9"
		16	19' - 7" / 25' - 1"	24' - 2" / 28' - 9"	29' - 0" / 30' - 3"	18' - 8" / 20' - 9"	23' - 1" / 23' - 9"	25' - 1"
	6.5	20	18' - 10"	18' - 10"	22' - 7"	14' - 11"	14' - 11"	17' - 11"
		19	19' - 11" / 23' - 0"	23' - 0"	27' - 7"	17' - 11"	17' - 11"	21' - 6"
		18	20' - 2" / 26' - 9"	24' - 11" / 26' - 11"	29' - 10" / 32' - 4"	19' - 4" / 20' - 8"	20' - 8"	24' - 10"
		16	20' - 8" / 28' - 0"	25' - 6" / 30' - 11"	30' - 7" / 32' - 7"	19' - 9" / 25' - 0"	24' - 5" / 25' - 9"	27' - 2"
	7	20	19' - 5"	19' - 5"	23' - 4"	15' - 6"	15' - 6"	18' - 7"
		19	20' - 11" / 23' - 9"	23' - 9"	28' - 7"	18' - 7"	18' - 7"	22' - 4"
		18	21' - 3" / 28' - 0"	26' - 3" / 28' - 0"	31' - 6" / 33' - 7"	20' - 4" / 21' - 7"	21' - 7"	25' - 11"
		16	21' - 9" / 29' - 4"	26' - 10" / 33' - 1"	32' - 3" / 34' - 10"	20' - 10" / 26' - 0"	25' - 9" / 27' - 8"	29' - 2"
	7.5	20	19' - 8"	19' - 8"	23' - 8"	16' - 0"	16' - 0"	19' - 2"
		19	22' - 0" / 24' - 7"	24' - 7"	29' - 6"	19' - 3"	19' - 3"	23' - 2"
		18	22' - 3" / 28' - 5"	27' - 6" / 28' - 5"	33' - 0" / 34' - 2"	21' - 5" / 22' - 5"	22' - 5"	26' - 10"
		16	22' - 9" / 30' - 8"	28' - 2" / 35' - 2"	33' - 9" / 37' - 1"	21' - 11" / 27' - 0"	27' - 1" / 28' - 10"	31' - 3"
4000 PSI Lightweight Concrete (110 PCF)	5.5	20	16' - 10" / 17' - 8"	17' - 8"	21' - 2"	13' - 10"	13' - 10"	16' - 7"
		19	17' - 1" / 21' - 5"	21' - 2" / 21' - 5"	25' - 5" / 25' - 9"	16' - 2" / 16' - 5"	16' - 5"	19' - 9"
		18	17' - 5" / 23' - 2"	21' - 6" / 25' - 0"	25' - 10" / 29' - 6"	16' - 6" / 18' - 8"	18' - 11"	22' - 9"
		16	18' - 0" / 25' - 0"	22' - 3" / 27' - 10"	26' - 8" / 29' - 4"	17' - 0" / 20' - 3"	21' - 1" / 22' - 6"	23' - 8"
	5.75	20	17' - 4" / 18' - 1"	18' - 1"	21' - 8"	14' - 2"	14' - 2"	17' - 0"
		19	17' - 8" / 22' - 0"	21' - 10" / 22' - 0"	26' - 2" / 26' - 4"	16' - 9" / 16' - 11"	16' - 11"	20' - 3"
		18	17' - 11" / 24' - 7"	22' - 1" / 25' - 8"	26' - 7" / 30' - 10"	17' - 0" / 19' - 6"	19' - 6"	23' - 1"
		16	18' - 5" / 25' - 10"	22' - 9" / 29' - 2"	27' - 4" / 30' - 8"	17' - 6" / 20' - 11"	21' - 8" / 23' - 7"	24' - 10"
	6	20	17' - 10" / 18' - 5"	18' - 5"	22' - 1"	14' - 6"	14' - 6"	17' - 4"
		19	18' - 2" / 22' - 6"	22' - 5" / 22' - 6"	26' - 11" / 27' - 0"	17' - 3" / 17' - 4"	17' - 4"	20' - 9"
		18	18' - 5" / 25' - 4"	22' - 9" / 26' - 4"	27' - 4" / 31' - 7"	17' - 6" / 20' - 0"	20' - 0"	24' - 0"
		16	18' - 11" / 26' - 7"	23' - 5" / 30' - 5"	28' - 1" / 32' - 0"	18' - 0" / 21' - 7"	22' - 3" / 24' - 8"	26' - 0"
	6.5	20	18' - 11" / 19' - 2"	19' - 2"	23' - 0"	15' - 1"	15' - 1"	18' - 1"
		19	19' - 2" / 23' - 5"	23' - 5"	28' - 1"	18' - 1"	18' - 1"	21' - 9"
		18	19' - 6" / 26' - 8"	24' - 1" / 27' - 6"	28' - 11" / 33' - 0"	18' - 7" / 20' - 11"	20' - 11"	25' - 2"
		16	20' - 0" / 28' - 2"	24' - 9" / 32' - 10"	29' - 8" / 34' - 7"	19' - 1" / 25' - 3"	23' - 7" / 26' - 10"	28' - 3" / 28' - 3"
	7	20	19' - 9"	19' - 9"	23' - 9"	15' - 8"	15' - 8"	18' - 10"
		19	20' - 3" / 24' - 4"	24' - 4"	29' - 2"	18' - 10"	18' - 10"	22' - 7"
		18	20' - 7" / 28' - 0"	25' - 5" / 28' - 7"	30' - 6" / 34' - 4"	19' - 7" / 21' - 10"	21' - 10"	26' - 3"
		16	21' - 1" / 29' - 6"	26' - 1" / 35' - 2"	31' - 3" / 37' - 1"	20' - 1" / 26' - 7"	24' - 10" / 28' - 1"	29' - 10" / 30' - 6"
	7.5	20	20' - 5"	20' - 5"	24' - 6"	16' - 2"	16' - 2"	19' - 5"
		19	21' - 3" / 25' - 1"	25' - 1"	30' - 2"	19' - 7"	19' - 7"	23' - 5"
		18	21' - 7" / 29' - 3"	26' - 8" / 29' - 8"	32' - 0" / 35' - 7"	20' - 7" / 22' - 8"	22' - 8"	27' - 3"
		16	22' - 2" / 30' - 10"	27' - 4" / 37' - 6"	32' - 10" / 39' - 6"	21' - 2" / 27' - 10"	26' - 2" / 29' - 4"	31' - 4" / 32' - 8"

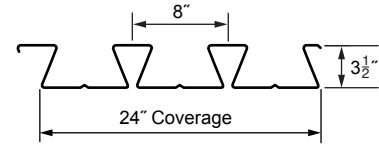
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
4000 PSI Normal-Weight Concrete (145 PCF)	7.75	20	19' - 11"	19' - 11"	23' - 11"	16' - 3"	16' - 3"	19' - 6"
		19	22' - 6" / 24' - 11"	24' - 11"	29' - 11"	19' - 7"	19' - 7"	23' - 6"
		18	22' - 9" / 28' - 11"	28' - 1" / 28' - 11"	33' - 9" / 34' - 8"	21' - 11" / 22' - 9"	22' - 9"	27' - 4"
		16	23' - 4" / 31' - 3"	28' - 9" / 36' - 2"	34' - 7" / 38' - 1"	22' - 5" / 27' - 5"	27' - 9" / 29' - 5"	32' - 2"
	8	20	20' - 2"	20' - 2"	24' - 3"	16' - 6"	16' - 6"	19' - 9"
		19	23' - 0" / 24' - 10"	24' - 10"	29' - 10"	19' - 11"	19' - 11"	23' - 11"
		18	23' - 3" / 29' - 4"	28' - 9" / 29' - 4"	34' - 6" / 35' - 2"	22' - 5" / 23' - 2"	23' - 2"	27' - 10"
		16	23' - 10" / 31' - 11"	29' - 5" / 37' - 2"	35' - 4" / 39' - 2"	22' - 11" / 27' - 10"	28' - 4" / 29' - 7"	33' - 2"
	8.25	20	20' - 5"	20' - 5"	24' - 6"	16' - 9"	16' - 9"	20' - 1"
		19	23' - 6" / 25' - 2"	25' - 2"	30' - 2"	20' - 3"	20' - 3"	24' - 3"
		18	23' - 10" / 29' - 9"	29' - 5" / 29' - 9"	35' - 4" / 35' - 8"	22' - 11" / 23' - 6"	23' - 6"	28' - 3"
		16	24' - 4" / 32' - 6"	30' - 1" / 38' - 2"	36' - 1" / 40' - 2"	23' - 6" / 28' - 3"	29' - 0" / 30' - 1"	34' - 2"
	8.5	20	20' - 8"	20' - 8"	24' - 10"	16' - 11"	16' - 11"	20' - 4"
		19	24' - 0" / 25' - 6"	25' - 6"	30' - 7"	20' - 6"	20' - 6"	24' - 7"
		18	24' - 4" / 30' - 1"	30' - 0" / 30' - 1"	36' - 0" / 36' - 2"	23' - 5" / 23' - 11"	23' - 11"	28' - 8"
		16	24' - 10" / 33' - 2"	30' - 9" / 39' - 1"	36' - 10" / 41' - 2"	24' - 0" / 28' - 8"	29' - 8" / 30' - 8"	35' - 1"
	9	20	21' - 1"	21' - 1"	25' - 4"	17' - 2"	17' - 2"	20' - 8"
		19	25' - 0" / 26' - 1"	26' - 1"	31' - 4"	21' - 1"	21' - 1"	25' - 4"
		18	25' - 3" / 30' - 11"	30' - 11"	37' - 1"	24' - 5" / 24' - 7"	24' - 7"	29' - 6"
		16	25' - 10" / 34' - 4"	31' - 11" / 40' - 3"	38' - 4" / 43' - 2"	25' - 0" / 29' - 4"	30' - 10" / 31' - 7"	36' - 11"
	9.5	20	21' - 6"	21' - 6"	25' - 10"	17' - 7"	17' - 7"	21' - 1"
		19	25' - 11" / 26' - 8"	26' - 8"	32' - 0"	21' - 4"	21' - 4"	25' - 8"
		18	26' - 2" / 31' - 7"	31' - 7"	37' - 11"	24' - 11"	24' - 11"	29' - 11"
		16	26' - 10" / 35' - 0"	33' - 1" / 41' - 0"	39' - 9" / 45' - 2"	25' - 11" / 30' - 1"	32' - 0" / 32' - 6"	38' - 5" / 38' - 9"
4000 PSI Lightweight Concrete (110 PCF)	7.75	20	20' - 8"	20' - 8"	24' - 10"	16' - 6"	16' - 6"	19' - 9"
		19	21' - 9" / 25' - 6"	25' - 6"	30' - 7"	19' - 11"	19' - 11"	23' - 10"
		18	22' - 1" / 29' - 8"	27' - 3" / 29' - 8"	32' - 9" / 35' - 8"	21' - 1" / 23' - 1"	23' - 1"	27' - 9"
		16	22' - 8" / 31' - 6"	28' - 0" / 38' - 7"	33' - 7" / 40' - 9"	21' - 8" / 28' - 6"	26' - 9" / 29' - 11"	32' - 1" / 33' - 9"
	8	20	20' - 11"	20' - 11"	25' - 2"	16' - 9"	16' - 9"	20' - 1"
		19	22' - 3" / 25' - 11"	25' - 11"	31' - 1"	20' - 2"	20' - 2"	24' - 3"
		18	22' - 7" / 30' - 2"	27' - 11" / 30' - 2"	33' - 6" / 36' - 2"	21' - 7" / 23' - 6"	23' - 6"	28' - 3"
		16	23' - 2" / 32' - 1"	28' - 7" / 39' - 8"	34' - 4" / 41' - 11"	22' - 2" / 29' - 1"	27' - 5" / 30' - 6"	32' - 10" / 34' - 9"
	8.25	20	21' - 3"	21' - 3"	25' - 5"	16' - 11"	16' - 11"	20' - 4"
		19	22' - 10" / 26' - 3"	26' - 3"	31' - 6"	20' - 6"	20' - 6"	24' - 7"
		18	23' - 1" / 30' - 7"	28' - 7" / 30' - 7"	34' - 3" / 36' - 9"	22' - 1" / 23' - 11"	23' - 11"	28' - 8"
		16	23' - 8" / 32' - 9"	29' - 3" / 40' - 5"	35' - 2" / 43' - 0"	22' - 8" / 29' - 8"	28' - 1" / 31' - 0"	33' - 8" / 35' - 10"
	8.5	20	21' - 6"	21' - 6"	25' - 9"	17' - 2"	17' - 2"	20' - 7"
		19	23' - 3" / 26' - 7"	26' - 7"	31' - 11"	20' - 10"	20' - 10"	25' - 0"
		18	23' - 7" / 31' - 1"	29' - 2" / 31' - 1"	35' - 0" / 37' - 3"	22' - 7" / 24' - 3"	24' - 3"	29' - 2"
		16	24' - 2" / 33' - 4"	29' - 11" / 41' - 2"	35' - 10" / 44' - 2"	23' - 2" / 30' - 1"	28' - 8" / 31' - 7"	34' - 5" / 36' - 10"
	9	20	21' - 8"	21' - 8"	26' - 0"	17' - 8"	17' - 8"	21' - 2"
		19	24' - 3" / 26' - 10"	26' - 10"	32' - 3"	21' - 5"	21' - 5"	25' - 8"
		18	24' - 7" / 31' - 11"	30' - 4" / 31' - 11"	36' - 5" / 38' - 3"	23' - 7" / 25' - 0"	25' - 0"	30' - 0"
		16	25' - 2" / 34' - 6"	31' - 1" / 42' - 8"	37' - 4" / 46' - 5"	24' - 2" / 30' - 11"	29' - 10" / 32' - 3"	35' - 10" / 38' - 9"
	9.5	20	22' - 1"	22' - 1"	26' - 6"	18' - 1"	18' - 1"	21' - 8"
		19	25' - 2" / 27' - 6"	27' - 6"	33' - 0"	22' - 0"	22' - 0"	26' - 5"
		18	25' - 6" / 32' - 8"	31' - 6" / 32' - 8"	37' - 10" / 39' - 2"	24' - 6" / 25' - 9"	25' - 9"	30' - 10"
		16	26' - 2" / 35' - 9"	32' - 3" / 44' - 1"	38' - 9" / 48' - 7"	25' - 1" / 31' - 8"	31' - 1" / 33' - 3"	37' - 3" / 39' - 11"

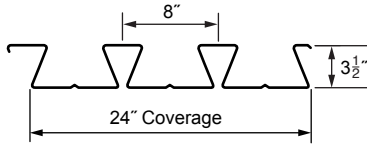
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND ONE-WAY SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
4000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	21.7 / 29.24	10 / 13.5	15.85 / 21.37	10.032	8.680	21795.0	-0.1469
		19	22.32 / 31.13	11.18 / 15.75	16.75 / 23.44	11.460	8.680	23696.4	-0.0878
		18	22.89 / 32.89	12.23 / 17.88	17.56 / 25.38	9.663	8.680	25471.0	-0.0326
		16	24.12 / 36.76	14.4 / 22	19.26 / 29.38	11.434	8.680	27665.0	0.1067
	5.75	20	24.63 / 32.88	11.18 / 14.96	17.9 / 23.92	10.717	9.018	21795.0	-0.1469
		19	25.31 / 34.96	12.5 / 17.44	18.91 / 26.2	12.259	9.018	23696.4	-0.0878
		18	25.93 / 36.9	13.67 / 19.78	19.8 / 28.34	13.633	9.018	25471.0	-0.0326
		16	27.27 / 41.15	16.05 / 25.05	21.66 / 33.1	12.346	9.018	27665.0	0.1067
	6	20	27.81 / 36.82	12.45 / 16.51	20.13 / 26.67	11.401	9.356	21795.0	-0.1469
		19	28.56 / 39.1	13.93 / 19.23	21.24 / 29.16	13.058	9.356	23696.4	-0.0878
		18	29.24 / 41.22	15.23 / 21.79	22.23 / 31.51	14.539	9.356	25471.0	-0.0326
		16	30.7 / 45.88	17.87 / 27.57	24.28 / 36.73	13.323	9.356	27665.0	0.1067
	6.5	20	34.99 / 45.62	15.27 / 19.89	25.13 / 32.76	12.769	9.938	21795.0	-0.1469
		19	35.88 / 48.33	17.09 / 23.13	26.48 / 35.73	14.656	10.032	23696.4	-0.0878
		18	36.69 / 50.84	18.68 / 26.19	27.69 / 38.52	16.351	10.032	25471.0	-0.0326
		16	38.43 / 56.39	21.93 / 33.05	30.18 / 44.72	19.878	10.032	27665.0	0.1067
	7	20	43.34 / 55.73	18.45 / 23.65	30.9 / 39.69	14.138	10.276	21795.0	-0.1469
		19	44.39 / 58.91	20.66 / 27.47	32.53 / 43.19	16.254	10.708	23696.4	-0.0878
		18	45.35 / 61.86	22.6 / 31.06	33.98 / 46.46	18.163	10.708	25471.0	-0.0326
		16	47.4 / 68.38	26.55 / 39.12	36.98 / 53.75	22.164	10.708	27665.0	0.1067
	7.5	20	52.94 / 67.23	22.01 / 27.78	37.48 / 47.51	15.506	10.614	21795.0	-0.1469
		19	54.18 / 70.93	24.66 / 32.24	39.42 / 51.58	17.851	11.384	23696.4	-0.0878
		18	55.3 / 74.37	26.99 / 36.42	41.15 / 55.39	19.975	11.384	25471.0	-0.0326
		16	57.72 / 81.95	31.74 / 45.79	44.73 / 63.87	24.450	11.384	27665.0	0.1067
4000 PSI Lightweight Concrete (110 PCF)	5.5	20	15.58 / 23.16	8.88 / 13.45	12.23 / 18.3	10.032	6.510	21795.0	-0.1469
		19	16.17 / 25.03	9.93 / 15.26	13.05 / 20.14	11.460	6.510	23696.4	-0.0878
		18	16.7 / 26.77	10.9 / 16.94	13.8 / 21.86	9.663	6.510	25471.0	-0.0326
		16	17.85 / 30.6	13.06 / 20.66	15.45 / 25.63	11.434	6.510	27665.0	0.1067
	5.75	20	17.63 / 25.95	9.93 / 14.99	13.78 / 20.47	10.717	6.764	21795.0	-0.1469
		19	18.27 / 28.01	11.03 / 17.58	14.65 / 22.8	12.259	6.764	23696.4	-0.0878
		18	18.85 / 29.92	12.01 / 19.65	15.43 / 24.79	13.633	6.764	25471.0	-0.0326
		16	20.09 / 34.13	14.17 / 23.79	17.13 / 28.96	12.346	6.764	27665.0	0.1067
	6	20	19.86 / 28.95	11.05 / 16.51	15.46 / 22.73	11.401	7.017	21795.0	-0.1469
		19	20.56 / 31.21	12.28 / 19.35	16.42 / 25.28	13.058	7.017	23696.4	-0.0878
		18	21.19 / 33.31	13.36 / 22.05	17.27 / 27.68	14.539	7.017	25471.0	-0.0326
		16	22.54 / 37.93	15.55 / 27.43	19.04 / 32.68	13.323	7.017	27665.0	0.1067
	6.5	20	24.89 / 35.64	13.56 / 19.81	19.23 / 27.72	12.769	7.524	21795.0	-0.1469
		19	25.72 / 38.32	15.07 / 23.18	20.4 / 30.75	14.656	7.524	23696.4	-0.0878
		18	26.47 / 40.82	16.39 / 26.38	21.43 / 33.6	16.351	7.524	25471.0	-0.0326
		16	28.06 / 46.32	19.03 / 33.63	23.55 / 39.98	19.878	7.524	27665.0	0.1067
	7	20	30.73 / 43.27	16.42 / 23.47	23.57 / 33.37	14.138	8.031	21795.0	-0.1469
		19	31.71 / 46.43	18.25 / 27.42	24.98 / 36.93	16.254	8.031	23696.4	-0.0878
		18	32.59 / 49.37	19.84 / 31.17	26.22 / 40.27	18.163	8.031	25471.0	-0.0326
		16	34.48 / 55.85	23.05 / 39.65	28.76 / 47.75	22.164	8.031	27665.0	0.1067
	7.5	20	37.44 / 51.93	19.62 / 27.49	28.53 / 39.71	15.506	8.538	21795.0	-0.1469
		19	38.59 / 55.6	21.82 / 32.08	30.21 / 43.84	17.851	8.538	23696.4	-0.0878
		18	39.63 / 59.02	23.74 / 36.42	31.69 / 47.72	19.975	8.538	25471.0	-0.0326
		16	41.84 / 66.57	27.59 / 46.24	34.72 / 56.4	24.450	8.538	27665.0	0.1067

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

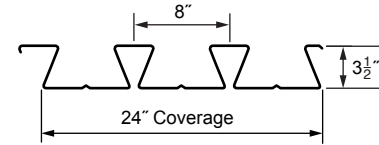
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND ONE-WAY SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
4000 PSI Normal-Weight Concrete (145 PCF)	7.75	20	58.24 / 73.54	23.93 / 30	41.09 / 51.77	16.190	10.783	21795.0	-0.1469
		19	59.58 / 77.51	26.83 / 34.79	43.2 / 56.15	18.650	11.722	23696.4	-0.0878
		18	60.8 / 81.2	29.37 / 39.29	45.08 / 60.24	20.880	11.722	25471.0	-0.0326
		16	63.41 / 89.35	34.55 / 49.35	48.98 / 69.35	25.593	11.722	27665.0	0.1067
	8	20	63.89 / 80.23	25.95 / 32.31	44.92 / 56.27	16.875	10.952	21795.0	-0.1469
		19	65.33 / 84.48	29.1 / 37.45	47.21 / 60.97	19.449	12.060	23696.4	-0.0878
		18	66.65 / 88.45	31.86 / 42.27	49.26 / 65.36	21.786	12.060	25471.0	-0.0326
		16	69.47 / 97.19	37.51 / 53.06	53.49 / 75.12	26.736	12.060	27665.0	0.1067
	8.25	20	69.9 / 87.31	28.06 / 34.71	48.98 / 61.01	17.559	11.121	21795.0	-0.1469
		19	71.45 / 91.87	31.48 / 40.23	51.47 / 66.05	20.248	12.398	23696.4	-0.0878
		18	72.87 / 96.11	34.48 / 45.39	53.68 / 70.75	22.692	12.398	25471.0	-0.0326
		16	75.9 / 105.46	40.61 / 56.92	58.26 / 81.19	27.879	12.398	27665.0	0.1067
	8.5	20	76.29 / 94.81	30.27 / 37.22	53.28 / 66.01	18.243	11.290	21795.0	-0.1469
		19	77.95 / 99.67	33.97 / 43.11	55.96 / 71.39	21.047	12.736	23696.4	-0.0878
		18	79.47 / 104.19	37.22 / 48.63	58.35 / 76.41	23.598	12.736	25471.0	-0.0326
		16	82.74 / 114.18	43.87 / 60.93	63.3 / 87.56	29.022	12.736	27665.0	0.1067
	9	20	90.21 / 111.06	34.97 / 42.52	62.59 / 76.79	19.611	11.628	21795.0	-0.1469
		19	92.13 / 116.57	39.28 / 49.22	65.7 / 82.9	22.645	13.412	23696.4	-0.0878
		18	93.87 / 121.71	43.07 / 55.48	68.47 / 88.59	25.410	13.412	25471.0	-0.0326
		16	97.62 / 133.03	50.82 / 69.42	74.22 / 101.23	31.308	13.412	27665.0	0.1067
	9.5	20	105.77 / 129.09	40.07 / 48.21	72.92 / 88.65	20.980	11.966	21795.0	-0.1469
		19	107.95 / 135.29	45.03 / 55.78	76.49 / 95.54	24.243	13.754	23696.4	-0.0878
		18	109.94 / 141.07	49.41 / 62.84	79.68 / 101.96	27.222	14.088	25471.0	-0.0326
		16	114.22 / 153.83	58.38 / 78.54	86.3 / 116.18	33.593	14.088	27665.0	0.1067
4000 PSI Lightweight Concrete (110 PCF)	7.75	20	41.14 / 56.65	21.35 / 29.64	31.25 / 43.14	16.190	8.792	21795.0	-0.1469
		19	42.38 / 60.6	23.76 / 34.56	33.07 / 47.58	18.650	8.792	23696.4	-0.0878
		18	43.51 / 64.28	25.85 / 39.22	34.68 / 51.75	20.880	8.792	25471.0	-0.0326
		16	45.9 / 72.39	30.06 / 49.74	37.98 / 61.07	25.593	8.792	27665.0	0.1067
	8	20	45.08 / 61.65	23.17 / 31.88	34.13 / 46.77	16.875	9.045	21795.0	-0.1469
		19	46.43 / 65.89	25.79 / 37.15	36.11 / 51.52	19.449	9.045	23696.4	-0.0878
		18	47.64 / 69.84	28.08 / 42.13	37.86 / 55.99	21.786	9.045	25471.0	-0.0326
		16	50.22 / 78.54	32.66 / 53.39	41.44 / 65.97	26.736	9.045	27665.0	0.1067
	8.25	20	49.27 / 66.94	25.09 / 34.21	37.18 / 50.58	17.559	9.299	21795.0	-0.1469
		19	50.72 / 71.48	27.93 / 39.85	39.33 / 55.66	20.248	9.299	23696.4	-0.0878
		18	52.03 / 75.7	30.41 / 45.17	41.22 / 60.43	22.692	9.299	25471.0	-0.0326
		16	54.81 / 85.01	35.4 / 57.19	45.1 / 71.1	27.879	9.299	27665.0	0.1067
	8.5	20	53.72 / 72.52	27.09 / 36.63	40.41 / 54.58	18.243	9.552	21795.0	-0.1469
		19	55.28 / 77.36	30.18 / 42.65	42.73 / 60.01	21.047	9.552	23696.4	-0.0878
		18	56.69 / 81.87	32.87 / 48.32	44.78 / 65.1	23.598	9.552	25471.0	-0.0326
		16	59.67 / 91.82	38.28 / 61.13	48.97 / 76.47	29.022	9.552	27665.0	0.1067
	9	20	63.42 / 84.58	31.37 / 41.77	47.39 / 63.17	19.611	9.952	21795.0	-0.1469
		19	65.2 / 90.08	34.97 / 48.57	50.09 / 69.33	22.645	10.059	23696.4	-0.0878
		18	66.83 / 95.19	38.11 / 54.99	52.47 / 75.09	25.410	10.059	25471.0	-0.0326
		16	70.26 / 106.48	44.44 / 69.45	57.35 / 87.96	31.308	10.059	27665.0	0.1067
	9.5	20	74.23 / 97.9	36.01 / 47.27	55.12 / 72.59	20.980	10.205	21795.0	-0.1469
		19	76.27 / 104.09	40.18 / 54.93	58.23 / 79.51	24.243	10.566	23696.4	-0.0878
		18	78.12 / 109.86	43.82 / 62.14	60.97 / 86	27.222	10.566	25471.0	-0.0326
		16	82.05 / 122.57	51.16 / 78.35	66.61 / 100.46	33.593	10.566	27665.0	0.1067

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

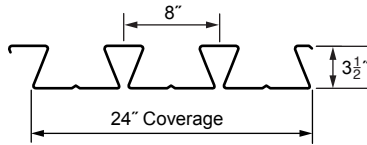
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite

FACTORED SHEAR-BOND STRENGTH OF SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans											
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	2.377	1.833	1.471	1.406	1.240	1.117	1.024	0.953	0.898	0.918	0.891	0.872
	56 PSF	19	3.244	2.555	2.095	1.963	1.744	1.581	1.456	1.358	1.282	1.221	1.174	1.209
	1.43 cu.yd/(100sq.ft)	18	4.125	3.284	2.724	2.324	2.250	2.045	1.887	1.763	1.663	1.584	1.520	1.468
	6x6 - W1.4 x W1.4	16	5.996	4.846	4.080	3.532	3.352	3.062	2.835	2.655	2.509	2.391	2.293	2.213
	5.75"	20	2.522	1.946	1.736	1.490	1.314	1.183	1.083	1.008	0.950	0.970	0.941	0.920
	59 PSF	19	3.443	2.711	2.223	2.081	1.849	1.675	1.542	1.438	1.357	1.292	1.241	1.277
	1.5 cu.yd/(100sq.ft)	18	4.377	3.486	2.891	2.467	2.386	2.168	1.999	1.867	1.762	1.677	1.609	1.553
	6x6 - W1.4 x W1.4	16	6.363	5.143	4.330	3.749	3.555	3.246	3.005	2.814	2.659	2.533	2.429	2.343
	6"	20	2.668	2.058	1.835	1.575	1.387	1.248	1.143	1.063	1.065	1.022	0.991	0.969
	62 PSF	19	3.642	2.868	2.352	2.199	1.953	1.769	1.628	1.518	1.432	1.363	1.309	1.346
	1.58 cu.yd/(100sq.ft)	18	4.630	3.687	3.058	2.609	2.521	2.290	2.112	1.972	1.860	1.770	1.697	1.719
	6x6 - W1.4 x W1.4	16	6.731	5.440	4.580	3.965	3.757	3.431	3.175	2.972	2.808	2.675	2.564	2.473
	6.5"	20	2.959	2.283	2.032	1.743	1.535	1.380	1.263	1.173	1.174	1.126	1.091	1.066
	68 PSF	19	4.039	3.181	2.608	2.435	2.162	1.957	1.800	1.678	1.581	1.505	1.526	1.484
	1.74 cu.yd/(100sq.ft)	18	5.136	4.090	3.392	3.132	2.792	2.535	2.337	2.181	2.056	1.956	1.875	1.897
	6x6 - W1.4 x W1.4	16	7.465	6.034	5.080	4.398	4.163	3.799	3.516	3.290	3.108	2.959	2.836	2.734
	7"	20	3.251	2.507	2.229	1.911	1.682	1.512	1.383	1.353	1.283	1.230	1.191	1.163
	74 PSF	19	4.437	3.494	3.084	2.672	2.371	2.146	1.973	1.838	1.731	1.647	1.668	1.621
	1.89 cu.yd/(100sq.ft)	18	5.641	4.492	3.726	3.436	3.063	2.780	2.562	2.390	2.252	2.142	2.141	2.075
	6x6 - W2.0 x W2.0	16	8.200	6.628	5.580	4.831	4.568	4.168	3.856	3.608	3.407	3.242	3.107	2.995
	7.5"	20	3.542	2.732	2.426	2.080	1.830	1.644	1.570	1.469	1.392	1.334	1.291	1.259
	80 PSF	19	4.835	3.807	3.358	2.908	2.580	2.334	2.145	1.998	1.881	1.877	1.810	1.759
	2.04 cu.yd/(100sq.ft)	18	6.147	4.895	4.060	3.741	3.334	3.025	2.787	2.599	2.449	2.328	2.326	2.253
	6x6 - W2.0 x W2.0	16	8.935	7.222	6.080	5.264	4.973	4.537	4.197	3.925	3.706	3.526	3.378	3.255
4000 PSI Lightweight Concrete (110 PCF)	5.5"	20	2.377	1.833	1.471	1.362	1.189	1.060	0.960	0.883	0.822	0.774	0.735	0.761
	42 PSF	19	3.244	2.555	2.095	1.766	1.694	1.524	1.392	1.289	1.206	1.139	1.085	1.041
	1.43 cu.yd/(100sq.ft)	18	4.125	3.284	2.724	2.324	2.200	1.989	1.824	1.693	1.588	1.502	1.431	1.373
	6x6 - W1.4 x W1.4	16	5.996	4.846	4.080	3.532	3.122	3.005	2.772	2.585	2.433	2.309	2.205	2.118
	5.75"	20	2.522	1.946	1.561	1.444	1.260	1.123	1.017	0.934	0.870	0.818	0.777	0.803
	45 PSF	19	3.443	2.711	2.223	1.875	1.795	1.615	1.475	1.365	1.277	1.206	1.148	1.101
	1.5 cu.yd/(100sq.ft)	18	4.377	3.486	2.891	2.467	2.333	2.108	1.933	1.794	1.682	1.590	1.515	1.454
	6x6 - W1.4 x W1.4	16	6.363	5.143	4.330	3.749	3.313	3.186	2.939	2.740	2.579	2.446	2.336	2.243
	6"	20	2.668	2.058	1.651	1.526	1.331	1.185	1.073	0.986	0.917	0.862	0.819	0.846
	47 PSF	19	3.642	2.868	2.352	1.983	1.897	1.706	1.558	1.441	1.347	1.272	1.211	1.161
	1.58 cu.yd/(100sq.ft)	18	4.630	3.687	3.058	2.609	2.465	2.227	2.042	1.895	1.776	1.679	1.599	1.534
	6x6 - W1.4 x W1.4	16	6.731	5.440	4.580	3.965	3.701	3.367	3.105	2.895	2.724	2.584	2.466	2.368
	6.5"	20	2.959	2.283	1.831	1.689	1.473	1.311	1.186	1.089	1.012	0.951	0.965	0.930
	52 PSF	19	4.039	3.181	2.608	2.381	2.101	1.888	1.723	1.593	1.489	1.405	1.337	1.281
	1.74 cu.yd/(100sq.ft)	18	5.136	4.090	3.392	2.894	2.730	2.466	2.260	2.096	1.964	1.856	1.767	1.694
	6x6 - W1.4 x W1.4	16	7.465	6.034	5.080	4.398	4.101	3.730	3.439	3.205	3.015	2.859	2.728	2.619
	7"	20	3.251	2.507	2.012	1.853	1.615	1.436	1.299	1.192	1.107	1.102	1.053	1.015
	56 PSF	19	4.437	3.494	2.865	2.613	2.304	2.070	1.889	1.746	1.631	1.538	1.463	1.474
	1.89 cu.yd/(100sq.ft)	18	5.641	4.492	3.726	3.179	2.996	2.705	2.478	2.298	2.152	2.033	1.935	1.854
	6x6 - W2.0 x W2.0	16	8.200	6.628	5.580	4.831	4.501	4.093	3.773	3.516	3.306	3.134	2.990	2.869
	7.5"	20	3.542	2.732	2.372	2.016	1.757	1.562	1.412	1.295	1.202	1.196	1.142	1.100
	61 PSF	19	4.835	3.807	3.122	2.844	2.508	2.253	2.054	1.898	1.772	1.671	1.588	1.599
	2.04 cu.yd/(100sq.ft)	18	6.147	4.895	4.060	3.464	3.261	2.944	2.696	2.499	2.340	2.210	2.103	2.014
	6x6 - W2.0 x W2.0	16	8.935	7.222	6.080	5.264	4.901	4.456	4.106	3.826	3.597	3.409	3.251	3.119

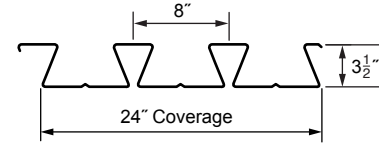
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite

FACTORED SHEAR-BOND STRENGTH OF SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

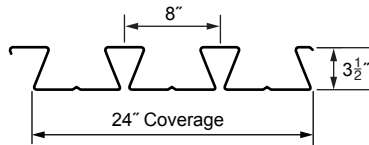
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans											
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	7.75"	20	3.688	2.844	2.525	2.164	1.903	1.709	1.633	1.527	1.446	1.386	1.341	1.375
	83 PSF	19	5.033	3.964	3.495	3.026	2.685	2.428	2.231	2.077	1.956	1.951	1.881	1.827
	2.12 cu.yd/(100sq.ft)	18	6.399	5.096	4.227	3.893	3.469	3.148	2.899	2.703	2.547	2.421	2.418	2.342
	6x6 - W2.0 x W2.0	16	9.302	7.519	6.330	5.771	5.176	4.722	4.367	4.084	3.855	3.668	3.514	3.386
	8"	20	3.833	2.957	2.624	2.248	1.977	1.775	1.695	1.585	1.501	1.438	1.391	1.426
	86 PSF	19	5.232	4.120	3.632	3.144	2.789	2.522	2.317	2.157	2.031	2.025	1.953	1.896
	2.2 cu.yd/(100sq.ft)	18	6.652	5.297	4.394	4.046	3.604	3.270	3.012	2.808	2.645	2.514	2.510	2.431
	4x4 - W1.4 x W1.4	16	9.669	7.815	6.579	5.997	5.378	4.906	4.537	4.243	4.005	3.810	3.650	3.627
	8.25"	20	3.979	3.286	2.722	2.332	2.051	1.909	1.757	1.643	1.555	1.490	1.507	1.476
	89 PSF	19	5.431	4.277	3.769	3.262	2.894	2.617	2.404	2.237	2.196	2.099	2.024	1.965
	2.28 cu.yd/(100sq.ft)	18	6.905	5.498	4.561	4.198	3.740	3.393	3.124	2.912	2.743	2.705	2.602	2.519
	6x6 - W2.9 x W2.9	16	10.037	8.112	6.829	6.224	5.581	5.091	4.707	4.402	4.155	3.952	3.785	3.761
	92 PSF	20	4.125	3.405	2.821	2.417	2.124	1.977	1.820	1.700	1.610	1.542	1.560	1.527
	2.35 cu.yd/(100sq.ft)	19	5.630	4.433	3.905	3.381	2.998	2.711	2.490	2.317	2.274	2.174	2.095	2.034
	6x6 - W2.9 x W2.9	18	7.157	5.700	4.999	4.350	3.875	3.515	3.237	3.017	2.841	2.801	2.694	2.608
	9"	16	10.404	8.409	7.079	6.450	5.783	5.275	4.878	4.561	4.304	4.094	3.921	3.895
	98 PSF	20	4.416	3.644	3.018	2.585	2.272	2.113	1.944	1.816	1.719	1.714	1.664	1.629
	2.51 cu.yd/(100sq.ft)	19	6.027	4.746	4.179	3.617	3.207	2.899	2.662	2.568	2.430	2.322	2.237	2.171
	6x6 - W2.9 x W2.9	18	7.663	6.102	5.350	4.655	4.146	3.760	3.462	3.226	3.038	2.994	2.878	2.786
	9.5"	16	11.139	9.003	7.579	6.903	6.189	5.644	5.218	4.878	4.603	4.378	4.192	4.163
	104 PSF	20	4.707	3.883	3.216	2.753	2.489	2.249	2.069	1.932	1.828	1.822	1.768	1.730
	2.66 cu.yd/(100sq.ft)	19	6.425	5.059	4.453	3.853	3.416	3.087	2.835	2.733	2.586	2.470	2.379	2.309
	6x6 - W2.9 x W2.9	18	8.168	6.505	5.701	4.960	4.417	4.005	3.687	3.435	3.234	3.186	3.063	2.964
		16	11.874	9.597	8.079	7.355	6.594	6.013	5.558	5.196	4.902	4.662	4.588	4.431
4000 PSI Lightweight Concrete (110 PCF)	7.75"	20	3.688	2.844	2.469	2.098	1.828	1.625	1.469	1.346	1.314	1.242	1.186	1.142
	63 PSF	19	5.033	3.964	3.250	2.960	2.609	2.344	2.137	1.974	1.843	1.738	1.651	1.662
	2.12 cu.yd/(100sq.ft)	18	6.399	5.096	4.227	3.606	3.394	3.063	2.805	2.600	2.434	2.299	2.187	2.176
	6x6 - W2.0 x W2.0	16	9.302	7.519	6.330	5.480	5.100	4.637	4.273	3.981	3.743	3.546	3.382	3.245
	8"	20	3.833	2.957	2.565	2.180	1.899	1.688	1.525	1.398	1.364	1.289	1.231	1.185
	65 PSF	19	5.232	4.120	3.379	3.076	2.711	2.435	2.220	2.050	1.914	1.804	1.793	1.725
	2.2 cu.yd/(100sq.ft)	18	6.652	5.297	4.394	3.978	3.526	3.183	2.914	2.701	2.528	2.387	2.271	2.259
	4x4 - W1.4 x W1.4	16	9.669	7.815	6.579	5.697	5.300	4.818	4.440	4.136	3.888	3.684	3.513	3.370
	8.25"	20	3.979	3.069	2.662	2.262	1.970	1.750	1.581	1.449	1.414	1.336	1.275	1.227
	68 PSF	19	5.431	4.277	3.507	3.192	2.813	2.526	2.303	2.126	1.985	1.870	1.858	1.788
	2.28 cu.yd/(100sq.ft)	18	6.905	5.498	4.561	4.128	3.659	3.302	3.023	2.801	2.622	2.476	2.355	2.342
	6x6 - W2.9 x W2.9	16	10.037	8.112	6.829	5.913	5.500	5.000	4.606	4.291	4.034	3.821	3.644	3.495
	8.5"	20	4.125	3.181	2.758	2.344	2.041	1.813	1.638	1.566	1.463	1.383	1.319	1.270
	70 PSF	19	5.630	4.433	3.635	3.308	2.915	2.617	2.386	2.203	2.056	1.937	1.924	1.850
	2.35 cu.yd/(100sq.ft)	18	7.157	5.700	4.728	4.277	3.792	3.422	3.132	2.902	2.716	2.564	2.439	2.425
	6x6 - W2.9 x W2.9	16	10.404	8.409	7.079	6.129	5.700	5.181	4.773	4.446	4.179	3.959	3.775	3.620
	9"	20	4.416	3.406	2.952	2.507	2.183	1.939	1.751	1.673	1.563	1.476	1.408	1.354
	74 PSF	19	6.027	4.746	4.112	3.539	3.118	2.799	2.551	2.355	2.197	2.070	2.055	1.976
	2.51 cu.yd/(100sq.ft)	18	7.663	6.102	5.062	4.577	4.057	3.660	3.351	3.104	2.904	2.741	2.696	2.591
	6x6 - W2.9 x W2.9	16	11.139	9.003	7.579	6.562	6.100	5.544	5.107	4.756	4.470	4.234	4.037	3.871
	9.5"	20	4.707	3.631	3.145	2.671	2.325	2.064	1.931	1.780	1.662	1.570	1.497	1.439
	79 PSF	19	6.425	5.059	4.382	3.771	3.322	2.981	2.717	2.507	2.339	2.290	2.186	2.101
	2.66 cu.yd/(100sq.ft)	18	8.168	6.505	5.396	4.877	4.322	3.899	3.569	3.305	3.092	2.918	2.869	2.757
	6x6 - W2.9 x W2.9	16	11.874	9.597	8.079	6.995	6.499	5.907	5.440	5.066	4.761	4.509	4.298	4.121

NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.

Versa-Dek® 3.5 LS Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
4000 PSI Normal-Weight Concrete (145 PCF)	5.5	18	5@11	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	5@6	5@6	5@7
		22	5@7	5@8	5@9	-	6@7	5@6
		24	5@6	5@7	5@7	-	-	-
	5.75	20	5@9	5@11	4@8	5@6	5@7	5@8
		22	5@7	5@8	5@9	6@7	6@8	5@6
		24	5@6	5@7	5@8	-	-	6@7
		26	6@7	5@6	5@6	-	-	-
	6	20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@6	5@7	5@8	-	6@6	6@7
		26	6@7	5@6	5@7	-	-	-
	6.5	18	4@8	4@9	4@10	5@9	5@10	5@11
		22	5@8	5@9	5@11	6@8	5@6	5@7
		26	5@6	5@6	5@7	-	6@6	6@7
		30	6@6	6@6	6@7	-	-	-
	7	18	4@9	4@10	4@10	5@9	5@11	4@8
		22	5@9	5@10	5@11	5@6	5@7	5@7
		26	5@6	5@7	5@8	6@6	6@6	6@7
		30	6@6	6@7	6@8	-	-	4@2
	7.5	18	5@9	5@11	4@7	5@10	5@11	4@8
		22	5@9	5@11	4@7	5@6	5@7	5@8
		26	5@6	5@7	5@8	6@6	6@7	6@8
		30	6@7	6@7	5@6	-	6@5	6@5
4000 PSI Lightweight Concrete (110 PCF)	5.5	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	-	6@8	5@6
		24	5@7	5@7	5@8	-	-	6@7
	5.75	20	5@11	4@8	4@8	5@6	5@7	5@8
		22	5@8	5@10	5@11	6@7	5@6	5@7
		24	5@7	5@8	5@9	-	6@7	6@7
		26	5@6	5@6	5@7	-	-	-
	6	20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	6@8	5@6	5@7
		24	5@7	5@8	5@9	-	6@7	5@6
		26	5@6	5@7	5@8	-	-	6@6
	6.5	18	4@10	4@11	4@11	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@6	5@7	5@8
		26	5@7	5@7	5@8	6@6	6@6	6@7
		30	6@7	6@7	5@6	-	-	-
	7	18	5@10	4@7	4@8	5@10	4@7	4@8
		22	5@10	4@7	4@8	5@7	5@7	5@8
		26	5@7	5@8	5@9	6@6	6@7	5@6
		30	6@7	5@6	5@6	-	-	6@6
	7.5	18	5@11	4@8	4@9	5@11	4@8	4@9
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@8	5@6	5@7	6@5	6@5	6@6

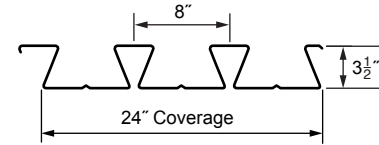
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.



Versa-Dek® 3.5 LS Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

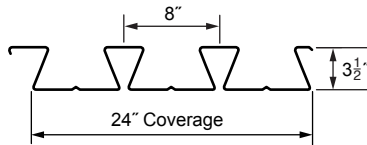
	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
4000 PSI Normal-Weight Concrete (145 PCF)	7.75	18	5@10	5@11	4@8	5@10	4@7	4@8
		22	5@10	5@11	4@8	5@7	5@7	5@8
		26	5@7	5@7	5@8	6@6	6@7	5@6
		30	6@7	6@8	5@6	4@2	6@5	6@6
	8	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@8	6@7	6@7	5@6
		30	6@7	6@8	5@6	6@5	6@5	6@6
	8.25	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@6	6@5	6@5	6@6
	8.5	18	5@10	4@7	4@8	5@11	4@8	4@8
		22	5@10	4@7	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@6	6@5	6@6	6@6
	9	18	5@11	4@8	4@8	4@7	4@7	4@7
		22	5@11	4@8	4@8	5@8	5@8	5@9
		26	5@7	5@8	5@9	6@7	5@6	5@6
		30	6@8	5@6	5@7	6@5	6@6	6@7
	9.5	18	5@11	5@11	5@11	5@8	5@9	5@10
		22	5@11	5@11	5@11	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	6@8	5@6	5@7	6@5	6@6	6@7
4000 PSI Lightweight Concrete (110 PCF)	7.75	18	5@11	4@8	4@9	5@11	4@8	4@8
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	6@8	5@6	5@7	6@5	6@6	6@6
	8	18	5@11	4@8	4@8	4@8	4@8	4@8
		22	5@11	4@8	4@8	5@8	5@9	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	5@6	5@6	5@7	6@5	6@6	6@7
	8.25	18	4@7	4@7	4@7	4@8	4@8	4@8
		22	4@7	4@7	4@7	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@7	6@5	6@6	6@7
	8.5	18	4@8	4@8	4@8	4@8	4@8	4@8
		22	4@8	4@8	4@8	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@8	6@6	6@6	6@7
	9	18	5@9	5@10	5@11	5@8	5@9	5@11
		22	5@9	5@10	5@11	5@8	5@9	5@11
		26	5@9	5@10	5@11	5@6	5@7	5@7
		30	5@6	5@7	5@8	6@6	6@7	6@8
	9.5	18	5@9	5@10	5@11	5@9	5@10	5@11
		22	5@9	5@10	5@11	5@9	5@10	5@11
		26	5@9	5@10	5@11	5@6	5@7	5@8
		30	5@6	5@7	5@8	6@6	6@7	6@8

NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

Versa-Dek® 3.5 LS Composite

MAXIMUM DESIGN NEGATIVE MOMENT CAPACITY OF COMPOSITE SLABS



4000 PSI OF ANY DENSITY

	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		5.5	5.75	6	6.5	7	7.5
4000 PSI of Any Density	4@12	3.874	4.099	4.324	-	-	-
	4@10	4.606	4.876	5.146	5.686	6.226	-
	4@8	5.678	6.015	6.353	7.028	7.703	8.378
	4@6	7.394	7.844	8.294	9.194	10.094	10.994
	5@12	5.766	6.115	6.464	7.161	7.859	8.556
	5@10	6.818	7.236	7.655	8.492	9.329	10.166
	5@8	8.332	8.855	9.378	10.424	11.470	12.517
	5@6	10.685	11.382	12.080	13.475	14.870	16.265
	6@12	7.808	8.303	8.798	9.788	10.778	11.768
	6@10	9.165	9.759	10.353	11.541	12.729	13.917
	6@8	11.072	11.814	12.557	14.042	15.527	17.012
	6@6	-	-	-	-	19.849	21.829
	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		7.75	8	8.25	8.5	9	9.5
4000 PSI of Any Density	4@12	-	-	-	-	-	-
	4@10	-	-	-	-	-	-
	4@8	8.715	9.053	9.390	9.728	10.403	-
	4@6	11.444	11.894	12.344	12.794	13.694	14.594
	5@12	8.905	9.254	9.603	9.951	10.649	-
	5@10	10.584	11.003	11.421	11.840	12.677	13.514
	5@8	13.040	13.563	14.086	14.609	15.655	16.702
	5@6	16.962	17.660	18.357	19.055	20.450	21.845
	6@12	12.263	12.758	13.253	13.748	14.738	15.728
	6@10	14.511	15.105	15.699	16.293	17.481	18.669
	6@8	17.754	18.497	19.239	19.982	21.467	22.952
	6@6	22.819	23.809	24.799	25.789	27.769	29.749

NOTES:

- Table is based on Grade 60 ASTM A615 reinforcing bars with 3/4" concrete cover over supports.
- Slab self-weight has not been accounted for in the tabulated moment capacities. It should be included into the loads applied to the slab.

INSTRUCTIONS ON HOW TO SELECT A REINFORCEMENT PATTERN:

Step 1 – Calculate required negative moment capacity, M_{req} , as follows:

$$M_{req, LRFD} = [1.2(W_{slab} + W_D) + 1.6W_L]L^2/C \text{ (LRFD)}$$

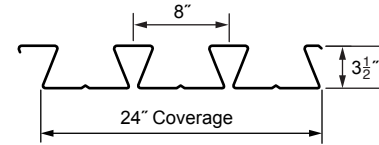
Where: W_D = superimposed dead load, psf; W_L = live load, psf; W_{slab} = slab weight, psf; L = span length taken as the average of the adjacent span lengths (spans shall be approximately equal with the larger of two adjacent spans not greater than the shorter by more than 20%), ft; $M_{req, LRFD}$ = required LRFD factored negative moment capacity, lb-ft/ft deck width; C = negative bending coefficient (9 for interior support of two span continuous composite slab; 10 for first interior support of composite slab continuous over more than two spans; 11 for other interior supports of composite slab continuous over more than two spans).

Step 2 – Select reinforcement size and spacing from table where $\phi M_n \geq M_{req, LRFD}$ (LRFD).



Versa-Dek® 3.5 LS Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	Negative Moment Steel Reinforcing Required				
			18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"						
5000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	149	94	66	- / 47	-	-	47	-	-	-	-
	56 PSF	19	216	145	87 / 106	43 / 80	- / 61	- / 48	80	61	44 / 48	-	-
	1.43 cu.yd/(100sq.ft)	18	283	207	93 / 147	47 / 113	- / 89	- / 71	113	85 / 89	48 / 71	- / 58	- / 47
	6x6 - W1.4 x W1.4	16	373	250 / 262	106 / 190	56 / 140	- / 105	- / 79	157 / 186	97 / 150	57 / 124	- / 98	- / 77
	5.75"	20	147	100	70	48 / 50	-	-	50	-	-	-	-
	59 PSF	19	229	154	103 / 113	53 / 85	- / 65	- / 51	85	65	51	- / 40	-
	1.5 cu.yd/(100sq.ft)	18	300	219	110 / 156	58 / 120	- / 95	- / 76	120	95	59 / 76	- / 62	- / 50
	6x6 - W1.4 x W1.4	16	406	282 / 286	124 / 207	68 / 154	- / 115	- / 87	182 / 197	114 / 160	69 / 131	- / 108	- / 85
	6"	20	156	106	74	53	-	-	53	-	-	-	-
	62 PSF	19	242	163	120	65 / 90	- / 69	- / 54	90	69	54	- / 42	-
	1.58 cu.yd/(100sq.ft)	18	318	232	128 / 165	70 / 127	- / 100	- / 80	127	100	71 / 80	- / 65	- / 54
	6x6 - W1.4 x W1.4	16	480	316 / 357	144 / 264	81 / 209	40 / 169	- / 139	209	133 / 169	82 / 139	47 / 116	- / 99
	6.5"	20	173	118	83	59	42	-	59	42	-	-	-
	68 PSF	19	269	181	133	91 / 100	47 / 77	- / 60	100	77	60	47	-
	1.74 cu.yd/(100sq.ft)	18	352	245	170 / 183	98 / 141	51 / 111	- / 89	141	111	89	59 / 73	- / 60
	6x6 - W1.4 x W1.4	16	500	393 / 396	189 / 294	111 / 232	61 / 188	- / 155	232	177 / 188	113 / 155	70 / 129	- / 110
	7"	20	190	129	91	65	47	-	65	47	-	-	-
	74 PSF	19	281	199	146	110	69 / 85	- / 66	110	85	66	52	41
	1.89 cu.yd/(100sq.ft)	18	387	269	202	132 / 155	75 / 123	- / 98	155	123	98	80	49 / 66
	6x6 - W2.0 x W2.0	16	500	435	244 / 323	148 / 255	86 / 206	45 / 170	255	206	151 / 170	97 / 142	59 / 121
	7.5"	20	207	141	99	71	49	-	71	49	-	-	-
	80 PSF	19	307	217	159	120	92	50 / 72	120	92	72	57	42
	2.04 cu.yd/(100sq.ft)	18	422	293	220	170	101 / 134	55 / 107	170	134	107	87	71 / 72
	6x6 - W2.0 x W2.0	16	500	474	306 / 352	189 / 278	115 / 225	65 / 185	278	225	185	129 / 155	82 / 132
5000 PSI Lightweight Concrete (110 PCF)	5.5"	20	149	97	61 / 68	- / 49	-	-	49	-	-	-	-
	42 PSF	19	216	156	67 / 109	- / 82	- / 64	- / 50	82	61 / 64	- / 50	- / 40	-
	1.43 cu.yd/(100sq.ft)	18	283	179 / 207	73 / 149	- / 116	- / 91	- / 74	109 / 116	66 / 91	- / 74	- / 60	- / 50
	6x6 - W1.4 x W1.4	16	315 / 384	198 / 272	133 / 200	45 / 151	- / 115	- / 89	125 / 188	78 / 153	46 / 126	- / 106	- / 87
	5.75"	20	158	103	73	- / 52	-	-	52	-	-	-	-
	45 PSF	19	229	165	79 / 116	41 / 88	- / 68	- / 53	88	68	42 / 53	- / 42	-
	1.5 cu.yd/(100sq.ft)	18	300	201 / 219	85 / 158	45 / 123	- / 97	- / 78	123	78 / 97	46 / 78	- / 64	- / 53
	6x6 - W1.4 x W1.4	16	351 / 417	221 / 296	148 / 218	53 / 164	- / 126	- / 98	143 / 200	90 / 162	54 / 134	- / 112	- / 96
	6"	20	167	109	77	45 / 56	- / 41	-	56	41	-	-	-
	47 PSF	19	242	175	92 / 122	50 / 93	- / 72	- / 56	93	72	51 / 56	- / 45	-
	1.58 cu.yd/(100sq.ft)	18	318	225 / 232	99 / 168	54 / 130	- / 103	- / 83	130	91 / 103	55 / 83	- / 68	- / 56
	6x6 - W1.4 x W1.4	16	392 / 480	247 / 357	112 / 267	63 / 212	- / 172	- / 139	163 / 212	104 / 172	64 / 142	- / 119	- / 101
	6.5"	20	186	121	85	62	- / 45	-	62	45	-	-	-
	52 PSF	19	269	184	123 / 136	70 / 103	- / 80	- / 63	103	80	63	41 / 50	- / 40
	1.74 cu.yd/(100sq.ft)	18	352	257	131 / 186	75 / 144	- / 114	- / 92	144	114	77 / 92	45 / 75	- / 62
	6x6 - W1.4 x W1.4	16	485 / 500	305 / 396	147 / 296	86 / 235	47 / 190	- / 157	211 / 235	137 / 190	88 / 157	54 / 132	- / 112
	7"	20	204	133	94	68	47 / 50	-	68	50	-	-	-
	56 PSF	19	295	202	149	94 / 113	52 / 88	- / 69	113	88	69	55	- / 44
	1.89 cu.yd/(100sq.ft)	18	387	283	169 / 205	101 / 159	57 / 126	- / 101	159	126	101	65 / 83	- / 69
	6x6 - W2.0 x W2.0	16	500	375 / 435	189 / 326	114 / 258	67 / 209	- / 173	258	177 / 209	117 / 173	75 / 145	45 / 124
	7.5"	20	211	145	103	74	54	- / 40	74	54	40	-	-
	61 PSF	19	321	220	163	122 / 124	71 / 96	- / 76	124	96	76	60	48
	2.04 cu.yd/(100sq.ft)	18	422	308	213 / 223	130 / 173	77 / 137	42 / 111	173	137	111	87 / 91	54 / 75
	6x6 - W2.0 x W2.0	16	500	453 / 474	237 / 355	146 / 281	89 / 228	50 / 189	281	223 / 228	150 / 189	100 / 159	63 / 135

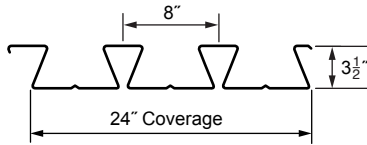
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	7.75" 83 PSF 2.12 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	216	147	103	74	51	-	-	-	-	-	-
		19	319	226	166	125	96	60 / 75	75	59	44	-	-
		18	439	305	229	177	116 / 139	65 / 112	112	91	75	51 / 59	- / 49
		16	500	478	341 / 366	213 / 290	131 / 234	76 / 193	193	147 / 162	95 / 137	58 / 117	- / 101
	8" 86 PSF 2.2 cu.yd/(100sq.ft) 4x4 - W1.4 x W1.4	20	225	153	107	77	53	-	-	-	-	-	-
		19	332	235	173	130	100	71 / 78	78	62	46	-	-
		18	456	318	238	184	132 / 145	76 / 116	116	95	78	61 / 62	- / 51
		16	500	497	378 / 381	238 / 301	148 / 244	88 / 201	201	166 / 168	110 / 143	69 / 122	41 / 103
	8.25" 89 PSF 2.28 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	233	159	112	77	55	-	-	-	-	-	-
		19	345	244	179	135	104	81	81	61	48	-	-
		18	474	330	247	191	150	90 / 121	121	98	78	64	42 / 53
		16	500	500	395	266 / 313	168 / 253	103 / 209	209	175	126 / 148	81 / 127	51 / 107
	8.5" 92 PSF 2.35 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	242	165	116	80	57	40	40	-	-	-	-
		19	357	253	186	140	108	84	84	63	50	-	-
		18	474	342	256	198	156	103 / 125	125	102	81	67	51 / 55
		16	500	500	410	295 / 324	188 / 262	117 / 216	216	181	143 / 153	94 / 132	61 / 111
	9" 98 PSF 2.51 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	259	177	124	86	61	43	43	-	-	-	-
		19	383	271	199	150	116	87	87	68	53	42	-
		18	500	366	275	212	167	132 / 134	134	109	87	71	59
		16	500	500	439	347	232 / 281	148 / 232	232	194	164	122 / 141	82 / 119
	9.5" 104 PSF 2.66 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	276	188	129	92	65	46	46	-	-	-	-
		19	408	289	212	160	124	93	93	73	57	45	-
		18	500	390	293	226	178	143	143	117	93	76	63
		16	500	500	468	370	280 / 300	183 / 247	247	207	175	147	107 / 127
5000 PSI Lightweight Concrete (110 PCF)	7.75" 63 PSF 2.12 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	220	151	107	77	57	40 / 42	42	-	-	-	-
		19	335	230	170	129	82 / 100	45 / 79	79	63	50	- / 41	-
		18	439	321	232	146 / 180	88 / 143	49 / 115	115	94	63 / 78	- / 65	- / 53
		16	500	493	263 / 370	164 / 293	101 / 238	59 / 197	168 / 197	113 / 165	74 / 141	45 / 121	- / 105
	8" 65 PSF 2.2 cu.yd/(100sq.ft) 4x4 - W1.4 x W1.4	20	228	157	111	81	59	44	44	-	-	-	-
		19	348	239	176	134	94 / 104	53 / 82	82	65	52	40	-
		18	456	321	242	164 / 187	100 / 149	58 / 120	120	98	73 / 81	44 / 68	- / 55
		16	500	500	291 / 385	183 / 305	114 / 247	68 / 204	188 / 204	128 / 172	85 / 146	53 / 126	- / 109
	8.25" 68 PSF 2.28 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	237	163	115	84	61	45	45	-	-	-	-
		19	361	248	183	139	108	63 / 85	85	68	54	42	-
		18	474	333	251	184 / 195	115 / 154	68 / 125	125	102	85	53 / 71	- / 57
		16	500	500	324 / 399	205 / 316	130 / 257	79 / 212	211 / 212	145 / 178	97 / 152	63 / 131	- / 113
	8.5" 70 PSF 2.35 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	246	169	120	87	64	45	45	-	-	-	-
		19	374	257	190	144	112	72 / 88	88	70	57	43	-
		18	491	346	260	202	129 / 160	78 / 129	129	106	88	61 / 73	- / 60
		16	500	500	355 / 414	227 / 328	145 / 266	90 / 220	220	161 / 185	110 / 157	72 / 135	44 / 118
	9" 74 PSF 2.51 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	263	181	128	93	68	48	48	-	-	-	-
		19	387	275	203	155	120	93 / 95	95	75	61	47	-
		18	500	370	279	216	159 / 171	100 / 138	138	113	94	76	53 / 64
		16	500	500	425 / 443	274 / 351	178 / 285	114 / 236	236	198	138 / 169	93 / 145	60 / 126
	9.5" 79 PSF 2.66 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	281	193	137	99	70	51	51	-	-	-	-
		19	413	294	217	165	128	101	101	80	62	50	40
		18	500	395	297	230	183	124 / 148	148	121	100	81	68
		16	500	500	473	327 / 375	215 / 304	141 / 251	251	211	169 / 180	117 / 155	79 / 134

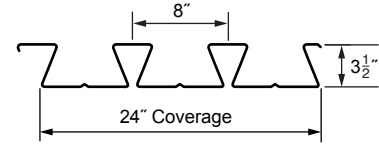
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

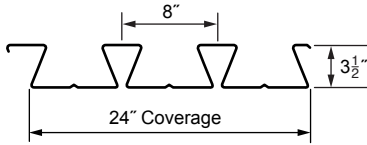
	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
5000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	17' - 1"	17' - 1"	20' - 6"	13' - 6"	13' - 6"	16' - 2"
		19	18' - 2" / 20' - 10"	20' - 10"	25' - 1"	16' - 2"	16' - 2"	19' - 5"
		18	18' - 5" / 24' - 4"	22' - 9" / 24' - 6"	27' - 3" / 29' - 5"	17' - 6" / 18' - 9"	18' - 9"	22' - 5"
		16	18' - 10" / 24' - 5"	23' - 4" / 28' - 8"	28' - 0" / 30' - 5"	18' - 0" / 20' - 1"	22' - 3" / 23' - 7"	25' - 0"
	5.75	20	17' - 5"	17' - 5"	20' - 11"	13' - 10"	13' - 10"	16' - 7"
		19	18' - 9" / 21' - 4"	21' - 4"	25' - 8"	16' - 7"	16' - 7"	19' - 11"
		18	18' - 11" / 25' - 0"	23' - 5" / 25' - 2"	28' - 1" / 30' - 2"	18' - 1" / 19' - 3"	19' - 3"	23' - 1"
		16	19' - 5" / 25' - 2"	24' - 0" / 29' - 6"	28' - 10" / 31' - 9"	18' - 7" / 20' - 9"	22' - 11" / 24' - 4"	26' - 2"
	6	20	17' - 9"	17' - 9"	21' - 4"	14' - 1"	14' - 1"	16' - 11"
		19	19' - 3" / 21' - 10"	21' - 10"	26' - 2"	17' - 0"	17' - 0"	20' - 5"
		18	19' - 6" / 25' - 9"	24' - 1" / 25' - 9"	28' - 11" / 30' - 10"	18' - 8" / 19' - 8"	19' - 8"	23' - 8"
		16	20' - 0" / 26' - 11"	24' - 9" / 31' - 4"	29' - 8" / 33' - 1"	19' - 2" / 24' - 4"	23' - 8" / 25' - 4"	27' - 4"
	6.5	20	18' - 5"	18' - 5"	22' - 1"	14' - 8"	14' - 8"	17' - 8"
		19	20' - 4" / 22' - 9"	22' - 9"	27' - 3"	17' - 9"	17' - 9"	21' - 4"
		18	20' - 7" / 26' - 10"	25' - 6" / 26' - 10"	30' - 7" / 32' - 2"	19' - 9" / 20' - 8"	20' - 8"	24' - 9"
		16	21' - 1" / 28' - 4"	26' - 1" / 33' - 9"	31' - 4" / 35' - 7"	20' - 3" / 25' - 6"	25' - 0" / 26' - 8"	29' - 8"
	7	20	19' - 0"	19' - 0"	22' - 10"	15' - 3"	15' - 3"	18' - 3"
		19	21' - 6" / 23' - 6"	23' - 6"	28' - 3"	18' - 5"	18' - 5"	22' - 2"
		18	21' - 9" / 27' - 10"	26' - 10" / 27' - 10"	32' - 3" / 33' - 5"	20' - 10" / 21' - 6"	21' - 6"	25' - 10"
		16	22' - 3" / 29' - 9"	27' - 6" / 36' - 1"	33' - 0" / 38' - 1"	21' - 4" / 26' - 6"	26' - 5" / 27' - 11"	31' - 8" / 31' - 11"
	7.5	20	19' - 7"	19' - 7"	23' - 5"	15' - 9"	15' - 9"	18' - 11"
		19	22' - 6" / 24' - 3"	24' - 3"	29' - 1"	19' - 1"	19' - 1"	22' - 11"
		18	22' - 10" / 28' - 4"	28' - 2" / 28' - 4"	33' - 10" / 34' - 0"	21' - 11" / 22' - 4"	22' - 4"	26' - 9"
		16	23' - 4" / 31' - 1"	28' - 10" / 38' - 1"	34' - 7" / 40' - 5"	22' - 5" / 27' - 5"	27' - 9" / 29' - 1"	33' - 3" / 34' - 1"
5000 PSI Lightweight Concrete (110 PCF)	5.5	20	17' - 2" / 17' - 4"	17' - 4"	20' - 9"	13' - 7"	13' - 7"	16' - 4"
		19	17' - 6" / 21' - 3"	21' - 3"	25' - 6"	16' - 4"	16' - 4"	19' - 7"
		18	17' - 9" / 24' - 1"	21' - 11" / 24' - 11"	26' - 4" / 29' - 11"	16' - 10" / 18' - 11"	18' - 11"	22' - 8"
		16	18' - 4" / 25' - 3"	22' - 8" / 30' - 3"	27' - 2" / 32' - 1"	17' - 4" / 20' - 10"	21' - 5" / 24' - 3"	25' - 9" / 25' - 10"
	5.75	20	17' - 8"	17' - 8"	21' - 3"	13' - 11"	13' - 11"	16' - 9"
		19	18' - 0" / 21' - 9"	21' - 9"	26' - 1"	16' - 9"	16' - 9"	20' - 1"
		18	18' - 4" / 24' - 11"	22' - 7" / 25' - 7"	27' - 2" / 30' - 9"	17' - 4" / 19' - 5"	19' - 5"	23' - 4"
		16	18' - 10" / 26' - 2"	23' - 3" / 31' - 2"	27' - 11" / 33' - 6"	17' - 10" / 21' - 6"	22' - 1" / 25' - 0"	26' - 6" / 27' - 2"
	6	20	18' - 1"	18' - 1"	21' - 8"	14' - 3"	14' - 3"	17' - 1"
		19	18' - 7" / 22' - 3"	22' - 3"	26' - 8"	17' - 2"	17' - 2"	20' - 7"
		18	18' - 10" / 25' - 7"	23' - 3" / 26' - 3"	27' - 11" / 31' - 6"	17' - 11" / 19' - 11"	19' - 11"	23' - 11"
		16	19' - 4" / 27' - 0"	23' - 11" / 33' - 2"	28' - 8" / 34' - 11"	18' - 5" / 24' - 2"	22' - 9" / 25' - 8"	27' - 3" / 28' - 5"
	6.5	20	18' - 9"	18' - 9"	22' - 6"	14' - 10"	14' - 10"	17' - 10"
		19	19' - 8" / 23' - 2"	23' - 2"	27' - 9"	17' - 11"	17' - 11"	21' - 6"
		18	19' - 11" / 27' - 0"	24' - 7" / 27' - 5"	29' - 4" / 32' - 11"	19' - 0" / 20' - 11"	20' - 11"	25' - 1"
		16	20' - 5" / 28' - 5"	25' - 3" / 35' - 2"	30' - 4" / 37' - 9"	19' - 6" / 25' - 6"	24' - 1" / 27' - 1"	28' - 11" / 30' - 10"
	7	20	19' - 4"	19' - 4"	23' - 3"	15' - 5"	15' - 5"	18' - 6"
		19	20' - 9" / 24' - 0"	24' - 0"	28' - 10"	18' - 8"	18' - 8"	22' - 5"
		18	21' - 0" / 28' - 4"	26' - 0" / 28' - 6"	31' - 2" / 34' - 2"	20' - 0" / 21' - 9"	21' - 9"	26' - 2"
		16	21' - 7" / 29' - 10"	26' - 8" / 36' - 10"	32' - 0" / 40' - 6"	20' - 7" / 26' - 10"	25' - 5" / 28' - 4"	30' - 6" / 33' - 3"
	7.5	20	19' - 11"	19' - 11"	23' - 11"	15' - 11"	15' - 11"	19' - 1"
		19	21' - 9" / 24' - 10"	24' - 10"	29' - 9"	19' - 4"	19' - 4"	23' - 3"
		18	22' - 1" / 29' - 6"	27' - 3" / 29' - 6"	32' - 9" / 35' - 5"	21' - 1" / 22' - 8"	22' - 8"	27' - 2"
		16	22' - 8" / 31' - 1"	28' - 0" / 38' - 6"	33' - 7" / 43' - 2"	21' - 8" / 28' - 1"	26' - 9" / 29' - 7"	32' - 1" / 35' - 6"

NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

Versa-Dek® 3.5 LS Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
5000 PSI Normal-Weight Concrete (145 PCF)	7.75	20	19' - 6"	19' - 6"	23' - 5"	16' - 0"	16' - 0"	19' - 2"
		19	23' - 1" / 24' - 7"	24' - 7"	29' - 7"	19' - 5"	19' - 5"	23' - 4"
		18	23' - 4" / 28' - 9"	28' - 9"	34' - 6"	22' - 5" / 22' - 9"	22' - 9"	27' - 3"
		16	23' - 10" / 31' - 9"	29' - 6" / 38' - 7"	35' - 4" / 41' - 7"	23' - 0" / 27' - 10"	28' - 5" / 29' - 8"	34' - 1" / 35' - 2"
	8	20	19' - 9"	19' - 9"	23' - 8"	16' - 2"	16' - 2"	19' - 5"
		19	23' - 7" / 24' - 7"	24' - 7"	29' - 6"	19' - 9"	19' - 9"	23' - 8"
		18	23' - 10" / 29' - 2"	29' - 2"	35' - 0"	22' - 11" / 23' - 1"	23' - 1"	27' - 9"
		16	24' - 5" / 32' - 4"	30' - 2" / 39' - 1"	36' - 2" / 42' - 9"	23' - 6" / 28' - 3"	29' - 0" / 29' - 10"	34' - 10" / 35' - 10"
	8.25	20	20' - 0"	20' - 0"	24' - 0"	16' - 5"	16' - 5"	19' - 9"
		19	24' - 2" / 24' - 10"	24' - 10"	29' - 10"	20' - 0"	20' - 0"	24' - 0"
		18	24' - 5" / 29' - 7"	29' - 7"	35' - 6"	23' - 6"	23' - 6"	28' - 2"
		16	24' - 11" / 33' - 0"	30' - 10" / 39' - 6"	37' - 0" / 43' - 10"	24' - 1" / 28' - 7"	29' - 9" / 30' - 5"	35' - 8" / 36' - 6"
	8.5	20	20' - 2"	20' - 2"	24' - 3"	16' - 8"	16' - 8"	20' - 0"
		19	24' - 8" / 25' - 2"	25' - 2"	30' - 2"	20' - 4"	20' - 4"	24' - 5"
		18	24' - 11" / 30' - 0"	30' - 0"	36' - 0"	23' - 10"	23' - 10"	28' - 7"
		16	25' - 5" / 33' - 8"	31' - 5" / 39' - 11"	37' - 9" / 45' - 0"	24' - 7" / 29' - 0"	30' - 4" / 30' - 11"	36' - 5" / 37' - 1"
	9	20	20' - 7"	20' - 7"	24' - 9"	16' - 11"	16' - 11"	20' - 3"
		19	25' - 7" / 25' - 9"	25' - 9"	30' - 11"	20' - 10"	20' - 10"	25' - 1"
		18	25' - 11" / 30' - 9"	30' - 9"	36' - 11"	24' - 6"	24' - 6"	29' - 5"
		16	26' - 6" / 34' - 9"	32' - 8" / 40' - 9"	39' - 3" / 47' - 2"	25' - 7" / 29' - 8"	31' - 7" / 31' - 11"	37' - 11" / 38' - 3"
	9.5	20	21' - 0"	21' - 0"	25' - 2"	17' - 3"	17' - 3"	20' - 9"
		19	26' - 4"	26' - 4"	31' - 7"	21' - 2"	21' - 2"	25' - 5"
		18	26' - 10" / 31' - 6"	31' - 6"	37' - 9"	24' - 10"	24' - 10"	29' - 10"
		16	27' - 5" / 35' - 4"	33' - 11" / 41' - 5"	40' - 8" / 49' - 3"	26' - 7" / 30' - 4"	32' - 10" / 32' - 10"	39' - 5" / 39' - 5"
5000 PSI Lightweight Concrete (110 PCF)	7.75	20	20' - 2"	20' - 2"	24' - 3"	16' - 2"	16' - 2"	19' - 5"
		19	22' - 3" / 25' - 2"	25' - 2"	30' - 3"	19' - 8"	19' - 8"	23' - 8"
		18	22' - 7" / 30' - 0"	27' - 11" / 30' - 0"	33' - 6" / 36' - 0"	21' - 7" / 23' - 1"	23' - 1"	27' - 8"
		16	23' - 2" / 31' - 9"	28' - 7" / 39' - 3"	34' - 4" / 44' - 5"	22' - 2" / 28' - 9"	27' - 4" / 30' - 2"	32' - 10" / 36' - 2"
	8	20	20' - 6"	20' - 6"	24' - 7"	16' - 5"	16' - 5"	19' - 8"
		19	22' - 10" / 25' - 7"	25' - 7"	30' - 8"	20' - 0"	20' - 0"	24' - 0"
		18	23' - 1" / 30' - 1"	28' - 6" / 30' - 1"	34' - 3" / 36' - 1"	22' - 1" / 23' - 5"	23' - 5"	28' - 2"
		16	23' - 8" / 32' - 5"	29' - 3" / 40' - 1"	35' - 1" / 45' - 9"	22' - 8" / 29' - 5"	28' - 0" / 30' - 9"	33' - 7" / 36' - 11"
	8.25	20	20' - 9"	20' - 9"	24' - 10"	16' - 8"	16' - 8"	20' - 0"
		19	23' - 4" / 25' - 11"	25' - 11"	31' - 1"	20' - 4"	20' - 4"	24' - 5"
		18	23' - 8" / 30' - 6"	29' - 3" / 30' - 6"	35' - 1" / 36' - 7"	22' - 8" / 23' - 10"	23' - 10"	28' - 7"
		16	24' - 3" / 33' - 1"	29' - 11" / 40' - 10"	35' - 11" / 47' - 0"	23' - 3" / 30' - 0"	28' - 8" / 31' - 4"	34' - 5" / 37' - 7"
	8.5	20	21' - 0"	21' - 0"	25' - 2"	16' - 10"	16' - 10"	20' - 3"
		19	23' - 10" / 26' - 3"	26' - 3"	31' - 6"	20' - 7"	20' - 7"	24' - 9"
		18	24' - 2" / 30' - 11"	29' - 10" / 30' - 11"	35' - 10" / 37' - 1"	23' - 2" / 24' - 2"	24' - 2"	29' - 1"
		16	24' - 9" / 33' - 8"	30' - 7" / 41' - 8"	36' - 8" / 48' - 3"	23' - 9" / 30' - 5"	29' - 4" / 31' - 11"	35' - 2" / 38' - 3"
	9	20	21' - 2"	21' - 2"	25' - 5"	17' - 4"	17' - 4"	20' - 9"
		19	24' - 10" / 26' - 6"	26' - 6"	31' - 10"	21' - 2"	21' - 2"	25' - 5"
		18	25' - 2" / 31' - 9"	31' - 1" / 31' - 9"	37' - 3" / 38' - 1"	24' - 1" / 24' - 11"	24' - 11"	29' - 11"
		16	25' - 9" / 34' - 11"	31' - 10" / 43' - 2"	38' - 2" / 50' - 8"	24' - 9" / 31' - 3"	30' - 7" / 32' - 7"	36' - 8" / 39' - 1"
	9.5	20	21' - 7"	21' - 7"	25' - 11"	17' - 9"	17' - 9"	21' - 3"
		19	25' - 9" / 27' - 1"	27' - 1"	32' - 6"	21' - 9"	21' - 9"	26' - 1"
		18	26' - 1" / 32' - 6"	32' - 3" / 32' - 6"	38' - 8" / 39' - 0"	25' - 1" / 25' - 8"	25' - 8"	30' - 9"
		16	26' - 9" / 36' - 2"	33' - 0" / 44' - 8"	39' - 8" / 53' - 1"	25' - 8" / 32' - 0"	31' - 9" / 33' - 7"	38' - 1" / 40' - 4"

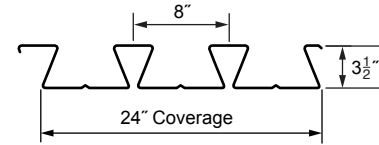
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND ONE-WAY SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
5000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	23.82 / 31.34	10.29 / 13.52	17.05 / 22.43	10.292	9.705	21795.0	-0.1469
		19	24.45 / 33.24	11.53 / 15.75	17.99 / 24.5	11.814	9.705	23696.4	-0.0878
		18	25.02 / 35.01	12.63 / 17.85	18.82 / 26.43	13.182	9.705	25471.0	-0.0326
		16	26.27 / 38.89	14.87 / 22.47	20.57 / 30.68	12.083	9.705	27665.0	0.1067
	5.75	20	27.05 / 35.29	11.51 / 14.99	19.28 / 25.14	10.976	9.964	21795.0	-0.1469
		19	27.74 / 37.37	12.9 / 17.45	20.32 / 27.41	12.612	10.083	23696.4	-0.0878
		18	28.37 / 39.31	14.12 / 19.76	21.24 / 29.54	14.087	10.083	25471.0	-0.0326
		16	29.73 / 43.58	16.62 / 24.97	23.17 / 34.27	13.098	10.083	27665.0	0.1067
	6	20	30.56 / 39.55	12.82 / 16.55	21.69 / 28.05	11.660	10.153	21795.0	-0.1469
		19	31.31 / 41.84	14.36 / 19.25	22.84 / 30.54	13.411	10.461	23696.4	-0.0878
		18	32.01 / 43.96	15.72 / 21.79	23.87 / 32.87	14.993	10.461	25471.0	-0.0326
		16	33.49 / 48.63	18.51 / 27.5	26 / 38.06	18.316	10.461	27665.0	0.1067
	6.5	20	38.49 / 49.09	15.71 / 19.96	27.1 / 34.52	13.028	10.531	21795.0	-0.1469
		19	39.39 / 51.8	17.62 / 23.18	28.5 / 37.49	15.009	11.216	23696.4	-0.0878
		18	40.21 / 54.32	19.29 / 26.21	29.75 / 40.27	16.805	11.216	25471.0	-0.0326
		16	41.98 / 59.87	22.71 / 33	32.34 / 46.44	20.602	11.216	27665.0	0.1067
	7	20	47.7 / 60.05	18.98 / 23.75	33.34 / 41.9	14.397	10.908	21795.0	-0.1469
		19	48.77 / 63.24	21.29 / 27.55	35.03 / 45.39	16.607	11.972	23696.4	-0.0878
		18	49.74 / 66.2	23.33 / 31.12	36.53 / 48.66	18.617	11.972	25471.0	-0.0326
		16	51.84 / 72.73	27.48 / 39.1	39.66 / 55.91	22.888	11.972	27665.0	0.1067
	7.5	20	58.3 / 72.55	22.63 / 27.92	40.47 / 50.24	15.765	11.286	21795.0	-0.1469
		19	59.55 / 76.25	25.41 / 32.36	42.48 / 54.31	18.205	12.728	23696.4	-0.0878
		18	60.7 / 79.69	27.85 / 36.52	44.27 / 58.11	20.429	12.728	25471.0	-0.0326
		16	63.16 / 87.28	32.84 / 45.81	48 / 66.55	25.173	12.728	27665.0	0.1067
5000 PSI Lightweight Concrete (110 PCF)	5.5	20	17 / 24.56	9.18 / 13.52	13.09 / 19.04	10.292	7.279	21795.0	-0.1469
		19	17.59 / 26.44	10.24 / 15.56	13.92 / 21	11.814	7.279	23696.4	-0.0878
		18	18.14 / 28.18	11.21 / 17.25	14.68 / 22.72	13.182	7.279	25471.0	-0.0326
		16	19.31 / 32.02	13.37 / 20.97	16.34 / 26.5	12.083	7.279	27665.0	0.1067
	5.75	20	19.25 / 27.55	10.27 / 14.96	14.76 / 21.25	10.976	7.562	21795.0	-0.1469
		19	19.9 / 29.61	11.43 / 17.51	15.67 / 23.56	12.612	7.562	23696.4	-0.0878
		18	20.5 / 31.53	12.45 / 19.94	16.47 / 25.74	14.087	7.562	25471.0	-0.0326
		16	21.76 / 35.75	14.6 / 24.23	18.18 / 29.99	13.098	7.562	27665.0	0.1067
	6	20	21.7 / 30.76	11.43 / 16.48	16.57 / 23.62	11.660	7.846	21795.0	-0.1469
		19	22.41 / 33.03	12.73 / 19.28	17.57 / 26.16	13.411	7.846	23696.4	-0.0878
		18	23.06 / 35.13	13.86 / 21.94	18.46 / 28.54	14.993	7.846	25471.0	-0.0326
		16	24.44 / 39.76	16.15 / 27.96	20.29 / 33.86	18.316	7.846	27665.0	0.1067
	6.5	20	27.22 / 37.94	14.03 / 19.8	20.63 / 28.87	13.028	8.412	21795.0	-0.1469
		19	28.07 / 40.63	15.62 / 23.13	21.85 / 31.88	15.009	8.412	23696.4	-0.0878
		18	28.84 / 43.13	17.01 / 26.28	22.92 / 34.71	16.805	8.412	25471.0	-0.0326
		16	30.47 / 48.65	19.81 / 33.42	25.14 / 41.03	20.602	8.412	27665.0	0.1067
	7	20	33.64 / 46.14	16.97 / 23.48	25.31 / 34.81	14.397	8.979	21795.0	-0.1469
		19	34.64 / 49.31	18.91 / 27.39	26.77 / 38.35	16.607	8.979	23696.4	-0.0878
		18	35.55 / 52.25	20.59 / 31.08	28.07 / 41.67	18.617	8.979	25471.0	-0.0326
		16	37.48 / 58.74	23.99 / 39.44	30.74 / 49.09	22.888	8.979	27665.0	0.1067
	7.5	20	41.02 / 55.45	20.28 / 27.53	30.65 / 41.49	15.765	9.546	21795.0	-0.1469
		19	42.2 / 59.13	22.6 / 32.07	32.4 / 45.6	18.205	9.546	23696.4	-0.0878
		18	43.27 / 62.56	24.62 / 36.36	33.94 / 49.46	20.429	9.546	25471.0	-0.0326
		16	45.53 / 70.11	28.71 / 46.03	37.12 / 58.07	25.173	9.546	27665.0	0.1067

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

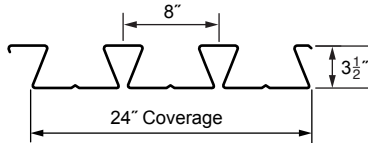
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND ONE-WAY SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
5000 PSI Normal-Weight Concrete (145 PCF)	7.75	20	64.16 / 79.4	24.6 / 30.16	44.38 / 54.78	16.450	11.475	21795.0	-0.1469
		19	65.51 / 83.38	27.63 / 34.94	46.57 / 59.16	19.004	13.106	23696.4	-0.0878
		18	66.75 / 87.08	30.29 / 39.41	48.52 / 63.24	21.335	13.106	25471.0	-0.0326
		16	69.41 / 95.24	35.74 / 49.39	52.58 / 72.31	26.316	13.106	27665.0	0.1067
	8	20	70.4 / 86.68	26.67 / 32.49	48.53 / 59.58	17.134	11.664	21795.0	-0.1469
		19	71.86 / 90.94	29.96 / 37.62	50.91 / 64.28	19.802	13.452	23696.4	-0.0878
		18	73.2 / 94.91	32.86 / 42.42	53.03 / 68.67	22.241	13.484	25471.0	-0.0326
		16	76.07 / 103.66	38.79 / 53.12	57.43 / 78.39	27.459	13.484	27665.0	0.1067
	8.25	20	77.04 / 94.39	28.83 / 34.92	52.93 / 64.66	17.818	11.853	21795.0	-0.1469
		19	78.61 / 98.95	32.4 / 40.42	55.5 / 69.69	20.601	13.641	23696.4	-0.0878
		18	80.05 / 103.19	35.54 / 45.56	57.8 / 74.38	23.147	13.862	25471.0	-0.0326
		16	83.15 / 112.56	41.99 / 57.01	62.57 / 84.78	28.602	13.862	27665.0	0.1067
	8.5	20	84.09 / 102.55	31.09 / 37.45	57.59 / 70	18.502	12.042	21795.0	-0.1469
		19	85.78 / 107.42	34.95 / 43.33	60.37 / 75.38	21.400	13.830	23696.4	-0.0878
		18	87.33 / 111.95	38.36 / 48.83	62.84 / 80.39	24.053	14.239	25471.0	-0.0326
		16	90.65 / 121.95	45.34 / 61.06	68 / 91.5	29.745	14.239	27665.0	0.1067
	9	20	99.49 / 120.27	35.9 / 42.8	67.69 / 81.53	19.871	12.420	21795.0	-0.1469
		19	101.43 / 125.78	40.39 / 49.5	70.91 / 87.64	22.998	14.208	23696.4	-0.0878
		18	103.2 / 130.92	44.36 / 55.74	73.78 / 93.33	25.864	14.995	25471.0	-0.0326
		16	107.02 / 142.26	52.5 / 69.61	79.76 / 105.94	32.031	14.995	27665.0	0.1067
	9.5	20	116.69 / 139.93	41.11 / 48.55	78.9 / 94.24	21.239	12.798	21795.0	-0.1469
		19	118.9 / 146.14	46.28 / 56.12	82.59 / 101.13	24.596	14.586	23696.4	-0.0878
		18	120.92 / 151.92	50.86 / 63.17	85.89 / 107.55	27.676	15.751	25471.0	-0.0326
		16	125.28 / 164.69	60.27 / 78.8	92.77 / 121.75	34.317	15.751	27665.0	0.1067
5000 PSI Lightweight Concrete (110 PCF)	7.75	20	45.09 / 60.54	22.06 / 29.69	33.58 / 45.12	16.450	9.829	21795.0	-0.1469
		19	46.36 / 64.49	24.6 / 34.57	35.48 / 49.53	19.004	9.829	23696.4	-0.0878
		18	47.52 / 68.18	26.81 / 39.17	37.16 / 53.67	21.335	9.829	25471.0	-0.0326
		16	49.97 / 76.3	31.27 / 49.55	40.62 / 62.92	26.316	9.829	27665.0	0.1067
	8	20	49.43 / 65.93	23.94 / 31.95	36.68 / 48.94	17.134	9.979	21795.0	-0.1469
		19	50.8 / 70.17	26.7 / 37.18	38.75 / 53.67	19.802	10.113	23696.4	-0.0878
		18	52.05 / 74.12	29.11 / 42.1	40.58 / 58.11	22.241	10.113	25471.0	-0.0326
		16	54.69 / 82.83	33.97 / 53.21	44.33 / 68.02	27.459	10.113	27665.0	0.1067
	8.25	20	54.04 / 71.63	25.9 / 34.3	39.97 / 52.96	17.818	10.120	21795.0	-0.1469
		19	55.52 / 76.17	28.9 / 39.89	42.21 / 58.03	20.601	10.396	23696.4	-0.0878
		18	56.86 / 80.4	31.52 / 45.16	44.19 / 62.78	23.147	10.396	25471.0	-0.0326
		16	59.71 / 89.72	36.81 / 57.01	48.26 / 73.37	28.602	10.396	27665.0	0.1067
	8.5	20	58.93 / 77.65	27.96 / 36.74	43.45 / 57.2	18.502	10.262	21795.0	-0.1469
		19	60.52 / 82.5	31.22 / 42.71	45.87 / 62.6	21.400	10.680	23696.4	-0.0878
		18	61.97 / 87.01	34.06 / 48.33	48.01 / 67.67	24.053	10.680	25471.0	-0.0326
		16	65.03 / 96.97	39.79 / 60.97	52.41 / 78.97	29.745	10.680	27665.0	0.1067
	9	20	69.6 / 90.67	32.36 / 41.92	50.98 / 66.3	19.871	10.545	21795.0	-0.1469
		19	71.43 / 96.17	36.15 / 48.68	53.79 / 72.43	22.998	11.246	23696.4	-0.0878
		18	73.09 / 101.29	39.47 / 55.04	56.28 / 78.17	25.864	11.246	25471.0	-0.0326
		16	76.62 / 112.59	46.17 / 69.32	61.4 / 90.95	32.031	11.246	27665.0	0.1067
	9.5	20	81.51 / 105.08	37.13 / 47.47	59.32 / 76.27	21.239	10.829	21795.0	-0.1469
		19	83.59 / 111.27	41.52 / 55.08	62.55 / 83.18	24.596	11.813	23696.4	-0.0878
		18	85.49 / 117.04	45.36 / 62.24	65.42 / 89.64	27.676	11.813	25471.0	-0.0326
		16	89.52 / 129.76	53.13 / 78.27	71.32 / 104.02	34.317	11.813	27665.0	0.1067

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

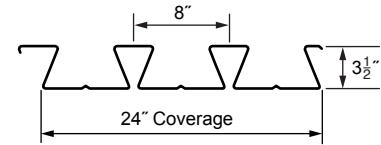
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite

FACTORED SHEAR-BOND STRENGTH OF SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans											
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	2.336	1.793	1.431	1.366	1.200	1.076	0.983	0.912	0.858	0.878	0.851	0.832
	56 PSF	19	3.220	2.531	2.071	1.939	1.720	1.557	1.431	1.334	1.258	1.197	1.149	1.184
	1.43 cu.yd/(100sq.ft)	18	4.116	3.276	2.716	2.316	2.242	2.036	1.878	1.754	1.655	1.575	1.511	1.459
	6x6 - W1.4 x W1.4	16	6.025	4.875	4.109	3.562	3.381	3.091	2.864	2.684	2.539	2.420	2.322	2.242
	5.75"	20	2.480	1.903	1.693	1.448	1.271	1.140	1.041	0.965	0.907	0.928	0.898	0.878
	59 PSF	19	3.417	2.686	2.198	2.055	1.823	1.649	1.516	1.413	1.331	1.267	1.216	1.252
	1.5 cu.yd/(100sq.ft)	18	4.368	3.476	2.882	2.457	2.376	2.158	1.990	1.858	1.752	1.668	1.599	1.544
	6x6 - W1.4 x W1.4	16	6.394	5.174	4.361	3.780	3.586	3.277	3.036	2.845	2.690	2.564	2.460	2.374
	6"	20	2.623	2.013	1.789	1.529	1.342	1.203	1.098	1.018	1.019	0.977	0.946	0.924
	62 PSF	19	3.615	2.841	2.325	2.172	1.926	1.742	1.601	1.491	1.405	1.336	1.282	1.319
	1.58 cu.yd/(100sq.ft)	18	4.620	3.677	3.048	2.599	2.511	2.280	2.102	1.962	1.850	1.760	1.687	1.709
	6x6 - W1.4 x W1.4	16	6.763	5.473	4.613	3.998	3.790	3.463	3.208	3.005	2.841	2.708	2.597	2.506
	6.5"	20	2.909	2.232	1.982	1.693	1.485	1.330	1.213	1.123	1.124	1.076	1.041	1.016
	68 PSF	19	4.009	3.151	2.578	2.405	2.132	1.927	1.770	1.648	1.551	1.475	1.496	1.454
	1.74 cu.yd/(100sq.ft)	18	5.124	4.078	3.381	3.121	2.781	2.524	2.326	2.170	2.045	1.945	1.864	1.886
	6x6 - W1.4 x W1.4	16	7.502	6.070	5.116	4.435	4.199	3.836	3.552	3.326	3.144	2.995	2.872	2.770
	7"	20	3.196	2.452	2.174	1.856	1.627	1.457	1.328	1.298	1.228	1.175	1.136	1.107
	74 PSF	19	4.404	3.461	3.051	2.639	2.338	2.113	1.940	1.805	1.698	1.614	1.635	1.588
	1.89 cu.yd/(100sq.ft)	18	5.629	4.480	3.714	3.424	3.051	2.768	2.550	2.377	2.240	2.130	2.129	2.063
	6x6 - W2.0 x W2.0	16	8.240	6.668	5.620	4.871	4.608	4.208	3.896	3.648	3.447	3.282	3.147	3.035
	7.5"	20	3.482	2.672	2.366	2.020	1.770	1.584	1.510	1.409	1.332	1.274	1.231	1.199
	80 PSF	19	4.799	3.771	3.322	2.872	2.544	2.298	2.109	1.962	1.845	1.841	1.775	1.723
	2.04 cu.yd/(100sq.ft)	18	6.133	4.881	4.047	3.728	3.320	3.012	2.773	2.585	2.435	2.314	2.312	2.239
	6x6 - W2.0 x W2.0	16	8.978	7.265	6.123	5.307	5.017	4.581	4.240	3.969	3.749	3.570	3.422	3.299
5000 PSI Lightweight Concrete (110 PCF)	5.5"	20	2.336	1.793	1.431	1.322	1.149	1.019	0.920	0.843	0.782	0.734	0.695	0.720
	42 PSF	19	3.220	2.531	2.071	1.742	1.670	1.500	1.368	1.265	1.182	1.115	1.061	1.017
	1.43 cu.yd/(100sq.ft)	18	4.116	3.276	2.716	2.316	2.191	1.980	1.815	1.684	1.579	1.493	1.423	1.364
	6x6 - W1.4 x W1.4	16	6.025	4.875	4.109	3.562	3.151	3.034	2.801	2.614	2.463	2.338	2.234	2.147
	5.75"	20	2.480	1.903	1.518	1.401	1.218	1.080	0.974	0.892	0.827	0.775	0.734	0.760
	45 PSF	19	3.417	2.686	2.198	1.849	1.770	1.589	1.450	1.339	1.251	1.180	1.122	1.075
	1.5 cu.yd/(100sq.ft)	18	4.368	3.476	2.882	2.457	2.323	2.098	1.923	1.784	1.672	1.581	1.506	1.444
	6x6 - W1.4 x W1.4	16	6.394	5.174	4.361	3.780	3.344	3.217	2.970	2.771	2.610	2.477	2.367	2.274
	6"	20	2.623	2.013	1.606	1.480	1.286	1.140	1.028	0.941	0.872	0.817	0.774	0.800
	47 PSF	19	3.615	2.841	2.325	1.956	1.870	1.679	1.531	1.414	1.320	1.245	1.184	1.134
	1.58 cu.yd/(100sq.ft)	18	4.620	3.677	3.048	2.599	2.455	2.217	2.032	1.884	1.766	1.669	1.589	1.524
	6x6 - W1.4 x W1.4	16	6.763	5.473	4.613	3.998	3.734	3.400	3.138	2.928	2.757	2.616	2.499	2.401
	6.5"	20	2.909	2.232	1.781	1.639	1.423	1.261	1.136	1.039	0.962	0.901	0.915	0.880
	52 PSF	19	4.009	3.151	2.578	2.351	2.071	1.858	1.693	1.563	1.459	1.375	1.307	1.251
	1.74 cu.yd/(100sq.ft)	18	5.124	4.078	3.381	2.883	2.719	2.455	2.249	2.085	1.953	1.845	1.756	1.683
	6x6 - W1.4 x W1.4	16	7.502	6.070	5.116	4.435	4.137	3.767	3.475	3.242	3.052	2.895	2.765	2.655
	7"	20	3.196	2.452	1.957	1.798	1.560	1.381	1.244	1.137	1.052	1.047	0.998	0.960
	56 PSF	19	4.404	3.461	2.832	2.580	2.271	2.037	1.856	1.713	1.598	1.505	1.430	1.441
	1.89 cu.yd/(100sq.ft)	18	5.629	4.480	3.714	3.167	2.984	2.693	2.466	2.285	2.140	2.021	1.923	1.842
	6x6 - W2.0 x W2.0	16	8.240	6.668	5.620	4.871	4.541	4.133	3.813	3.556	3.346	3.174	3.030	2.909
	7.5"	20	3.482	2.672	2.312	1.956	1.697	1.502	1.352	1.235	1.142	1.136	1.082	1.040
	61 PSF	19	4.799	3.771	3.086	2.809	2.472	2.217	2.019	1.862	1.737	1.635	1.553	1.563
	2.04 cu.yd/(100sq.ft)	18	6.133	4.881	4.047	3.451	3.248	2.931	2.683	2.486	2.327	2.197	2.090	2.001
	6x6 - W2.0 x W2.0	16	8.978	7.265	6.123	5.307	4.944	4.499	4.150	3.869	3.641	3.452	3.295	3.163

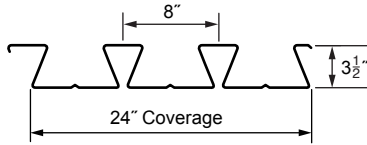
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite

FACTORED SHEAR-BOND STRENGTH OF SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans											
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	7.75"	20	3.625	2.782	2.463	2.101	1.841	1.647	1.570	1.464	1.384	1.323	1.278	1.312
	83 PSF	19	4.996	3.926	3.457	2.989	2.647	2.391	2.194	2.040	1.919	1.914	1.844	1.790
	2.12 cu.yd/(100sq.ft)	18	6.385	5.082	4.213	3.880	3.455	3.134	2.885	2.689	2.533	2.407	2.404	2.328
	6x6 - W2.0 x W2.0	16	9.347	7.564	6.375	5.816	5.221	4.767	4.412	4.130	3.901	3.714	3.559	3.431
	8"	20	3.768	2.892	2.559	2.183	1.912	1.710	1.630	1.520	1.436	1.373	1.326	1.361
	86 PSF	19	5.193	4.081	3.593	3.105	2.750	2.484	2.279	2.119	1.992	1.987	1.914	1.857
	2.2 cu.yd/(100sq.ft)	18	6.638	5.283	4.380	4.031	3.590	3.256	2.997	2.793	2.631	2.499	2.495	2.416
	4x4 - W1.4 x W1.4	16	9.717	7.863	6.627	6.045	5.425	4.953	4.584	4.290	4.052	3.857	3.697	3.674
	8.25"	20	3.912	3.218	2.655	2.265	1.983	1.841	1.690	1.575	1.488	1.422	1.440	1.409
	89 PSF	19	5.391	4.236	3.728	3.222	2.853	2.576	2.363	2.197	2.156	2.059	1.983	1.925
	2.28 cu.yd/(100sq.ft)	18	6.890	5.483	4.546	4.183	3.725	3.378	3.109	2.897	2.728	2.690	2.587	2.505
	6x6 - W2.9 x W2.9	16	10.086	8.161	6.878	6.273	5.630	5.140	4.756	4.451	4.204	4.001	3.834	3.810
	8.5"	20	4.055	3.335	2.751	2.347	2.054	1.907	1.750	1.631	1.540	1.472	1.490	1.457
	92 PSF	19	5.588	4.391	3.864	3.339	2.956	2.669	2.448	2.275	2.232	2.132	2.053	1.992
	2.35 cu.yd/(100sq.ft)	18	7.142	5.684	4.984	4.335	3.860	3.500	3.221	3.001	2.826	2.786	2.679	2.593
	6x6 - W2.9 x W2.9	16	10.455	8.460	7.130	6.501	5.834	5.326	4.928	4.611	4.355	4.145	3.972	3.946
	9"	20	4.341	3.569	2.943	2.510	2.197	2.038	1.869	1.742	1.644	1.639	1.589	1.554
	98 PSF	19	5.983	4.702	4.134	3.572	3.162	2.854	2.617	2.523	2.385	2.277	2.192	2.127
	2.51 cu.yd/(100sq.ft)	18	7.646	6.086	5.334	4.639	4.129	3.744	3.445	3.209	3.021	2.977	2.862	2.770
	6x6 - W2.9 x W2.9	16	11.193	9.057	7.634	6.957	6.243	5.698	5.272	4.933	4.658	4.432	4.246	4.218
	9.5"	20	4.628	3.803	3.136	2.674	2.409	2.169	1.989	1.852	1.748	1.742	1.688	1.650
	104 PSF	19	6.377	5.012	4.405	3.806	3.368	3.040	2.787	2.686	2.538	2.422	2.332	2.261
	2.66 cu.yd/(100sq.ft)	18	8.151	6.487	5.683	4.942	4.399	3.988	3.669	3.417	3.216	3.168	3.045	2.946
	6x6 - W2.9 x W2.9	16	11.931	9.655	8.137	7.413	6.652	6.071	5.616	5.254	4.960	4.720	4.646	4.489
5000 PSI Lightweight Concrete (110 PCF)	7.75"	20	3.625	2.782	2.406	2.036	1.766	1.562	1.406	1.284	1.252	1.180	1.124	1.080
	63 PSF	19	4.996	3.926	3.213	2.923	2.572	2.306	2.100	1.937	1.806	1.700	1.614	1.625
	2.12 cu.yd/(100sq.ft)	18	6.385	5.082	4.213	3.593	3.380	3.049	2.791	2.586	2.420	2.285	2.173	2.162
	6x6 - W2.0 x W2.0	16	9.347	7.564	6.375	5.526	5.146	4.682	4.318	4.026	3.788	3.592	3.428	3.290
	8"	20	3.768	2.892	2.500	2.115	1.834	1.623	1.460	1.333	1.299	1.224	1.166	1.120
	65 PSF	19	5.193	4.081	3.340	3.037	2.672	2.396	2.181	2.011	1.875	1.765	1.754	1.686
	2.2 cu.yd/(100sq.ft)	18	6.638	5.283	4.380	3.963	3.512	3.168	2.900	2.686	2.514	2.373	2.256	2.245
	4x4 - W1.4 x W1.4	16	9.717	7.863	6.627	5.744	5.347	4.866	4.487	4.183	3.935	3.731	3.560	3.417
	8.25"	20	3.912	3.002	2.594	2.194	1.903	1.683	1.514	1.382	1.346	1.269	1.208	1.160
	68 PSF	19	5.391	4.236	3.467	3.152	2.773	2.486	2.263	2.086	1.945	1.830	1.818	1.747
	2.28 cu.yd/(100sq.ft)	18	6.890	5.483	4.546	4.113	3.644	3.287	3.008	2.786	2.607	2.461	2.340	2.327
	6x6 - W2.9 x W2.9	16	10.086	8.161	6.878	5.962	5.549	5.049	4.655	4.340	4.083	3.870	3.693	3.544
	8.5"	20	4.055	3.111	2.689	2.274	1.971	1.743	1.568	1.496	1.393	1.313	1.249	1.200
	70 PSF	19	5.588	4.391	3.594	3.266	2.873	2.575	2.344	2.161	2.014	1.895	1.882	1.809
	2.35 cu.yd/(100sq.ft)	18	7.142	5.684	4.712	4.262	3.776	3.406	3.117	2.887	2.701	2.549	2.423	2.409
	6x6 - W2.9 x W2.9	16	10.455	8.460	7.130	6.180	5.751	5.232	4.824	4.497	4.230	4.009	3.826	3.671
	9"	20	4.341	3.331	2.877	2.432	2.108	1.864	1.676	1.598	1.488	1.401	1.333	1.280
	74 PSF	19	5.983	4.702	4.068	3.494	3.074	2.754	2.506	2.310	2.153	2.025	2.010	1.931
	2.51 cu.yd/(100sq.ft)	18	7.646	6.086	5.045	4.561	4.040	3.644	3.334	3.087	2.888	2.725	2.679	2.574
	6x6 - W2.9 x W2.9	16	11.193	9.057	7.634	6.617	6.154	5.598	5.161	4.810	4.524	4.288	4.091	3.925
	9.5"	20	4.628	3.551	3.065	2.591	2.245	1.985	1.851	1.700	1.583	1.490	1.417	1.360
	79 PSF	19	6.377	5.012	4.334	3.723	3.274	2.934	2.669	2.460	2.291	2.243	2.138	2.054
	2.66 cu.yd/(100sq.ft)	18	8.151	6.487	5.378	4.860	4.305	3.882	3.551	3.288	3.075	2.900	2.851	2.739
	6x6 - W2.9 x W2.9	16	11.931	9.655	8.137	7.053	6.557	5.965	5.498	5.124	4.819	4.567	4.356	4.179

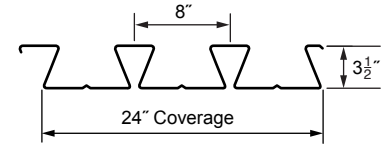
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

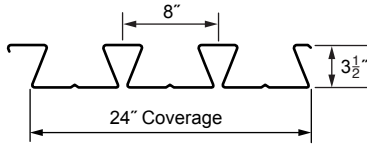
	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
5000 PSI Normal-Weight Concrete (145 PCF)	5.5	18	4@7	4@8	4@9	5@7	5@8	5@9
		20	5@9	5@10	5@11	5@6	5@7	5@7
		22	5@7	5@8	5@9	6@6	6@7	5@6
		24	5@6	5@7	5@8	-	6@6	6@7
	5.75	20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	6@8	5@6
		24	5@6	5@7	5@8	6@6	6@6	6@7
		26	6@7	5@6	5@7	-	-	6@6
	6	20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@6	5@7	5@8	6@6	6@7	6@8
		26	6@8	5@6	5@7	-	6@5	6@6
	6.5	18	4@9	4@10	4@11	5@9	5@10	5@11
		22	5@9	5@10	5@11	5@6	5@6	5@7
		26	5@6	5@7	5@7	6@5	6@6	6@7
		30	6@6	6@7	6@8	-	-	6@5
	7	18	4@9	4@9	4@9	5@10	5@11	4@8
		22	5@9	5@10	5@11	5@6	5@7	5@8
		26	5@6	5@7	5@8	6@6	6@7	6@7
		30	6@6	6@7	5@6	-	6@5	6@5
	7.5	18	5@10	5@11	4@8	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@6	5@7	5@8
		26	5@7	5@7	5@8	6@6	6@7	5@6
		30	6@7	6@8	5@6	6@4	6@5	6@6
5000 PSI Lightweight Concrete (110 PCF)	5.5	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@10	4@7	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@7	5@8	5@9	-	6@6	6@7
	5.75	20	5@11	4@8	4@9	5@7	5@7	5@8
		22	5@9	5@10	5@11	6@8	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	6@8
		26	5@6	5@7	5@7	-	6@6	6@6
	6	20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	5@6	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	5@6
		26	5@6	5@7	5@8	6@5	6@6	6@7
	6.5	18	4@10	4@10	4@10	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@6	5@7	5@8
		26	5@7	5@8	5@8	6@6	6@7	6@8
		30	6@7	6@8	5@6	-	6@5	6@5
	7	18	5@10	4@7	4@8	5@10	4@8	4@8
		22	5@10	4@7	4@8	5@7	5@8	5@8
		26	5@7	5@8	5@9	6@6	6@7	5@6
		30	6@7	5@6	5@6	6@4	6@5	6@6
	7.5	18	5@11	4@8	4@9	5@11	4@8	4@9
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@8	5@9	5@9	6@7	5@6	5@6
		30	6@8	5@6	5@7	6@5	6@6	6@6

NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

Versa-Dek® 3.5 LS Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
5000 PSI Normal-Weight Concrete (145 PCF)	7.75	18	5@10	5@11	4@8	5@10	4@7	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@8
		26	5@7	5@8	5@8	6@7	6@7	5@6
		30	6@7	6@8	5@6	6@5	6@5	6@6
	8	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@6	6@5	6@5	6@6
	8.25	18	5@10	5@11	5@11	5@11	4@8	4@8
		22	5@10	5@11	5@11	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@6	6@5	6@6	6@6
	8.5	18	5@10	4@7	4@7	5@11	5@11	5@11
		22	5@10	4@7	4@7	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	5@6	5@6
		30	6@7	5@6	5@6	6@5	6@6	6@6
	9	18	5@11	5@11	5@11	5@8	5@9	5@10
		22	5@11	5@11	5@11	5@8	5@9	5@10
		26	5@7	5@8	5@9	6@8	5@6	5@7
		30	6@8	5@6	5@7	6@5	6@6	6@7
	9.5	18	5@8	5@9	5@10	5@8	5@9	5@10
		22	5@8	5@9	5@10	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@6	5@7	6@6	6@6	6@7
5000 PSI Lightweight Concrete (110 PCF)	7.75	18	5@11	4@8	4@8	4@7	4@8	4@8
		22	5@11	4@8	4@8	5@7	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	5@6	5@6	5@7	6@5	6@6	6@7
	8	18	4@7	4@7	4@7	4@8	4@8	4@8
		22	4@7	4@7	4@7	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@7	6@5	6@6	6@7
	8.25	18	4@8	4@8	4@8	4@8	4@8	4@8
		22	4@8	4@8	4@8	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@7	6@6	6@6	6@7
	8.5	18	5@8	5@9	5@10	5@8	5@9	5@10
		22	5@8	5@9	5@10	5@8	5@9	5@10
		26	5@8	5@9	5@10	5@6	5@6	5@7
		30	5@6	5@7	5@8	6@6	6@6	6@7
	9	18	5@9	5@10	5@11	5@9	5@10	5@11
		22	5@9	5@10	5@11	5@9	5@10	5@11
		26	5@9	5@10	5@11	5@6	5@7	5@7
		30	5@6	5@7	5@8	6@6	6@7	6@8
	9.5	18	5@9	5@10	5@10	5@9	5@10	5@10
		22	5@9	5@10	5@10	5@9	5@10	5@10
		26	5@9	5@10	5@10	5@6	5@7	5@8
		30	5@7	5@7	5@8	6@6	6@7	5@6

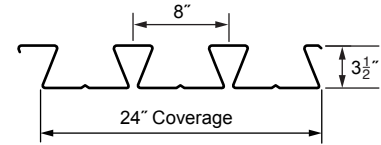
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.



Versa-Dek® 3.5 LS Composite

MAXIMUM DESIGN NEGATIVE MOMENT CAPACITY OF COMPOSITE SLABS



5000 PSI OF ANY DENSITY

	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		5.5	5.75	6	6.5	7	7.5
5000 PSI of Any Density	4@12	3.909	4.134	4.359	-	-	-
	4@10	4.657	4.927	5.197	5.737	6.277	-
	4@8	5.757	6.095	6.432	7.107	7.782	8.457
	4@6	7.535	7.985	8.435	9.335	10.235	11.135
	5@12	5.851	6.200	6.549	7.246	7.944	8.641
	5@10	6.940	7.358	7.777	8.614	9.451	10.288
	5@8	8.522	9.045	9.569	10.615	11.661	12.707
	5@6	11.024	11.721	12.419	13.814	15.209	16.604
	6@12	7.979	8.474	8.969	9.959	10.949	11.939
	6@10	9.411	10.005	10.599	11.787	12.975	14.163
	6@8	11.456	12.199	12.941	14.426	15.911	17.396
	6@6	-	15.582	16.572	18.552	20.532	22.512
	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		7.75	8	8.25	8.5	9	9.5
5000 PSI of Any Density	4@12	-	-	-	-	-	-
	4@10	-	-	-	-	-	-
	4@8	8.795	9.132	9.470	9.807	-	-
	4@6	11.585	12.035	12.485	12.935	13.835	14.735
	5@12	8.990	9.339	9.687	10.036	-	-
	5@10	10.706	11.125	11.543	11.962	12.799	13.636
	5@8	13.230	13.754	14.277	14.800	15.846	16.892
	5@6	17.301	17.999	18.696	19.394	20.789	22.184
	6@12	12.434	12.929	13.424	13.919	14.909	15.899
	6@10	14.757	15.351	15.945	16.539	17.727	18.915
	6@8	18.139	18.881	19.624	20.366	21.851	23.336
	6@6	23.502	24.492	25.482	26.472	28.452	30.432

NOTES:

1. Table is based on Grade 60 ASTM A615 reinforcing bars with 3/4" concrete cover over supports.
2. Slab self-weight has not been accounted for in the tabulated moment capacities.
It should be included into the loads applied to the slab.

INSTRUCTIONS ON HOW TO SELECT A REINFORCEMENT PATTERN:

Step 1 – Calculate required negative moment capacity, M_{req} , as follows:

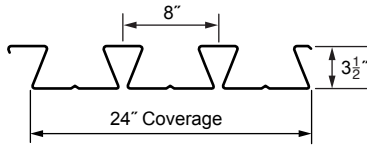
$$M_{req, LRFD} = [1.2(W_{slab} + W_D) + 1.6W_L]L^2/C \text{ (LRFD)}$$

Where: w_D = superimposed dead load, psf; w_L = live load, psf; w_{slab} = slab weight, psf; L = span length taken as the average of the adjacent span lengths (spans shall be approximately equal with the larger of two adjacent spans not greater than the shorter by more than 20%), ft; $M_{req, LRFD}$ = required LRFD factored negative moment capacity, lb-ft/ft deck width; C = negative bending coefficient (9 for interior support of two span continuous composite slab; 10 for first interior support of composite slab continuous over more than two spans; 11 for other interior supports of composite slab continuous over more than two spans).

Step 2 – Select reinforcement size and spacing from table where $\phi M_n \geq M_{req, LRFD}$ (LRFD).

Versa-Dek® 3.5 LS Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"
6000 PSI Normal-Weight Concrete (145 PCF)	5.5" 56 PSF 1.43 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	145	91	63	44	-	-	44	-	-	-	-
		19	213	143	96 / 105	49 / 79	- / 60	- / 47	79	60	47	-	-
		18	282	206	102 / 146	54 / 113	- / 89	- / 71	113	89	54 / 71	- / 57	- / 47
		16	391	264 / 275	115 / 200	62 / 148	- / 111	- / 84	169 / 188	106 / 152	64 / 125	- / 104	- / 82
	5.75" 59 PSF 1.5 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	143	97	67	47	-	-	47	-	-	-	-
		19	227	152	111	61 / 84	- / 64	- / 50	84	64	50	-	-
		18	299	219	120 / 155	65 / 120	- / 94	- / 75	120	94	67 / 75	- / 61	- / 50
		16	457	298 / 340	135 / 252	75 / 199	- / 161	- / 133	196 / 199	125 / 161	77 / 133	43 / 111	- / 94
	6" 62 PSF 1.58 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	152	102	71	50	-	-	50	-	-	-	-
		19	240	161	118	73 / 88	- / 68	- / 52	88	68	52	41	-
		18	317	231	140 / 164	78 / 127	- / 100	- / 80	127	100	80	45 / 65	- / 53
		16	484	334 / 360	156 / 267	89 / 211	47 / 171	- / 141	211	145 / 171	91 / 141	54 / 118	- / 100
	6.5" 68 PSF 1.74 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	168	114	79	56	40	-	56	40	-	-	-
		19	266	179	131	98	54 / 75	- / 58	98	75	58	46	-
		18	351	244	183	108 / 141	59 / 111	- / 89	141	111	89	68 / 72	- / 59
		16	500	399	205 / 296	122 / 234	69 / 190	- / 156	234	190	125 / 156	78 / 131	45 / 111
	7" 74 PSF 1.89 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	185	125	87	61	44	-	61	44	-	-	-
		19	278	196	144	108	79 / 83	40 / 64	108	83	64	50	40
		18	386	268	201	145 / 155	84 / 122	44 / 98	155	122	98	79	57 / 65
		16	500	438	264 / 326	161 / 257	96 / 208	52 / 172	257	208	165 / 172	108 / 144	67 / 122
	7.5" 80 PSF 2.04 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	202	136	95	67	45	-	67	45	-	-	-
		19	303	214	157	118	90	59 / 70	118	90	70	55	41
		18	420	292	219	169	113 / 133	64 / 107	169	133	107	87	71
		16	500	477	330 / 355	206 / 281	127 / 227	74 / 188	281	227	188	142 / 157	93 / 133
6000 PSI Lightweight Concrete (110 PCF)	5.5" 42 PSF 1.43 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	145	93	65	- / 47	-	-	47	-	-	-	-
		19	213	154	74 / 107	- / 81	- / 62	- / 49	81	62	- / 49	-	-
		18	282	188 / 206	79 / 149	42 / 115	- / 91	- / 73	115	72 / 91	42 / 73	- / 60	- / 49
		16	330 / 401	208 / 285	139 / 210	50 / 158	- / 121	- / 94	134 / 190	84 / 154	51 / 128	- / 107	- / 91
	5.75" 45 PSF 1.5 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	154	99	70	42 / 50	-	-	50	-	-	-	-
		19	227	163	86 / 114	46 / 86	- / 66	- / 52	86	66	47 / 52	- / 41	-
		18	299	212 / 219	93 / 158	50 / 122	- / 97	- / 78	122	85 / 97	51 / 78	- / 64	- / 53
		16	369 / 457	232 / 340	156 / 263	59 / 202	- / 164	- / 127	153 / 202	97 / 164	60 / 136	- / 114	- / 97
	6" 47 PSF 1.58 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	163	105	74	50 / 53	-	-	53	-	-	-	-
		19	240	172	101 / 120	56 / 91	- / 70	- / 55	91	70	55	- / 44	-
		18	317	231	107 / 167	60 / 129	- / 102	- / 82	129	99 / 102	61 / 82	- / 67	- / 56
		16	413 / 484	260 / 360	121 / 269	69 / 214	- / 173	- / 142	175 / 214	113 / 173	71 / 143	42 / 121	- / 103
	6.5" 52 PSF 1.74 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	181	117	82	59	- / 42	-	59	42	-	-	-
		19	266	182	133 / 134	77 / 101	41 / 78	- / 61	101	78	61	47 / 49	-
		18	351	257	141 / 185	83 / 144	45 / 114	- / 92	144	114	84 / 92	51 / 75	- / 62
		16	500	322 / 399	159 / 299	94 / 237	53 / 192	- / 159	226 / 237	148 / 192	96 / 159	60 / 134	- / 114
	7" 56 PSF 1.89 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	199	128	90	65	47	-	65	47	-	-	-
		19	292	200	147	103 / 111	59 / 86	- / 67	111	86	67	54	- / 43
		18	386	282	183 / 204	110 / 158	64 / 125	- / 101	158	125	101	72 / 82	43 / 68
		16	500	396 / 438	203 / 329	124 / 261	74 / 212	40 / 175	261	191 / 212	127 / 175	83 / 147	52 / 125
	7.5" 61 PSF 2.04 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	205	140	98	71	51	-	71	51	-	-	-
		19	318	218	160	121	80 / 94	44 / 74	121	94	74	58	47
		18	420	307	222	142 / 172	85 / 136	48 / 110	172	136	110	90	61 / 75
		16	500	477	254 / 358	159 / 284	98 / 231	57 / 191	284	231	163 / 191	109 / 161	71 / 137

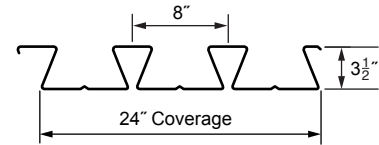
NOTES:

1. The slab weight has been subtracted from the loads listed above.
2. Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
3. Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
4. Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
5. Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
6. Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans						Continuous Spans				
			12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
6000 PSI Normal-Weight Concrete (145 PCF)	7.75"	20	210	142	99	70	47	-	-	-	-	-	-
	83 PSF	19	316	223	163	123	94	69 / 73	73	57	43	-	-
	2.12 cu.yd/(100sq.ft)	18	438	304	228	176	129 / 139	75 / 111	111	90	74	59	- / 48
	6x6 - W2.0 x W2.0	16	500	481	367 / 370	231 / 292	144 / 237	86 / 195	195	161 / 164	107 / 139	67 / 119	- / 103
	8"	20	219	148	103	73	49	-	-	-	-	-	-
	86 PSF	19	328	232	170	128	98	76	76	60	44	-	-
	2.2 cu.yd/(100sq.ft)	18	455	316	237	183	144	87 / 116	116	94	77	61	41 / 50
	4x4 - W1.4 x W1.4	16	500	500	384	258 / 304	163 / 246	99 / 203	203	170	122 / 145	79 / 124	50 / 105
	8.25"	20	227	153	107	73	51	-	-	-	-	-	-
	89 PSF	19	341	241	176	133	102	79	79	59	46	-	-
	2.28 cu.yd/(100sq.ft)	18	472	328	246	190	150	102 / 120	120	98	77	63	51 / 52
	6x6 - W2.9 x W2.9	16	500	500	399	288 / 316	184 / 256	115 / 211	211	177	140 / 150	92 / 129	60 / 109
	8.5"	20	235	159	111	76	53	-	-	-	-	-	-
	92 PSF	19	354	250	183	138	106	82	82	62	48	-	-
	2.35 cu.yd/(100sq.ft)	18	472	341	255	197	155	116 / 124	124	101	80	66	54
	6x6 - W2.9 x W2.9	16	500	500	414	319 / 327	206 / 265	130 / 219	219	183	156	106 / 134	71 / 113
	9"	20	252	170	119	81	57	-	-	-	-	-	-
	98 PSF	19	379	267	196	148	113	85	85	66	51	40	-
	2.51 cu.yd/(100sq.ft)	18	500	365	273	211	166	133	133	108	86	71	58
	6x6 - W2.9 x W2.9	16	500	500	443	351	252 / 284	164 / 234	234	197	167	136 / 143	94 / 121
	9.5"	20	269	182	123	87	61	42	42	-	-	-	-
	104 PSF	19	404	285	209	157	121	91	91	71	55	43	-
	2.66 cu.yd/(100sq.ft)	18	500	389	291	225	177	142	142	116	92	76	62
	6x6 - W2.9 x W2.9	16	500	500	472	374	303	201 / 250	250	210	178	149	120 / 129
6000 PSI Lightweight Concrete (110 PCF)	7.75"	20	214	146	102	73	53	-	-	-	-	-	-
	63 PSF	19	331	227	167	126	91 / 98	52 / 77	77	61	49	-	-
	2.12 cu.yd/(100sq.ft)	18	438	320	231	159 / 179	97 / 142	56 / 115	115	94	71 / 78	43 / 65	- / 53
	6x6 - W2.0 x W2.0	16	500	497	282 / 373	178 / 296	111 / 240	66 / 199	182 / 199	124 / 167	82 / 143	51 / 123	- / 107
	8"	20	222	151	107	76	55	40	40	-	-	-	-
	65 PSF	19	344	236	174	132	102	61 / 80	80	63	51	-	-
	2.2 cu.yd/(100sq.ft)	18	455	320	241	178 / 186	111 / 148	66 / 119	119	98	81	51 / 67	- / 55
	4x4 - W1.4 x W1.4	16	500	500	312 / 388	198 / 308	125 / 250	76 / 207	203 / 207	139 / 174	94 / 148	60 / 128	- / 111
	8.25"	20	231	157	111	79	58	42	42	-	-	-	-
	68 PSF	19	357	245	180	137	106	71 / 83	83	66	53	40	-
	2.28 cu.yd/(100sq.ft)	18	472	332	250	194	126 / 153	77 / 124	124	101	84	60 / 70	- / 57
	6x6 - W2.9 x W2.9	16	500	500	346 / 403	221 / 319	141 / 259	88 / 215	215	157 / 181	107 / 154	71 / 133	43 / 115
	8.5"	20	239	163	115	82	60	41	41	-	-	-	-
	70 PSF	19	370	254	187	142	110	81 / 86	86	68	55	42	-
	2.35 cu.yd/(100sq.ft)	18	489	344	259	201	141 / 159	87 / 128	128	105	87	70 / 73	45 / 59
	6x6 - W2.9 x W2.9	16	500	500	380 / 417	244 / 331	158 / 269	100 / 223	223	175 / 187	121 / 160	81 / 137	51 / 120
	9"	20	256	175	123	88	64	44	44	-	-	-	-
	74 PSF	19	383	272	200	152	117	92	92	73	59	45	-
	2.51 cu.yd/(100sq.ft)	18	500	369	278	215	170	111 / 138	138	113	93	76	61 / 63
	6x6 - W2.9 x W2.9	16	500	500	447	295 / 355	193 / 288	125 / 239	239	201	150 / 171	104 / 147	69 / 128
	9.5"	20	273	186	131	94	66	47	47	-	-	-	-
	79 PSF	19	408	290	214	162	125	98	98	78	60	48	-
	2.66 cu.yd/(100sq.ft)	18	500	393	296	229	182	137 / 147	147	120	100	81	68
	6x6 - W2.9 x W2.9	16	500	500	477	351 / 378	233 / 307	154 / 254	254	214	182	129 / 157	88 / 137

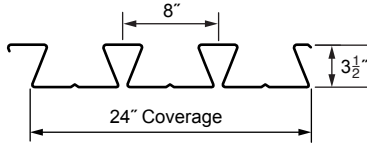
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Negative moment (top) reinforcement is required over supports of continuous slabs. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
6000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	16' - 9"	16' - 9"	20' - 2"	13' - 4"	13' - 4"	16' - 0"
		19	18' - 6" / 20' - 8"	20' - 8"	24' - 10"	16' - 1"	16' - 1"	19' - 3"
		18	18' - 9" / 24' - 5"	23' - 2" / 24' - 5"	27' - 10" / 29' - 4"	17' - 11" / 18' - 8"	18' - 8"	22' - 5"
		16	19' - 2" / 25' - 0"	23' - 9" / 29' - 3"	28' - 6" / 32' - 5"	18' - 4" / 20' - 6"	22' - 8" / 24' - 0"	26' - 8"
	5.75	20	17' - 2"	17' - 2"	20' - 7"	13' - 8"	13' - 8"	16' - 4"
		19	19' - 1" / 21' - 2"	21' - 2"	25' - 5"	16' - 6"	16' - 6"	19' - 9"
		18	19' - 4" / 25' - 1"	23' - 11" / 25' - 1"	28' - 8" / 30' - 1"	18' - 5" / 19' - 2"	19' - 2"	23' - 0"
		16	19' - 10" / 26' - 6"	24' - 6" / 32' - 2"	29' - 4" / 33' - 10"	18' - 11" / 23' - 11"	23' - 4" / 24' - 10"	27' - 11"
	6	20	17' - 6"	17' - 6"	20' - 11"	13' - 11"	13' - 11"	16' - 9"
		19	19' - 8" / 21' - 8"	21' - 8"	25' - 11"	16' - 10"	16' - 10"	20' - 3"
		18	19' - 11" / 25' - 8"	24' - 7" / 25' - 8"	29' - 6" / 30' - 9"	19' - 0" / 19' - 8"	19' - 8"	23' - 7"
		16	20' - 5" / 27' - 3"	25' - 2" / 33' - 6"	30' - 3" / 35' - 3"	19' - 6" / 24' - 8"	24' - 1" / 25' - 6"	28' - 11" / 29' - 2"
	6.5	20	18' - 1"	18' - 1"	21' - 8"	14' - 6"	14' - 6"	17' - 5"
		19	20' - 9" / 22' - 6"	22' - 6"	27' - 0"	17' - 7"	17' - 7"	21' - 2"
		18	21' - 0" / 26' - 9"	26' - 0" / 26' - 9"	31' - 2" / 32' - 1"	20' - 2" / 20' - 7"	20' - 7"	24' - 8"
		16	21' - 6" / 28' - 8"	26' - 7" / 35' - 5"	31' - 11" / 38' - 0"	20' - 8" / 25' - 9"	25' - 6" / 26' - 10"	30' - 7" / 31' - 8"
	7	20	18' - 8"	18' - 8"	22' - 5"	15' - 0"	15' - 0"	18' - 0"
		19	21' - 11" / 23' - 3"	23' - 3"	27' - 11"	18' - 4"	18' - 4"	22' - 0"
		18	22' - 2" / 27' - 9"	27' - 5" / 27' - 9"	32' - 11" / 33' - 4"	21' - 3" / 21' - 5"	21' - 5"	25' - 9"
		16	22' - 8" / 30' - 1"	28' - 0" / 37' - 0"	33' - 8" / 40' - 7"	21' - 9" / 26' - 9"	26' - 11" / 28' - 2"	32' - 4" / 33' - 9"
	7.5	20	19' - 2"	19' - 2"	23' - 0"	15' - 6"	15' - 6"	18' - 7"
		19	23' - 0" / 24' - 0"	24' - 0"	28' - 10"	18' - 11"	18' - 11"	22' - 9"
		18	23' - 3" / 28' - 3"	28' - 3"	33' - 11"	22' - 3"	22' - 3"	26' - 9"
		16	23' - 9" / 31' - 5"	29' - 5" / 38' - 5"	35' - 3" / 43' - 2"	22' - 11" / 27' - 8"	28' - 3" / 29' - 4"	33' - 11" / 35' - 2"
6000 PSI Lightweight Concrete (110 PCF)	5.5	20	17' - 0"	17' - 0"	20' - 5"	13' - 5"	13' - 5"	16' - 1"
		19	17' - 10" / 21' - 0"	21' - 0"	25' - 3"	16' - 3"	16' - 3"	19' - 6"
		18	18' - 1" / 24' - 4"	22' - 4" / 24' - 10"	26' - 9" / 29' - 10"	17' - 1" / 18' - 10"	18' - 10"	22' - 8"
		16	18' - 7" / 25' - 6"	23' - 0" / 30' - 10"	27' - 7" / 34' - 2"	17' - 8" / 21' - 3"	21' - 9" / 24' - 5"	26' - 2" / 27' - 7"
	5.75	20	17' - 5"	17' - 5"	20' - 11"	13' - 9"	13' - 9"	16' - 6"
		19	18' - 4" / 21' - 6"	21' - 6"	25' - 10"	16' - 8"	16' - 8"	20' - 0"
		18	18' - 8" / 25' - 2"	23' - 0" / 25' - 6"	27' - 7" / 30' - 7"	17' - 8" / 19' - 5"	19' - 5"	23' - 3"
		16	19' - 2" / 26' - 5"	23' - 8" / 32' - 7"	28' - 4" / 35' - 9"	18' - 2" / 23' - 7"	22' - 5" / 25' - 2"	26' - 11" / 28' - 11"
	6	20	17' - 9"	17' - 9"	21' - 4"	14' - 1"	14' - 1"	16' - 11"
		19	18' - 11" / 22' - 0"	22' - 0"	26' - 5"	17' - 1"	17' - 1"	20' - 5"
		18	19' - 2" / 25' - 10"	23' - 9" / 26' - 2"	28' - 5" / 31' - 4"	18' - 3" / 19' - 11"	19' - 11"	23' - 10"
		16	19' - 8" / 27' - 3"	24' - 4" / 33' - 8"	29' - 3" / 37' - 4"	18' - 9" / 24' - 4"	23' - 2" / 25' - 10"	27' - 9" / 30' - 4"
	6.5	20	18' - 5"	18' - 5"	22' - 1"	14' - 8"	14' - 8"	17' - 7"
		19	20' - 0" / 22' - 11"	22' - 11"	27' - 6"	17' - 10"	17' - 10"	21' - 5"
		18	20' - 4" / 27' - 3"	25' - 1" / 27' - 4"	30' - 1" / 32' - 9"	19' - 4" / 20' - 10"	20' - 10"	25' - 0"
		16	20' - 10" / 28' - 8"	25' - 9" / 35' - 5"	30' - 11" / 40' - 4"	19' - 10" / 25' - 8"	24' - 6" / 27' - 3"	29' - 5" / 32' - 8"
	7	20	19' - 0"	19' - 0"	22' - 9"	15' - 2"	15' - 2"	18' - 3"
		19	21' - 2" / 23' - 9"	23' - 9"	28' - 6"	18' - 6"	18' - 6"	22' - 3"
		18	21' - 5" / 28' - 5"	26' - 6" / 28' - 5"	31' - 9" / 34' - 1"	20' - 5" / 21' - 9"	21' - 9"	26' - 1"
		16	22' - 0" / 30' - 0"	27' - 2" / 37' - 1"	32' - 7" / 43' - 3"	20' - 11" / 27' - 1"	25' - 11" / 28' - 7"	31' - 1" / 34' - 3"
	7.5	20	19' - 6"	19' - 6"	23' - 5"	15' - 8"	15' - 8"	18' - 10"
		19	22' - 2" / 24' - 7"	24' - 7"	29' - 5"	19' - 2"	19' - 2"	23' - 1"
		18	22' - 6" / 29' - 5"	27' - 10" / 29' - 5"	33' - 4" / 35' - 4"	21' - 6" / 22' - 7"	22' - 7"	27' - 1"
		16	23' - 1" / 31' - 5"	28' - 6" / 38' - 10"	34' - 2" / 46' - 1"	22' - 0" / 28' - 4"	27' - 3" / 29' - 10"	32' - 8" / 35' - 9"

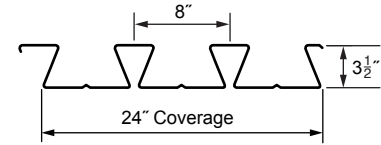
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Max. Service Stage Spans (ft.-in.)					
			LL=40 psf; SDL=20 psf (88 psf LRFD load)			LL=100 psf; SDL=5 psf (166 psf LRFD load)		
			Single Span	Continuous Span		Single Span	Continuous Span	
				End	Interior		End	Interior
6000 PSI Normal-Weight Concrete (145 PCF)	7.75	20	19' - 2"	19' - 2"	23' - 0"	15' - 9"	15' - 9"	18' - 10"
		19	23' - 6" / 24' - 4"	24' - 4"	29' - 3"	19' - 3"	19' - 3"	23' - 1"
		18	23' - 10" / 28' - 8"	28' - 8"	34' - 5"	22' - 8"	22' - 8"	27' - 2"
		16	24' - 4" / 32' - 1"	30' - 1" / 38' - 11"	36' - 1" / 44' - 5"	23' - 5" / 28' - 1"	28' - 11" / 29' - 11"	34' - 9" / 35' - 11"
	8	20	19' - 4"	19' - 4"	23' - 3"	15' - 11"	15' - 11"	19' - 2"
		19	24' - 1" / 24' - 8"	24' - 8"	29' - 8"	19' - 7"	19' - 7"	23' - 6"
		18	24' - 4" / 29' - 1"	29' - 1"	34' - 11"	23' - 0"	23' - 0"	27' - 8"
		16	24' - 10" / 32' - 9"	30' - 9" / 39' - 5"	36' - 10" / 45' - 7"	24' - 0" / 28' - 6"	29' - 7" / 30' - 1"	35' - 6" / 36' - 1"
	8.25	20	19' - 7"	19' - 7"	23' - 6"	16' - 2"	16' - 2"	19' - 5"
		19	24' - 7"	24' - 7"	29' - 6"	19' - 10"	19' - 10"	23' - 10"
		18	24' - 11" / 29' - 6"	29' - 6"	35' - 5"	23' - 5"	23' - 5"	28' - 1"
		16	25' - 5" / 33' - 5"	31' - 5" / 39' - 10"	37' - 9" / 46' - 10"	24' - 6" / 28' - 10"	30' - 4" / 30' - 8"	36' - 4" / 36' - 9"
	8.5	20	19' - 9"	19' - 9"	23' - 9"	16' - 5"	16' - 5"	19' - 8"
		19	24' - 11"	24' - 11"	29' - 10"	20' - 2"	20' - 2"	24' - 2"
		18	25' - 5" / 29' - 11"	29' - 11"	35' - 10"	23' - 9"	23' - 9"	28' - 6"
		16	26' - 0" / 34' - 1"	32' - 1" / 40' - 3"	38' - 6" / 48' - 0"	25' - 1" / 29' - 3"	30' - 11" / 31' - 2"	37' - 2" / 37' - 5"
	9	20	20' - 2"	20' - 2"	24' - 3"	16' - 7"	16' - 7"	19' - 11"
		19	25' - 6"	25' - 6"	30' - 7"	20' - 8"	20' - 8"	24' - 10"
		18	26' - 5" / 30' - 8"	30' - 8"	36' - 9"	24' - 5"	24' - 5"	29' - 4"
		16	27' - 0" / 35' - 0"	33' - 4" / 41' - 0"	40' - 0" / 49' - 3"	26' - 1" / 29' - 11"	32' - 2"	38' - 7"
	9.5	20	20' - 7"	20' - 7"	24' - 8"	17' - 0"	17' - 0"	20' - 4"
		19	26' - 0"	26' - 0"	31' - 2"	20' - 11"	20' - 11"	25' - 2"
		18	27' - 5" / 31' - 4"	31' - 4"	37' - 7"	24' - 9"	24' - 9"	29' - 9"
		16	28' - 0" / 35' - 7"	34' - 7" / 41' - 9"	41' - 6" / 50' - 1"	27' - 1" / 30' - 7"	33' - 2"	39' - 9"
6000 PSI Lightweight Concrete (110 PCF)	7.75	20	19' - 10"	19' - 10"	23' - 9"	15' - 11"	15' - 11"	19' - 1"
		19	22' - 9" / 24' - 11"	24' - 11"	29' - 11"	19' - 6"	19' - 6"	23' - 5"
		18	23' - 0" / 29' - 11"	28' - 5" / 29' - 11"	34' - 2" / 35' - 11"	22' - 0" / 23' - 0"	23' - 0"	27' - 7"
		16	23' - 7" / 32' - 1"	29' - 2" / 39' - 7"	35' - 0" / 47' - 5"	22' - 7" / 29' - 0"	27' - 11" / 30' - 5"	33' - 6" / 36' - 6"
	8	20	20' - 1"	20' - 1"	24' - 1"	16' - 2"	16' - 2"	19' - 5"
		19	23' - 3" / 25' - 3"	25' - 3"	30' - 4"	19' - 10"	19' - 10"	23' - 10"
		18	23' - 7" / 29' - 11"	29' - 1" / 29' - 11"	34' - 11" / 35' - 11"	22' - 6" / 23' - 4"	23' - 4"	28' - 1"
		16	24' - 1" / 32' - 9"	29' - 10" / 40' - 5"	35' - 9" / 48' - 6"	23' - 1" / 29' - 8"	28' - 7" / 31' - 0"	34' - 3" / 37' - 2"
	8.25	20	20' - 3"	20' - 3"	24' - 4"	16' - 5"	16' - 5"	19' - 8"
		19	23' - 10" / 25' - 7"	25' - 7"	30' - 9"	20' - 2"	20' - 2"	24' - 2"
		18	24' - 1" / 30' - 4"	29' - 9" / 30' - 4"	35' - 9" / 36' - 5"	23' - 1" / 23' - 9"	23' - 9"	28' - 6"
		16	24' - 8" / 33' - 4"	30' - 6" / 41' - 3"	36' - 7" / 49' - 6"	23' - 8" / 30' - 3"	29' - 3" / 31' - 7"	35' - 1" / 37' - 11"
	8.5	20	20' - 6"	20' - 6"	24' - 7"	16' - 7"	16' - 7"	19' - 11"
		19	24' - 4" / 25' - 11"	25' - 11"	31' - 2"	20' - 5"	20' - 5"	24' - 6"
		18	24' - 7" / 30' - 10"	30' - 5" / 30' - 10"	36' - 6" / 36' - 11"	23' - 7" / 24' - 2"	24' - 2"	29' - 0"
		16	25' - 3" / 34' - 0"	31' - 2" / 42' - 0"	37' - 5" / 50' - 5"	24' - 2" / 30' - 8"	29' - 10" / 32' - 2"	35' - 10" / 38' - 7"
	9	20	20' - 8"	20' - 8"	24' - 10"	17' - 0"	17' - 0"	20' - 5"
		19	25' - 4" / 26' - 7"	26' - 7"	31' - 11"	21' - 0"	21' - 0"	25' - 3"
		18	25' - 7" / 31' - 7"	31' - 7"	37' - 11"	24' - 7" / 24' - 10"	24' - 10"	29' - 10"
		16	26' - 3" / 35' - 3"	32' - 5" / 43' - 7"	38' - 11" / 52' - 4"	25' - 2" / 31' - 6"	31' - 2" / 32' - 10"	37' - 4" / 39' - 5"
	9.5	20	21' - 1"	21' - 1"	25' - 4"	17' - 5"	17' - 5"	20' - 11"
		19	26' - 3" / 26' - 9"	26' - 9"	32' - 2"	21' - 7"	21' - 7"	25' - 10"
		18	26' - 7" / 32' - 5"	32' - 5"	38' - 10"	25' - 7"	25' - 7"	30' - 8"
		16	27' - 3" / 36' - 6"	33' - 8" / 44' - 11"	40' - 5" / 53' - 11"	26' - 2" / 32' - 3"	32' - 4" / 33' - 11"	38' - 10" / 40' - 8"

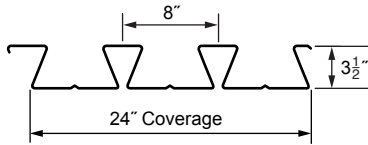
NOTES:

- Negative moment (top) reinforcement is required over supports of continuous spans. See negative reinforcement table for details.
- Continuous spans should be approximately equal with the span length difference not exceeding 20%. Contact New Millennium for unequal span slab design.
- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND ONE-WAY SHEAR CAPACITIES OF COMPOSITE SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
6000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	25.72 / 33.25	10.53 / 13.55	18.13 / 23.4	10.464	10.238	21795.0	-0.1469
		19	26.36 / 35.15	11.81 / 15.76	19.09 / 25.46	12.049	10.631	23696.4	-0.0878
		18	26.94 / 36.92	12.95 / 17.85	19.95 / 27.38	13.484	10.631	25471.0	-0.0326
		16	28.21 / 40.8	15.28 / 22.53	21.74 / 31.67	12.595	10.631	27665.0	0.1067
	5.75	20	29.23 / 37.46	11.78 / 15.03	20.5 / 26.24	11.149	10.445	21795.0	-0.1469
		19	29.92 / 39.55	13.21 / 17.47	21.57 / 28.51	12.848	11.045	23696.4	-0.0878
		18	30.56 / 41.49	14.48 / 19.77	22.52 / 30.63	14.390	11.045	25471.0	-0.0326
		16	31.94 / 45.77	17.08 / 24.92	24.51 / 35.34	17.655	11.045	27665.0	0.1067
	6	20	33.04 / 42.02	13.12 / 16.6	23.08 / 29.31	11.833	10.652	21795.0	-0.1469
		19	33.8 / 44.31	14.72 / 19.28	24.26 / 31.79	13.647	11.459	23696.4	-0.0878
		18	34.5 / 46.43	16.13 / 21.81	25.31 / 34.12	15.296	11.459	25471.0	-0.0326
		16	36.01 / 51.11	19.02 / 27.46	27.52 / 39.29	18.798	11.459	27665.0	0.1067
	6.5	20	41.64 / 52.22	16.07 / 20.03	28.85 / 36.13	13.201	11.066	21795.0	-0.1469
		19	42.55 / 54.93	18.04 / 23.24	30.3 / 39.09	15.245	12.287	23696.4	-0.0878
		18	43.38 / 57.46	19.78 / 26.25	31.58 / 41.86	17.108	12.287	25471.0	-0.0326
		16	45.18 / 63.02	23.34 / 32.99	34.26 / 48.01	21.084	12.287	27665.0	0.1067
	7	20	51.63 / 63.96	19.41 / 23.85	35.52 / 43.9	14.570	11.480	21795.0	-0.1469
		19	52.71 / 67.15	21.8 / 27.64	37.26 / 47.39	16.842	13.115	23696.4	-0.0878
		18	53.7 / 70.11	23.92 / 31.19	38.81 / 50.65	18.920	13.115	25471.0	-0.0326
		16	55.82 / 76.65	28.24 / 39.12	42.03 / 57.88	23.370	13.115	27665.0	0.1067
	7.5	20	63.14 / 77.35	23.13 / 28.06	43.14 / 52.7	15.938	11.894	21795.0	-0.1469
		19	64.41 / 81.06	26 / 32.49	45.2 / 56.77	18.440	13.682	23696.4	-0.0878
		18	65.57 / 84.5	28.54 / 36.63	47.05 / 60.57	20.732	13.943	25471.0	-0.0326
		16	68.07 / 92.1	33.73 / 45.86	50.9 / 68.98	25.655	13.943	27665.0	0.1067
6000 PSI Lightweight Concrete (110 PCF)	5.5	20	18.27 / 25.82	9.43 / 13.5	13.85 / 19.66	10.464	7.974	21795.0	-0.1469
		19	18.88 / 27.71	10.52 / 15.8	14.7 / 21.76	12.049	7.974	23696.4	-0.0878
		18	19.43 / 29.46	11.49 / 17.53	15.46 / 23.49	13.484	7.974	25471.0	-0.0326
		16	20.62 / 33.31	13.65 / 21.25	17.13 / 27.28	12.595	7.974	27665.0	0.1067
	5.75	20	20.71 / 28.99	10.54 / 14.95	15.62 / 21.97	11.149	8.284	21795.0	-0.1469
		19	21.37 / 31.06	11.75 / 17.47	16.56 / 24.27	12.848	8.284	23696.4	-0.0878
		18	21.97 / 32.98	12.82 / 19.87	17.39 / 26.43	14.390	8.284	25471.0	-0.0326
		16	23.26 / 37.22	15 / 24.63	19.13 / 30.92	17.655	8.284	27665.0	0.1067
	6	20	23.35 / 32.4	11.74 / 16.48	17.55 / 24.44	11.833	8.594	21795.0	-0.1469
		19	24.08 / 34.67	13.09 / 19.25	18.58 / 26.96	13.647	8.594	23696.4	-0.0878
		18	24.73 / 36.78	14.27 / 21.87	19.5 / 29.33	15.296	8.594	25471.0	-0.0326
		16	26.14 / 41.42	16.67 / 27.82	21.4 / 34.62	18.798	8.594	27665.0	0.1067
	6.5	20	29.33 / 40.01	14.41 / 19.81	21.87 / 29.91	13.201	9.215	21795.0	-0.1469
		19	30.19 / 42.71	16.06 / 23.11	23.13 / 32.91	15.245	9.215	23696.4	-0.0878
		18	30.97 / 45.22	17.51 / 26.22	24.24 / 35.72	17.108	9.215	25471.0	-0.0326
		16	32.64 / 50.74	20.45 / 33.27	26.54 / 42.01	21.084	9.215	27665.0	0.1067
	7	20	36.27 / 48.73	17.43 / 23.51	26.85 / 36.12	14.570	9.836	21795.0	-0.1469
		19	37.29 / 51.9	19.44 / 27.39	28.36 / 39.64	16.842	9.836	23696.4	-0.0878
		18	38.21 / 54.85	21.2 / 31.05	29.71 / 42.95	18.920	9.836	25471.0	-0.0326
		16	40.18 / 61.35	24.76 / 39.3	32.47 / 50.32	23.370	9.836	27665.0	0.1067
	7.5	20	44.25 / 58.63	20.81 / 27.58	32.53 / 43.11	15.938	10.151	21795.0	-0.1469
		19	45.44 / 62.32	23.23 / 32.09	34.33 / 47.2	18.440	10.457	23696.4	-0.0878
		18	46.53 / 65.75	25.34 / 36.34	35.94 / 51.04	20.732	10.457	25471.0	-0.0326
		16	48.85 / 73.31	29.62 / 45.91	39.24 / 59.61	25.655	10.457	27665.0	0.1067

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

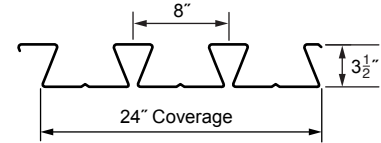
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite

MOMENTS OF INERTIA, POSITIVE MOMENT AND ONE-WAY SHEAR CAPACITIES OF COMPOSITE SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
6000 PSI Normal-Weight Concrete (145 PCF)	7.75	20	69.49 / 84.7	25.14 / 30.31	47.32 / 57.51	16.622	12.101	21795.0	-0.1469
		19	70.86 / 88.68	28.27 / 35.08	49.57 / 61.88	19.239	13.889	23696.4	-0.0878
		18	72.12 / 92.39	31.03 / 39.54	51.58 / 65.96	21.638	14.357	25471.0	-0.0326
		16	74.82 / 100.55	36.71 / 49.47	55.76 / 75.01	26.798	14.357	27665.0	0.1067
	8	20	76.27 / 92.51	27.24 / 32.66	51.76 / 62.58	17.307	12.308	21795.0	-0.1469
		19	77.75 / 96.78	30.65 / 37.79	54.2 / 67.28	20.038	14.096	23696.4	-0.0878
		18	79.1 / 100.75	33.65 / 42.57	56.38 / 71.66	22.544	14.771	25471.0	-0.0326
		16	82.02 / 109.51	39.83 / 53.22	60.92 / 81.36	27.941	14.771	27665.0	0.1067
	8.25	20	83.48 / 100.79	29.44 / 35.1	56.46 / 67.95	17.991	12.515	21795.0	-0.1469
		19	85.07 / 105.35	33.14 / 40.61	59.1 / 72.98	20.837	14.303	23696.4	-0.0878
		18	86.53 / 109.6	36.4 / 45.74	61.46 / 77.67	23.450	15.185	25471.0	-0.0326
		16	89.67 / 118.97	43.1 / 57.14	66.38 / 88.05	29.084	15.185	27665.0	0.1067
	8.5	20	91.14 / 109.55	31.75 / 37.65	61.44 / 73.6	18.675	12.722	21795.0	-0.1469
		19	92.84 / 114.42	35.74 / 43.54	64.29 / 78.98	21.636	14.510	23696.4	-0.0878
		18	94.41 / 118.96	39.27 / 49.03	66.84 / 83.99	24.355	15.598	25471.0	-0.0326
		16	97.78 / 128.96	46.53 / 61.21	72.16 / 95.09	30.227	15.598	27665.0	0.1067
	9	20	107.86 / 128.59	36.64 / 43.05	72.25 / 85.82	20.043	13.135	21795.0	-0.1469
		19	109.82 / 134.11	41.28 / 49.75	75.55 / 91.93	23.234	14.924	23696.4	-0.0878
		18	111.61 / 139.25	45.39 / 55.99	78.5 / 97.62	26.167	16.426	25471.0	-0.0326
		16	115.49 / 150.59	53.85 / 69.82	84.67 / 110.21	32.513	16.426	27665.0	0.1067
	9.5	20	126.54 / 149.73	41.94 / 48.85	84.24 / 99.29	21.412	13.549	21795.0	-0.1469
		19	128.77 / 155.94	47.28 / 56.43	88.03 / 106.18	24.831	15.338	23696.4	-0.0878
		18	130.82 / 161.73	52.02 / 63.47	91.42 / 112.6	27.979	17.254	25471.0	-0.0326
		16	135.24 / 174.51	61.79 / 79.07	98.51 / 126.79	34.799	17.254	27665.0	0.1067
6000 PSI Lightweight Concrete (110 PCF)	7.75	20	48.65 / 64.05	22.63 / 29.76	35.64 / 46.9	16.622	10.306	21795.0	-0.1469
		19	49.94 / 68.01	25.28 / 34.61	37.61 / 51.31	19.239	10.767	23696.4	-0.0878
		18	51.12 / 71.7	27.59 / 39.17	39.35 / 55.43	21.638	10.767	25471.0	-0.0326
		16	53.62 / 79.83	32.26 / 49.43	42.94 / 64.63	26.798	10.767	27665.0	0.1067
	8	20	53.34 / 69.79	24.55 / 32.03	38.95 / 50.91	17.307	10.461	21795.0	-0.1469
		19	54.74 / 74.04	27.43 / 37.23	41.08 / 55.63	20.038	11.078	23696.4	-0.0878
		18	56.01 / 77.99	29.95 / 42.12	42.98 / 60.05	22.544	11.078	25471.0	-0.0326
		16	58.71 / 86.71	35.04 / 53.11	46.88 / 69.91	27.941	11.078	27665.0	0.1067
	8.25	20	58.33 / 75.86	26.56 / 34.4	42.45 / 55.13	17.991	10.617	21795.0	-0.1469
		19	59.83 / 80.41	29.69 / 39.96	44.76 / 60.18	20.837	11.388	23696.4	-0.0878
		18	61.2 / 84.64	32.42 / 45.19	46.81 / 64.91	23.450	11.388	25471.0	-0.0326
		16	64.11 / 93.97	37.96 / 56.93	51.04 / 75.45	29.084	11.388	27665.0	0.1067
	8.5	20	63.63 / 82.28	28.67 / 36.86	46.15 / 59.57	18.675	10.772	21795.0	-0.1469
		19	65.24 / 87.13	32.05 / 42.8	48.65 / 64.97	21.636	11.699	23696.4	-0.0878
		18	66.71 / 91.65	35.02 / 48.38	50.87 / 70.01	24.355	11.699	25471.0	-0.0326
		16	69.84 / 101.62	41.03 / 60.9	55.43 / 81.26	30.227	11.699	27665.0	0.1067
	9	20	75.18 / 96.18	33.16 / 42.07	54.17 / 69.12	20.043	11.082	21795.0	-0.1469
		19	77.04 / 101.68	37.11 / 48.8	57.07 / 75.24	23.234	12.320	23696.4	-0.0878
		18	78.72 / 106.81	40.57 / 55.12	59.64 / 80.97	26.167	12.320	25471.0	-0.0326
		16	82.32 / 118.11	47.58 / 69.28	64.95 / 93.7	32.513	12.320	27665.0	0.1067
	9.5	20	88.07 / 111.56	38.03 / 47.66	63.05 / 79.61	21.412	11.393	21795.0	-0.1469
		19	90.19 / 117.76	42.59 / 55.25	66.39 / 86.51	24.831	12.941	23696.4	-0.0878
		18	92.11 / 123.53	46.59 / 62.37	69.35 / 92.95	27.979	12.941	25471.0	-0.0326
		16	96.23 / 136.26	54.72 / 78.27	75.47 / 107.27	34.799	12.941	27665.0	0.1067

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

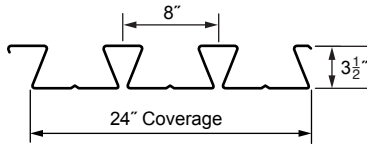
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite

FACTORED SHEAR-BOND STRENGTH OF SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans												
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"	
6000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	2.300	1.757	1.394	1.330	1.163	1.040	0.947	0.876	0.821	0.842	0.815	0.795	
	56 PSF	19	3.198	2.509	2.049	1.917	1.698	1.535	1.410	1.312	1.236	1.175	1.128	1.163	
	1.43 cu.yd/(100sq.ft)	18	4.108	3.267	2.707	2.307	2.233	2.028	1.870	1.745	1.646	1.567	1.503	1.451	
	6x6 - W1.4 x W1.4	16	6.051	4.902	4.136	3.588	3.408	3.117	2.891	2.710	2.565	2.446	2.349	2.268	
	5.75"	20	2.441	1.864	1.655	1.409	1.232	1.101	1.002	0.926	0.868	0.889	0.860	0.839	
	59 PSF	19	3.394	2.662	2.175	2.032	1.800	1.626	1.493	1.389	1.308	1.244	1.193	1.229	
	1.5 cu.yd/(100sq.ft)	18	4.359	3.468	2.873	2.449	2.368	2.150	1.981	1.849	1.744	1.659	1.591	1.535	
	6x6 - W1.4 x W1.4	16	6.422	5.202	4.389	3.808	3.614	3.305	3.064	2.873	2.718	2.592	2.488	2.402	
	6"	20	2.582	1.972	1.749	1.489	1.301	1.162	1.057	0.977	0.979	0.936	0.905	0.883	
	62 PSF	19	3.590	2.816	2.300	2.147	1.902	1.718	1.576	1.467	1.380	1.312	1.258	1.295	
	1.58 cu.yd/(100sq.ft)	18	4.611	3.668	3.039	2.590	2.502	2.271	2.093	1.952	1.841	1.751	1.678	1.700	
	6x6 - W1.4 x W1.4	16	6.793	5.503	4.642	4.028	3.820	3.493	3.238	3.035	2.871	2.737	2.627	2.536	
	6.5"	20	2.864	2.187	1.936	1.648	1.439	1.285	1.168	1.078	1.078	1.031	0.995	0.970	
	68 PSF	19	3.982	3.124	2.551	2.378	2.105	1.900	1.743	1.621	1.524	1.448	1.469	1.427	
	1.74 cu.yd/(100sq.ft)	18	5.114	4.068	3.371	3.110	2.771	2.514	2.316	2.159	2.035	1.935	1.854	1.876	
	6x6 - W1.4 x W1.4	16	7.535	6.103	5.149	4.467	4.232	3.869	3.585	3.359	3.177	3.028	2.905	2.803	
	7"	20	3.146	2.402	2.124	1.807	1.577	1.407	1.278	1.248	1.178	1.125	1.086	1.058	
	74 PSF	19	4.374	3.431	3.022	2.609	2.309	2.083	1.910	1.775	1.669	1.584	1.605	1.558	
	1.89 cu.yd/(100sq.ft)	18	5.618	4.469	3.703	3.413	3.040	2.757	2.539	2.366	2.229	2.119	2.118	2.052	
	6x6 - W2.0 x W2.0	16	8.276	6.704	5.656	4.907	4.644	4.245	3.932	3.684	3.483	3.319	3.183	3.071	
	7.5"	20	3.428	2.618	2.312	1.966	1.715	1.529	1.456	1.355	1.278	1.220	1.176	1.145	
	80 PSF	19	4.766	3.739	3.290	2.840	2.512	2.266	2.077	1.929	1.813	1.809	1.742	1.690	
	2.04 cu.yd/(100sq.ft)	18	6.121	4.869	4.035	3.716	3.308	3.000	2.761	2.573	2.423	2.302	2.300	2.227	
	6x6 - W2.0 x W2.0	16	9.018	7.305	6.163	5.347	5.056	4.620	4.280	4.008	3.789	3.609	3.461	3.338	
6000 PSI Lightweight Concrete (110 PCF)	5.5"	20	2.300	1.757	1.394	1.285	1.113	0.983	0.884	0.806	0.745	0.697	0.659	0.684	
	42 PSF	19	3.198	2.509	2.049	1.721	1.648	1.478	1.346	1.243	1.160	1.093	1.039	0.995	
	1.43 cu.yd/(100sq.ft)	18	4.108	3.267	2.707	2.307	2.183	1.971	1.807	1.676	1.571	1.485	1.414	1.356	
	6x6 - W1.4 x W1.4	16	6.051	4.902	4.136	3.588	3.178	3.060	2.827	2.641	2.489	2.364	2.260	2.173	
	5.75"	20	2.441	1.864	1.480	1.362	1.179	1.041	0.935	0.853	0.788	0.737	0.696	0.722	
	45 PSF	19	3.394	2.662	2.175	1.826	1.747	1.566	1.426	1.316	1.228	1.157	1.099	1.052	
	1.5 cu.yd/(100sq.ft)	18	4.359	3.468	2.873	2.449	2.315	2.090	1.915	1.776	1.664	1.572	1.497	1.435	
	6x6 - W1.4 x W1.4	16	6.422	5.202	4.389	3.808	3.372	3.245	2.998	2.799	2.638	2.505	2.395	2.302	
	6"	20	2.582	1.972	1.565	1.440	1.245	1.099	0.987	0.900	0.831	0.776	0.733	0.759	
	47 PSF	19	3.590	2.816	2.300	1.932	1.846	1.655	1.506	1.390	1.296	1.221	1.159	1.110	
	1.58 cu.yd/(100sq.ft)	18	4.611	3.668	3.039	2.590	2.446	2.208	2.023	1.875	1.757	1.660	1.580	1.515	
	6x6 - W1.4 x W1.4	16	6.793	5.503	4.642	4.028	3.764	3.430	3.168	2.958	2.787	2.646	2.529	2.431	
	6.5"	20	2.864	2.187	1.736	1.594	1.378	1.215	1.091	0.993	0.917	0.856	0.869	0.835	
	52 PSF	19	3.982	3.124	2.551	2.324	2.044	1.831	1.666	1.536	1.432	1.348	1.280	1.224	
	1.74 cu.yd/(100sq.ft)	18	5.114	4.068	3.371	2.873	2.709	2.445	2.239	2.075	1.943	1.835	1.746	1.673	
	6x6 - W1.4 x W1.4	16	7.535	6.103	5.149	4.467	4.170	3.800	3.508	3.275	3.085	2.928	2.797	2.688	
	7"	20	3.146	2.402	1.907	1.748	1.510	1.332	1.194	1.087	1.002	0.997	0.948	0.910	
	56 PSF	19	4.374	3.431	2.802	2.550	2.242	2.008	1.826	1.683	1.568	1.475	1.400	1.411	
	1.89 cu.yd/(100sq.ft)	18	5.618	4.469	3.703	3.156	2.973	2.682	2.455	2.274	2.129	2.010	1.912	1.831	
	6x6 - W2.0 x W2.0	16	8.276	6.704	5.656	4.907	4.577	4.169	3.849	3.592	3.382	3.210	3.066	2.945	
	7.5"	20	3.428	2.618	2.258	1.902	1.643	1.448	1.298	1.181	1.088	1.082	1.028	0.986	
	61 PSF	19	4.766	3.739	3.054	2.776	2.439	2.184	1.986	1.830	1.704	1.603	1.520	1.531	
	2.04 cu.yd/(100sq.ft)	18	6.121	4.869	4.035	3.439	3.236	2.919	2.671	2.474	2.315	2.185	2.078	1.989	
	6x6 - W2.0 x W2.0	16	9.018	7.305	6.163	5.347	4.984	4.539	4.189	3.909	3.680	3.492	3.334	3.202	

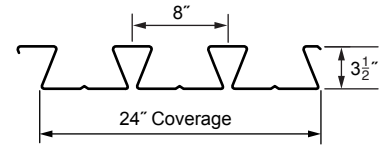
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite

FACTORED SHEAR-BOND STRENGTH OF SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans											
			8' - 0"	10' - 0"	12' - 0"	14' - 0"	16' - 0"	18' - 0"	20' - 0"	22' - 0"	24' - 0"	26' - 0"	28' - 0"	30' - 0"
6000 PSI Normal-Weight Concrete (145 PCF)	7.75" 83 PSF 2.12 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	3.569	2.725	2.406	2.045	1.784	1.591	1.514	1.408	1.327	1.267	1.222	1.256
		19	4.962	3.892	3.424	2.955	2.614	2.357	2.160	2.006	1.885	1.880	1.810	1.756
		18	6.373	5.070	4.201	3.867	3.443	3.121	2.873	2.677	2.520	2.394	2.391	2.315
		16	9.388	7.605	6.416	5.857	5.262	4.808	4.453	4.171	3.942	3.755	3.600	3.472
	8" 86 PSF 2.2 cu.yd/(100sq.ft) 4x4 - W1.4 x W1.4	20	3.710	2.833	2.500	2.124	1.853	1.652	1.571	1.461	1.377	1.314	1.267	1.302
		19	5.158	4.046	3.558	3.070	2.715	2.449	2.244	2.084	1.957	1.951	1.879	1.822
		18	6.625	5.270	4.367	4.018	3.577	3.243	2.984	2.780	2.618	2.486	2.482	2.403
		16	9.759	7.905	6.669	6.087	5.468	4.996	4.627	4.333	4.095	3.900	3.739	3.717
	8.25" 89 PSF 2.28 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	3.851	3.157	2.594	2.204	1.922	1.780	1.629	1.514	1.427	1.361	1.379	1.348
		19	5.354	4.200	3.692	3.186	2.817	2.540	2.327	2.161	2.120	2.023	1.947	1.888
		18	6.876	5.470	4.532	4.170	3.711	3.364	3.096	2.884	2.715	2.677	2.574	2.491
		16	10.130	8.206	6.923	6.317	5.674	5.184	4.801	4.495	4.248	4.045	3.878	3.854
	8.5" 92 PSF 2.35 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	3.992	3.272	2.688	2.283	1.991	1.844	1.686	1.567	1.477	1.409	1.427	1.394
		19	5.550	4.354	3.826	3.301	2.919	2.631	2.410	2.238	2.195	2.094	2.015	1.954
		18	7.128	5.670	4.970	4.321	3.846	3.486	3.207	2.987	2.812	2.772	2.665	2.579
		16	10.501	8.506	7.176	6.547	5.880	5.372	4.974	4.657	4.401	4.191	4.017	3.992
	9" 98 PSF 2.51 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	4.274	3.502	2.876	2.442	2.129	1.970	1.802	1.674	1.577	1.571	1.521	1.486
		19	5.942	4.661	4.094	3.532	3.122	2.814	2.577	2.483	2.345	2.237	2.152	2.086
		18	7.631	6.071	5.319	4.624	4.114	3.729	3.430	3.194	3.006	2.962	2.847	2.755
		16	11.242	9.107	7.683	7.006	6.292	5.747	5.321	4.982	4.707	4.482	4.296	4.267
	9.5" 104 PSF 2.66 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	4.556	3.731	3.064	2.601	2.337	2.097	1.917	1.780	1.676	1.670	1.616	1.578
		19	6.334	4.969	4.362	3.762	3.325	2.997	2.744	2.643	2.495	2.379	2.289	2.218
		18	8.135	6.471	5.667	4.926	4.383	3.972	3.653	3.401	3.200	3.152	3.029	2.930
		16	11.984	9.707	8.190	7.466	6.704	6.123	5.669	5.306	5.013	4.772	4.698	4.542
6000 PSI Lightweight Concrete (110 PCF)	7.75" 63 PSF 2.12 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	3.569	2.725	2.350	1.979	1.709	1.506	1.350	1.227	1.195	1.124	1.067	1.023
		19	4.962	3.892	3.179	2.889	2.538	2.273	2.066	1.903	1.772	1.666	1.580	1.591
		18	6.373	5.070	4.201	3.580	3.367	3.037	2.779	2.574	2.408	2.272	2.161	2.150
		16	9.388	7.605	6.416	5.567	5.187	4.723	4.359	4.067	3.829	3.633	3.469	3.331
	8" 65 PSF 2.2 cu.yd/(100sq.ft) 4x4 - W1.4 x W1.4	20	3.710	2.833	2.442	2.056	1.775	1.564	1.401	1.274	1.240	1.166	1.107	1.061
		19	5.158	4.046	3.305	3.002	2.637	2.361	2.146	1.976	1.840	1.730	1.719	1.651
		18	6.625	5.270	4.367	3.950	3.499	3.155	2.887	2.673	2.501	2.360	2.243	2.232
		16	9.759	7.905	6.669	5.786	5.390	4.908	4.530	4.226	3.978	3.773	3.603	3.460
	8.25" 68 PSF 2.28 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	3.851	2.941	2.533	2.133	1.842	1.622	1.453	1.321	1.285	1.208	1.147	1.099
		19	5.354	4.200	3.430	3.115	2.736	2.449	2.226	2.050	1.908	1.794	1.782	1.711
		18	6.876	5.470	4.532	4.099	3.631	3.274	2.995	2.773	2.594	2.447	2.326	2.314
		16	10.130	8.206	6.923	6.006	5.593	5.093	4.700	4.384	4.127	3.914	3.737	3.588
	8.5" 70 PSF 2.35 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	3.992	3.048	2.625	2.211	1.908	1.680	1.505	1.433	1.330	1.250	1.186	1.137
		19	5.550	4.354	3.556	3.228	2.835	2.537	2.306	2.123	1.976	1.857	1.844	1.771
		18	7.128	5.670	4.698	4.248	3.762	3.392	3.103	2.873	2.687	2.535	2.409	2.395
		16	10.501	8.506	7.176	6.226	5.797	5.278	4.870	4.543	4.276	4.055	3.871	3.717
	9" 74 PSF 2.51 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	4.274	3.264	2.809	2.365	2.040	1.796	1.608	1.531	1.420	1.334	1.265	1.212
		19	5.942	4.661	4.027	3.454	3.033	2.714	2.466	2.270	2.112	1.985	1.970	1.891
		18	7.631	6.071	5.030	4.546	4.025	3.629	3.319	3.072	2.873	2.710	2.664	2.559
		16	11.242	9.107	7.683	6.666	6.203	5.647	5.210	4.860	4.573	4.337	4.140	3.974
	9.5" 79 PSF 2.66 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	4.556	3.479	2.993	2.519	2.173	1.913	1.779	1.628	1.510	1.418	1.345	1.287
		19	6.334	4.969	4.291	3.680	3.231	2.891	2.626	2.416	2.248	2.200	2.095	2.011
		18	8.135	6.471	5.362	4.844	4.289	3.866	3.535	3.272	3.059	2.884	2.835	2.723
		16	11.984	9.707	8.190	7.105	6.610	6.017	5.551	5.177	4.871	4.619	4.409	4.231

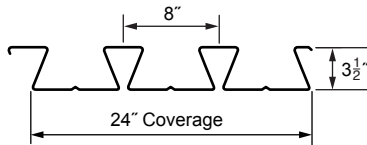
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
6000 PSI Normal-Weight Concrete (145 PCF)	5.5	18	4@7	4@8	4@9	5@8	5@8	5@9
		20	5@9	5@10	4@7	5@6	5@7	5@7
		22	5@7	5@8	5@9	6@7	6@8	5@6
		24	5@6	5@7	5@8	6@5	6@6	6@7
	5.75	20	5@10	5@11	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@6
		24	5@6	5@7	5@8	6@6	6@7	6@7
		26	6@8	5@6	5@7	-	6@5	6@6
	6	20	5@10	5@11	4@8	5@7	5@7	5@8
		22	5@8	5@9	5@10	6@7	5@6	5@7
		24	5@7	5@7	5@8	6@6	6@7	6@8
		26	6@8	5@6	5@7	6@5	6@6	6@6
	6.5	18	4@9	4@10	4@11	5@9	5@10	5@11
		22	5@9	5@10	5@11	5@6	5@6	5@7
		26	5@6	5@7	5@7	6@5	6@6	6@7
		30	6@6	6@7	6@8	-	6@4	6@5
	7	18	4@9	4@9	4@9	5@10	5@11	4@8
		22	5@9	5@10	5@11	5@6	5@7	5@8
		26	5@6	5@7	5@8	6@6	6@7	6@8
		30	6@6	6@7	5@6	6@4	6@5	6@5
	7.5	18	5@10	5@11	4@8	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@7	5@7	5@8
		26	5@7	5@7	5@8	6@6	6@7	5@6
		30	6@7	6@8	5@6	6@5	6@5	6@6
6000 PSI Lightweight Concrete (110 PCF)	5.5	18	4@8	4@9	4@10	5@8	5@9	5@10
		20	5@10	4@7	4@8	5@6	5@7	5@8
		22	5@8	5@9	5@11	6@7	5@6	5@6
		24	5@7	5@8	5@9	6@6	6@7	6@8
	5.75	20	5@11	4@8	4@9	5@7	5@8	5@8
		22	5@9	5@10	5@11	6@8	5@6	5@7
		24	5@7	5@8	5@9	6@6	6@7	5@6
		26	5@6	5@7	5@8	6@5	6@6	6@7
	6	20	5@11	4@8	4@9	5@7	5@8	5@9
		22	5@9	5@10	5@11	5@6	5@6	5@7
		24	5@8	5@8	5@9	6@7	6@8	5@6
		26	5@6	5@7	5@8	6@5	6@6	6@7
	6.5	18	4@10	4@10	4@10	5@10	5@11	4@8
		22	5@10	5@11	4@8	5@6	5@7	5@8
		26	5@7	5@8	5@8	6@6	6@7	6@8
		30	6@7	6@8	5@6	6@4	6@5	6@5
	7	18	5@10	4@7	4@8	5@11	4@8	4@8
		22	5@10	4@7	4@8	5@7	5@8	5@8
		26	5@7	5@8	5@9	6@7	6@7	5@6
		30	6@7	5@6	5@7	6@5	6@5	6@6
	7.5	18	5@11	4@8	4@9	5@11	4@8	4@8
		22	5@11	4@8	4@9	5@7	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	5@6	5@6	5@7	6@5	6@6	6@6

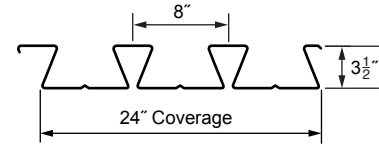
NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.



Versa-Dek® 3.5 LS Composite

SUGGESTED REINFORCING STEEL OVER SUPPORTS FOR CONTINUOUS SPANS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

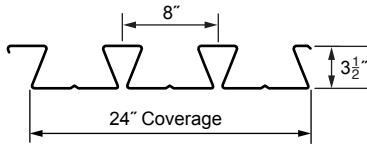
	Total Slab Depth (in.)	Slab Span (ft)	LL=40 psf, SDL=20 psf (88 psf LRFD factored load)			LL=100 psf, SDL=5 psf (166 psf LRFD factored load)		
			-WL ² /9	-WL ² /10	-WL ² /11	-WL ² /9	-WL ² /10	-WL ² /11
6000 PSI Normal-Weight Concrete (145 PCF)	7.75	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@8
		26	5@7	5@8	5@8	6@7	6@7	5@6
		30	6@7	5@6	5@6	6@5	6@5	6@6
	8	18	5@10	5@11	4@8	5@11	4@8	4@8
		22	5@10	5@11	4@8	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	6@8	5@6
		30	6@7	5@6	5@6	6@5	6@6	6@6
	8.25	18	5@10	5@11	5@11	5@11	5@11	5@11
		22	5@10	5@11	5@11	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	5@6	5@6
		30	6@7	5@6	5@6	6@5	6@6	6@6
	8.5	18	5@10	4@7	4@7	5@11	5@11	5@11
		22	5@10	4@7	4@7	5@7	5@8	5@9
		26	5@7	5@8	5@9	6@7	5@6	5@6
		30	6@8	5@6	5@7	6@5	6@6	6@7
	9	18	5@11	5@11	5@11	5@8	5@9	5@10
		22	5@11	5@11	5@11	5@8	5@9	5@10
		26	5@8	5@8	5@9	6@8	5@6	5@7
		30	6@8	5@6	5@7	6@5	6@6	6@7
	9.5	18	5@8	5@9	5@10	5@8	5@9	5@10
		22	5@8	5@9	5@10	5@8	5@9	5@10
		26	5@8	5@9	5@10	5@6	5@6	5@7
		30	5@6	5@6	5@7	6@6	6@6	6@7
6000 PSI Lightweight Concrete (110 PCF)	7.75	18	5@11	4@8	4@8	4@7	4@8	4@8
		22	5@11	4@8	4@8	5@8	5@8	5@9
		26	5@8	5@9	5@10	6@7	5@6	5@6
		30	5@6	5@6	5@7	6@5	6@6	6@7
	8	18	4@7	4@7	4@7	4@8	4@8	4@8
		22	4@7	4@7	4@7	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@7	6@5	6@6	6@7
	8.25	18	4@8	4@8	4@8	4@8	4@8	4@8
		22	4@8	4@8	4@8	5@8	5@9	5@10
		26	5@8	5@9	5@10	6@8	5@6	5@7
		30	5@6	5@7	5@8	6@6	6@6	6@7
	8.5	18	5@8	5@9	5@11	5@8	5@9	5@10
		22	5@8	5@9	5@11	5@8	5@9	5@10
		26	5@8	5@9	5@11	5@6	5@6	5@7
		30	5@6	5@7	5@8	6@6	6@7	6@7
	9	18	5@9	5@10	5@11	5@9	5@10	5@11
		22	5@9	5@10	5@11	5@9	5@10	5@11
		26	5@9	5@10	5@11	5@6	5@7	5@7
		30	5@6	5@7	5@8	6@6	6@7	6@8
	9.5	18	5@9	5@10	5@10	5@9	5@10	5@10
		22	5@9	5@10	5@10	5@9	5@10	5@10
		26	5@9	5@10	5@10	5@6	5@7	5@8
		30	5@7	5@7	5@8	6@7	6@7	5@6

NOTES:

- Continuous spans should be approximately equal with the span length difference not exceeding 20%.
Slab span can be taken as an average of the adjacent spans. Contact New Millennium for unequal span slab design.
- Reinforcing over supports should extend a minimum of 0.3 x L on both sides of the supports (L is the longer of the two adjacent spans).
- Table is based on 60 ksi reinforcing bars and 0.75 in. concrete cover for reinforcing steel over supports.
- The -WL²/9 columns apply to the interior support of the slab continuous over two spans; the -WL²/10 columns apply to first interior support of the slab continuous over more than two spans; the -WL²/11 columns apply to other interior supports of the slab continuous over more than two spans.

Versa-Dek® 3.5 LS Composite

MAXIMUM DESIGN NEGATIVE MOMENT CAPACITY OF COMPOSITE SLABS



6000 PSI OF ANY DENSITY

	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		5.5	5.75	6	6.5	7	7.5
6000 PSI of Any Density	4@12	3.932	4.157	4.382	-	-	-
	4@10	4.691	4.961	5.231	5.771	6.311	-
	4@8	5.810	6.148	6.485	7.160	7.835	8.510
	4@6	7.629	8.079	8.529	9.429	10.329	11.229
	5@12	5.908	6.256	6.605	7.303	8.000	8.698
	5@10	7.021	7.440	7.858	8.695	9.532	10.369
	5@8	8.650	9.173	9.696	10.742	11.788	12.835
	5@6	11.250	11.948	12.645	14.040	15.435	16.830
	6@12	8.093	8.588	9.083	10.073	11.063	12.053
	6@10	9.575	10.169	10.763	11.951	13.139	14.327
	6@8	11.713	12.455	13.198	14.683	16.168	17.653
	6@6	15.047	16.037	17.027	19.007	20.987	22.967
	Rebar	ϕM_n (ft-kips/ft)					
		Total Slab Thickness (in.)					
		7.75	8	8.25	8.5	9	9.5
6000 PSI of Any Density	4@12	-	-	-	-	-	-
	4@10	-	-	-	-	-	-
	4@8	8.848	9.185	9.523	9.860	-	-
	4@6	11.679	12.129	12.579	13.029	13.929	14.829
	5@12	9.046	9.395	9.744	10.093	-	-
	5@10	10.788	11.206	11.625	12.043	12.880	13.717
	5@8	13.358	13.881	14.404	14.927	15.973	17.020
	5@6	17.528	18.225	18.923	19.620	21.015	22.410
	6@12	12.548	13.043	13.538	14.033	15.023	16.013
	6@10	14.921	15.515	16.109	16.703	17.891	19.079
	6@8	18.395	19.138	19.880	20.623	22.108	23.593
	6@6	23.957	24.947	25.937	26.927	28.907	30.887

NOTES:

- Table is based on Grade 60 ASTM A615 reinforcing bars with 3/4" concrete cover over supports.
- Slab self-weight has not been accounted for in the tabulated moment capacities.
It should be included into the loads applied to the slab.

INSTRUCTIONS ON HOW TO SELECT A REINFORCEMENT PATTERN:

Step 1 – Calculate required negative moment capacity, M_{req} , as follows:

$$M_{req, LRFD} = [1.2(W_{slab} + W_D) + 1.6W_L]L^2/C \text{ (LRFD)}$$

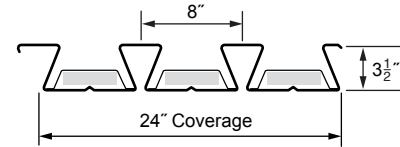
Where: W_D = superimposed dead load, psf; W_L = live load, psf; W_{slab} = slab weight, psf; L = span length taken as the average of the adjacent span lengths (spans shall be approximately equal with the larger of two adjacent spans not greater than the shorter by more than 20%), ft; $M_{req, LRFD}$ = required LRFD factored negative moment capacity, lb-ft/ft deck width; C = negative bending coefficient (9 for interior support of two span continuous composite slab; 10 for first interior support of composite slab continuous over more than two spans; 11 for other interior supports of composite slab continuous over more than two spans).

Step 2 – Select reinforcement size and spacing from table where $\phi M_n \geq M_{req, LRFD}$ (LRFD).



Versa-Dek® 3.5 LS Composite Acoustical

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

SECTION PROPERTIES

STRENGTHS (Bare Deck)

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	3.07	40	0.903	1.803	1.803	0.754	0.909	5501	952	1954
19	0.0418	24	3.58	40	1.053	2.138	2.165	0.921	1.087	7500	1275	2594
18	0.0474	24	4.06	40	1.194	2.450	2.45	1.084	1.224	9644	1615	3264
16	0.0598	24	5.12	40	1.505	3.122	3.123	1.466	1.564	13477	2496	4990

F_y is steel yield stress; A_s is area of deck; I_b is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

CONSTRUCTION CLEAR SPANS

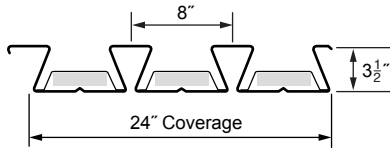
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
Normal-Weight Concrete (145 PCF)	5.5"	20	13' - 0"	14' - 7"	15' - 1"	Lightweight Concrete (110 PCF)	5.5"	20	14' - 5"	15' - 11"	16' - 6"
	45 PSF	19	14' - 6"	15' - 10"	16' - 5"		34 PSF	19	15' - 5"	17' - 5"	18' - 0"
	1.14 cu.yd/(100sq.ft)	18	14' - 11"	16' - 10"	17' - 4"		1.14 cu.yd/(100sq.ft)	18	15' - 11"	18' - 5"	18' - 7"
	6x6 - W1.4 x W1.4	16	15' - 9"	18' - 10"	18' - 6"		6x6 - W1.4 x W1.4	16	16' - 9"	20' - 8"	19' - 8"
	5.75"	20	12' - 8"	14' - 3"	14' - 9"		5.75"	20	14' - 1"	15' - 7"	16' - 2"
	48 PSF	19	14' - 2"	15' - 6"	16' - 0"		36 PSF	19	15' - 2"	17' - 0"	17' - 7"
	1.22 cu.yd/(100sq.ft)	18	14' - 8"	16' - 5"	17' - 0"		1.22 cu.yd/(100sq.ft)	18	15' - 8"	18' - 0"	18' - 4"
	6x6 - W1.4 x W1.4	16	15' - 6"	18' - 5"	18' - 3"		6x6 - W1.4 x W1.4	16	16' - 6"	20' - 3"	19' - 4"
	6"	20	12' - 4"	13' - 11"	14' - 5"		6"	20	13' - 9"	15' - 4"	15' - 10"
	51 PSF	19	13' - 10"	15' - 2"	15' - 8"		38 PSF	19	15' - 0"	16' - 8"	17' - 3"
	1.29 cu.yd/(100sq.ft)	18	14' - 6"	16' - 1"	16' - 7"		1.29 cu.yd/(100sq.ft)	18	15' - 5"	17' - 8"	18' - 1"
	6x6 - W1.4 x W1.4	16	15' - 4"	18' - 1"	18' - 0"		6x6 - W1.4 x W1.4	16	16' - 4"	19' - 10"	19' - 1"
Normal-Weight Concrete (145 PCF)	6.25"	20	12' - 1"	13' - 4"	13' - 10"	Lightweight Concrete (110 PCF)	6.25"	20	13' - 5"	15' - 0"	15' - 6"
	54 PSF	19	13' - 6"	14' - 10"	15' - 4"		41 PSF	19	14' - 9"	16' - 4"	16' - 11"
	1.37 cu.yd/(100sq.ft)	18	14' - 4"	15' - 9"	16' - 3"		1.37 cu.yd/(100sq.ft)	18	15' - 3"	17' - 4"	17' - 10"
	6x6 - W1.4 x W1.4	16	15' - 2"	17' - 8"	17' - 9"		6x6 - W1.4 x W1.4	16	16' - 1"	19' - 5"	18' - 10"
	6.5"	20	11' - 10"	12' - 9"	13' - 4"		6.5"	20	13' - 2"	14' - 9"	15' - 3"
	57 PSF	19	13' - 3"	14' - 7"	15' - 1"		43 PSF	19	14' - 7"	16' - 1"	16' - 7"
	1.45 cu.yd/(100sq.ft)	18	14' - 1"	15' - 5"	15' - 11"		1.45 cu.yd/(100sq.ft)	18	15' - 1"	17' - 0"	17' - 7"
	6x6 - W1.4 x W1.4	16	14' - 11"	17' - 4"	17' - 6"		6x6 - W1.4 x W1.4	16	15' - 11"	19' - 1"	18' - 8"
	6.75"	20	11' - 7"	12' - 3"	12' - 10"		6.75"	20	12' - 11"	14' - 6"	15' - 0"
	60 PSF	19	12' - 11"	14' - 3"	14' - 9"		45 PSF	19	14' - 5"	15' - 9"	16' - 4"
	1.52 cu.yd/(100sq.ft)	18	13' - 11"	15' - 2"	15' - 8"		1.52 cu.yd/(100sq.ft)	18	14' - 10"	16' - 9"	17' - 3"
	6x6 - W2.0 x W2.0	16	14' - 9"	17' - 0"	17' - 3"		6x6 - W2.0 x W2.0	16	15' - 9"	18' - 9"	18' - 5"

NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.

Versa-Dek® 3.5 LS Composite Acoustical

NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE



PROPERTIES

Gage	Thickness (in.)	Coverage (in.)	Weight (psf)	F _y (ksi)	A _s (in. ² /ft)	I _b (in. ⁴ /ft)		S _p (in. ³ /ft)	S _n (in. ³ /ft)	φV _n (lb/ft)	φR _{be} (lb/ft)	φR _{bi} (lb/ft)
						single	multi					
20	0.0358	24	3.07	40	0.903	1.803	1.803	0.754	0.909	5501	952	1954
19	0.0418	24	3.58	40	1.053	2.138	2.165	0.921	1.087	7500	1275	2594
18	0.0474	24	4.06	40	1.194	2.450	2.45	1.084	1.224	9644	1615	3264
16	0.0598	24	5.12	40	1.505	3.122	3.123	1.466	1.564	13477	2496	4990

F_y is steel yield stress; A_s is area of deck; I_b is deck moment of inertia for deflection calculations; S_p and S_n are deck section moduli in positive and negative bending, respectively; φV_n is design shear strength of deck; φR_{be} and φR_{bi} are design web crippling strengths of deck for end and interior bearing, respectively.

SECTION PROPERTIES

STRENGTHS (Bare Deck)

CONSTRUCTION CLEAR SPANS

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)				Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Construction Clear Span (ft.-in.)		
			Single	Double	Triple				Single	Double	Triple
Normal-Weight Concrete (145 PCF)	7"	20	11' - 4"	11' - 10"	12' - 4"	Lightweight Concrete (110 PCF)	7"	20	12' - 8"	14' - 3"	14' - 9"
	63 PSF	19	12' - 8"	14' - 0"	14' - 6"		48 PSF	19	14' - 2"	15' - 6"	16' - 0"
	1.6 cu.yd/(100sq.ft)	18	13' - 9"	14' - 10"	15' - 4"		1.6 cu.yd/(100sq.ft)	18	14' - 9"	16' - 5"	17' - 0"
	6x6 - W2.0 x W2.0	16	14' - 7"	16' - 9"	17' - 1"		6x6 - W2.0 x W2.0	16	15' - 6"	18' - 5"	18' - 3"
	7.25"	20	11' - 1"	11' - 5"	11' - 11"		7.25"	20	12' - 5"	14' - 0"	14' - 6"
	66 PSF	19	12' - 5"	13' - 9"	14' - 3"		50 PSF	19	13' - 11"	15' - 3"	15' - 9"
	1.68 cu.yd/(100sq.ft)	18	13' - 7"	14' - 7"	15' - 1"		1.68 cu.yd/(100sq.ft)	18	14' - 7"	16' - 2"	16' - 8"
	6x6 - W2.0 x W2.0	16	14' - 5"	16' - 5"	16' - 11"		6x6 - W2.0 x W2.0	16	15' - 5"	18' - 2"	18' - 0"
	7.5"	20	10' - 11"	11' - 0"	11' - 6"		7.5"	20	12' - 2"	13' - 7"	14' - 2"
	69 PSF	19	12' - 2"	13' - 6"	14' - 0"		52 PSF	19	13' - 8"	15' - 0"	15' - 6"
	1.76 cu.yd/(100sq.ft)	18	13' - 4"	14' - 4"	14' - 10"		1.76 cu.yd/(100sq.ft)	18	14' - 5"	15' - 11"	16' - 5"
	6x6 - W2.0 x W2.0	16	14' - 3"	16' - 2"	16' - 8"		6x6 - W2.0 x W2.0	16	15' - 3"	17' - 10"	17' - 10"
	7.75"	20	10' - 9"	10' - 8"	11' - 1"		7.75"	20	12' - 0"	13' - 2"	13' - 9"
	72 PSF	19	12' - 0"	13' - 4"	13' - 9"		54 PSF	19	13' - 5"	14' - 9"	15' - 3"
	1.83 cu.yd/(100sq.ft)	18	13' - 1"	14' - 1"	14' - 7"		1.83 cu.yd/(100sq.ft)	18	14' - 3"	15' - 8"	16' - 2"
	6x6 - W2.0 x W2.0	16	14' - 2"	15' - 11"	16' - 5"		6x6 - W2.0 x W2.0	16	15' - 1"	17' - 7"	17' - 8"
8"	20	10' - 6"	10' - 4"	10' - 9"	8"	20	11' - 10"	12' - 9"	13' - 4"		
75 PSF	19	11' - 9"	13' - 1"	13' - 6"	57 PSF	19	13' - 2"	14' - 7"	15' - 1"		
1.91 cu.yd/(100sq.ft)	18	12' - 10"	13' - 11"	14' - 4"	1.91 cu.yd/(100sq.ft)	18	14' - 1"	15' - 5"	15' - 11"		
4x4 - W1.4 x W1.4	16	14' - 0"	15' - 7"	16' - 2"	4x4 - W1.4 x W1.4	16	14' - 11"	17' - 4"	17' - 6"		
8.25"	20	10' - 4"	10' - 0"	10' - 5"	8.25"	20	11' - 7"	12' - 5"	12' - 11"		
78 PSF	19	11' - 7"	12' - 11"	13' - 4"	59 PSF	19	13' - 0"	14' - 4"	14' - 10"		
1.99 cu.yd/(100sq.ft)	18	12' - 8"	13' - 8"	14' - 2"	1.99 cu.yd/(100sq.ft)	18	14' - 0"	15' - 2"	15' - 8"		
6x6 - W2.9 x W2.9	16	13' - 11"	15' - 5"	15' - 11"	6x6 - W2.9 x W2.9	16	14' - 10"	17' - 1"	17' - 4"		

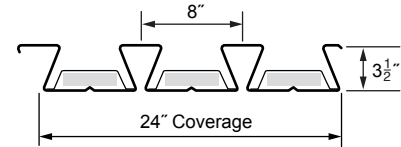
NOTES:

- Deck section properties are calculated in accordance with AISI S100-07.
- Maximum clear spans without shoring and design web crippling strengths are based on deck bearing of 1.5" at end supports and 3" at interior supports.
- Maximum construction clear spans are based on ANSI/SDI C-2017 design criteria. For maximum clear spans based on different criteria contact New Millennium.
- Composite slab service stage calculations are based on ANSI/SDI C-2017 and ASCE 3-91.
- Composite slab service stage tables are based on deflection limits of L/360 under live load and L/240 under total load after attachment of non-structural components. Long-term deflection has been taken into consideration.
- Temperature and shrinkage reinforcement in accordance with ANSI/SDI C-2017 shall be provided in the slab.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	318	251	202	165	129	98 / 106	70 / 89	50 / 74	- / 63	- / 53	- / 45
	45 PSF	19	358	282	227	185	153	128	78 / 100	56 / 84	- / 71	- / 60	- / 51
	1.14 cu.yd/(100sq.ft)	18	392	309	248	202	167	140	86 / 109	62 / 92	43 / 77	- / 65	- / 55
	6x6 - W1.4 x W1.4	16	483	383	309	254	211	178	151	74 / 121	53 / 103	- / 89	- / 76
	5.75"	20	338	267	215	176	137	113	83 / 94	60 / 79	41 / 67	- / 56	- / 48
	48 PSF	19	380	300	241	197	163	136	92 / 106	67 / 89	47 / 75	- / 63	- / 54
	1.22 cu.yd/(100sq.ft)	18	417	328	263	215	178	148	100 / 116	73 / 97	53 / 82	- / 69	- / 59
	6x6 - W1.4 x W1.4	16	500	407	329	270	225	189	161	87 / 129	64 / 110	45 / 94	- / 81
	6"	20	358	282	227	186	145	120	98 / 100	71 / 84	50 / 71	- / 60	- / 51
	51 PSF	19	403	318	255	209	173	135	108 / 113	79 / 94	57 / 80	- / 67	- / 57
	1.29 cu.yd/(100sq.ft)	18	441	348	279	228	188	157	116 / 123	86 / 103	63 / 87	44 / 73	- / 62
	6x6 - W1.4 x W1.4	16	500	431	348	286	238	201	171	101 / 136	75 / 116	54 / 100	- / 86
	6.25"	20	378	298	240	196	153	126	105	83 / 88	60 / 75	42 / 63	- / 53
	54 PSF	19	425	335	270	220	182	143	119	92 / 100	67 / 84	48 / 71	- / 60
	1.37 cu.yd/(100sq.ft)	18	466	367	295	240	199	166	130	100 / 109	74 / 92	53 / 78	- / 66
	6x6 - W1.4 x W1.4	16	500	455	368	302	252	212	180	117 / 144	88 / 123	65 / 106	46 / 91
	6.5"	20	398	314	253	196	161	133	111	93	71 / 78	50 / 66	- / 56
	57 PSF	19	448	353	284	232	192	150	125	105	79 / 88	57 / 75	- / 63
	1.45 cu.yd/(100sq.ft)	18	491	387	310	253	209	175	137	115	86 / 97	63 / 82	45 / 69
	6x6 - W1.4 x W1.4	16	500	479	387	318	265	223	176 / 179	134 / 152	102 / 130	76 / 111	55 / 96
	6.75"	20	418	330	266	206	169	140	117	98	82	61 / 70	42 / 59
	60 PSF	19	471	371	298	244	191	158	131	110	93	68 / 79	49 / 67
	1.52 cu.yd/(100sq.ft)	18	500	406	326	266	220	173	144	121	101	75 / 86	54 / 73
	6x6 - W2.0 x W2.0	16	500	500	407	334	278	234	188	154 / 159	118 / 136	89 / 117	66 / 101
4000 PSI Lightweight Concrete (110 PCF)	5.5"	20	318	251	202	165	137	115	58 / 91	42 / 76	- / 65	- / 55	- / 47
	34 PSF	19	358	282	227	185	153	127 / 128	103 / 108	47 / 86	- / 73	- / 62	- / 52
	1.14 cu.yd/(100sq.ft)	18	392	309	248	202	167	135 / 140	110 / 118	52 / 93	- / 79	- / 67	- / 57
	6x6 - W1.4 x W1.4	16	483	383	309	243 / 254	191 / 211	153 / 178	125 / 151	103 / 130	46 / 105	- / 91	- / 78
	5.75"	20	338	267	215	176	146	122	68 / 96	49 / 81	- / 69	- / 58	- / 50
	36 PSF	19	380	300	241	197	163	136	115	56 / 91	40 / 77	- / 66	- / 56
	1.22 cu.yd/(100sq.ft)	18	417	328	263	215	178	148	123 / 125	61 / 99	44 / 84	- / 71	- / 61
	6x6 - W1.4 x W1.4	16	500	407	329	270	213 / 225	171 / 189	139 / 161	114 / 138	54 / 112	- / 96	- / 83
	6"	20	358	282	227	186	154	107 / 122	80 / 102	58 / 86	42 / 73	- / 62	- / 53
	38 PSF	19	403	318	255	209	173	144	88 / 115	65 / 97	47 / 82	- / 69	- / 59
	1.29 cu.yd/(100sq.ft)	18	441	348	279	228	188	157	133	71 / 105	52 / 89	- / 76	- / 64
	6x6 - W1.4 x W1.4	16	500	431	348	286	238	191 / 201	155 / 171	128 / 146	63 / 119	46 / 102	- / 88
	6.25"	20	378	298	240	196	163	123 / 129	92 / 108	68 / 91	49 / 77	- / 65	- / 56
	41 PSF	19	425	335	270	220	182	153	101 / 121	76 / 102	56 / 86	40 / 73	- / 62
	1.37 cu.yd/(100sq.ft)	18	466	367	295	240	199	166	140	83 / 111	61 / 94	45 / 80	- / 68
	6x6 - W1.4 x W1.4	16	500	455	368	302	252	212	173 / 180	143 / 154	73 / 125	54 / 108	- / 93
	6.5"	20	398	314	253	207	171	136	105 / 113	79 / 96	58 / 81	41 / 69	- / 59
	43 PSF	19	448	353	284	232	192	161	116 / 128	87 / 107	65 / 91	47 / 77	- / 66
	1.45 cu.yd/(100sq.ft)	18	491	387	310	253	209	175	148	95 / 117	71 / 99	53 / 84	- / 72
	6x6 - W1.4 x W1.4	16	500	479	387	318	265	223	190	111 / 154	84 / 132	63 / 114	47 / 98
	6.75"	20	418	330	266	217	172	142	119	92 / 100	68 / 85	50 / 72	- / 62
	45 PSF	19	471	371	298	244	202	169	133 / 134	101 / 113	76 / 95	56 / 81	41 / 69
	1.52 cu.yd/(100sq.ft)	18	500	406	326	266	220	184	143 / 146	109 / 123	83 / 104	62 / 88	45 / 75
	6x6 - W2.0 x W2.0	16	500	500	407	334	278	234	199	126 / 162	97 / 139	74 / 119	55 / 103

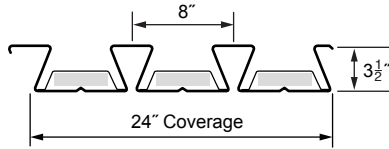
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"
4000 PSI Normal-Weight Concrete (145 PCF)	7" 63 PSF 1.6 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	346	278	216	177	147	122	103	86	72 / 73	51 / 62	- / 53
		19	389	313	255	200	165	138	116	97	80 / 82	58 / 70	40 / 59
		18	425	342	279	230	181	151	126	106	87 / 90	64 / 76	45 / 65
		16	500	426	350	292	245	197	167	135 / 143	103 / 122	77 / 105	56 / 91
	7.25" 66 PSF 1.68 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	362	291	226	185	153	128	107	90	76	61 / 65	42 / 55
		19	407	327	267	209	173	144	121	102	86	68 / 73	49 / 62
		18	445	357	292	241	189	158	132	111	94	75 / 80	54 / 68
		16	500	446	366	305	257	206	175	149	118 / 128	89 / 110	66 / 95
	7.5" 69 PSF 1.76 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	377	291	236	193	160	133	112	94	80	68	51 / 57
		19	424	341	279	218	180	150	126	106	90	76	58 / 65
		18	464	373	304	252	197	164	138	116	98	83	64 / 70
		16	500	465	382	318	268	215	182	156	134	102 / 115	77 / 99
	7.75" 72 PSF 1.83 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	393	303	246	201	167	139	117	98	83	70	60
		19	442	356	277	227	188	157	131	111	94	79	67
		18	484	389	317	262	206	171	144	121	102	87	73
		16	500	485	398	332	279	224	190	162	139	117 / 120	89 / 104
	8" 75 PSF 1.91 cu.yd/(100sq.ft) 4x4 - W1.4 x W1.4	20	409	316	256	210	173	145	121	102	86	73	62
		19	460	370	288	236	196	163	137	115	97	83	70
		18	500	404	330	259	214	178	149	126	106	90	76
		16	500	500	414	345	290	233	198	169	145	125	102 / 108
	8.25" 78 PSF 1.99 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	425	328	266	218	180	150	126	106	90	76	65
		19	478	384	300	245	203	169	142	120	101	86	73
		18	500	420	343	269	222	185	155	131	111	94	79
		16	500	500	430	358	287	242	205	175	150	130	112
4000 PSI Lightweight Concrete (110 PCF)	7" 48 PSF 1.6 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	346	278	228	180	149	125	105	79 / 89	58 / 76	42 / 65	- / 55
		19	389	313	255	211	177	140	115 / 118	87 / 100	65 / 85	48 / 72	- / 62
		18	425	342	279	230	193	153	124 / 129	95 / 109	72 / 93	53 / 79	- / 67
		16	500	426	350	292	245	209	143 / 170	110 / 145	85 / 125	64 / 108	47 / 94
	7.25" 50 PSF 1.68 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	362	291	238	188	156	131	110	90 / 93	67 / 79	49 / 68	- / 58
		19	407	327	267	221	176	147	124	99 / 105	75 / 89	56 / 76	40 / 65
		18	445	357	292	241	201	160	135	108 / 114	82 / 97	62 / 82	45 / 70
		16	500	446	366	305	257	218	161 / 177	125 / 152	96 / 131	74 / 113	55 / 98
	7.5" 52 PSF 1.76 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	377	304	249	196	163	136	115	97	77 / 83	57 / 70	41 / 60
		19	424	341	279	231	183	153	129	109	86 / 93	65 / 79	47 / 68
		18	464	373	304	252	210	167	141	119	94 / 101	71 / 86	53 / 73
		16	500	465	382	318	268	228	180 / 185	140 / 159	109 / 136	84 / 118	64 / 102
	7.75" 54 PSF 1.83 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	393	317	259	205	170	142	120	101	86	66 / 73	49 / 63
		19	442	356	290	240	191	160	134	114	97	74 / 82	55 / 70
		18	484	389	317	262	219	174	147	124	105	81 / 90	61 / 77
		16	500	485	398	332	279	237	193	157 / 165	123 / 142	95 / 123	73 / 107
	8" 57 PSF 1.91 cu.yd/(100sq.ft) 4x4 - W1.4 x W1.4	20	409	329	259	213	177	148	124	105	90	76	57 / 65
		19	460	370	302	250	199	166	140	118	101	85 / 86	64 / 73
		18	500	404	330	273	228	181	153	129	110	92 / 93	70 / 80
		16	500	500	414	345	290	236	201	172	138 / 148	108 / 128	84 / 111
	8.25" 59 PSF 1.99 cu.yd/(100sq.ft) 6x6 - W2.9 x W2.9	20	425	342	269	221	183	154	129	109	93	79	66 / 68
		19	478	384	314	249	206	173	145	123	105	89	74 / 76
		18	500	420	343	283	226	188	159	134	114	97	81 / 83
		16	500	500	430	358	302	245	209	179	154	122 / 133	95 / 115

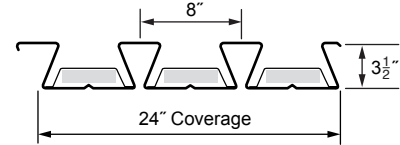
NOTES:

1. The slab weight has been subtracted from the loads listed above.
2. Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
3. Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
4. Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

Total Slab Depth (in.)	Gage	Max. Service Stage Single Spans (ft.-in.)					
		4000 PSI Normal-Weight Concrete (145 PCF)			4000 PSI Lightweight Concrete (110 PCF)		
		LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf	LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf
5.5	20	16' - 6" / 17' - 9"	15' - 4"	14' - 2"	16' - 1" / 18' - 0"	15' - 5"	14' - 7"
	19	16' - 11" / 18' - 6"	16' - 0"	14' - 9"	16' - 5" / 18' - 8"	16' - 1" / 16' - 2"	15' - 3"
	18	17' - 2" / 19' - 0"	16' - 6"	15' - 3"	16' - 9" / 19' - 3"	16' - 5" / 16' - 8"	15' - 9"
	16	17' - 9" / 21' - 3"	17' - 5" / 18' - 5"	16' - 10" / 17' - 0"	17' - 5" / 21' - 6"	17' - 1" / 18' - 6"	17' - 7" / 17' - 1"
5.75	20	17' - 0" / 18' - 2"	15' - 8"	14' - 6"	16' - 7" / 18' - 4"	15' - 10"	14' - 7"
	19	17' - 5" / 18' - 10"	16' - 4"	15' - 2"	16' - 11" / 19' - 1"	16' - 6"	15' - 3"
	18	17' - 8" / 19' - 5"	16' - 11"	15' - 8"	17' - 3" / 19' - 7"	16' - 11" / 17' - 0"	15' - 9"
	16	18' - 4" / 21' - 8"	18' - 0" / 18' - 9"	17' - 4"	17' - 11" / 22' - 0"	17' - 6" / 18' - 11"	16' - 11" / 17' - 6"
6	20	17' - 7" / 18' - 6"	16' - 0"	14' - 9"	17' - 1" / 18' - 9"	16' - 2"	14' - 11"
	19	17' - 11" / 19' - 3"	16' - 8"	15' - 5"	17' - 5" / 19' - 6"	16' - 10"	15' - 7"
	18	18' - 3" / 19' - 9"	17' - 3"	16' - 0"	17' - 9" / 20' - 0"	17' - 4"	16' - 1"
	16	18' - 10" / 22' - 1"	18' - 6" / 19' - 2"	17' - 9"	18' - 5" / 22' - 5"	18' - 0" / 19' - 4"	17' - 5" / 17' - 11"
6.25	20	18' - 1" / 18' - 10"	16' - 4"	15' - 1"	17' - 7" / 19' - 1"	16' - 6"	15' - 3"
	19	18' - 5" / 19' - 7"	17' - 0"	15' - 9"	17' - 11" / 19' - 10"	17' - 2"	15' - 11"
	18	18' - 9" / 20' - 1"	17' - 6"	16' - 3"	18' - 3" / 20' - 4"	17' - 8"	16' - 5"
	16	19' - 4" / 22' - 6"	19' - 0" / 19' - 7"	18' - 1"	18' - 11" / 22' - 10"	18' - 6" / 19' - 9"	17' - 11" / 18' - 3"
6.5	20	18' - 7" / 19' - 2"	16' - 7"	15' - 5"	18' - 1" / 19' - 5"	16' - 9"	15' - 6"
	19	18' - 11" / 19' - 10"	17' - 4"	16' - 1"	18' - 5" / 20' - 2"	17' - 6"	16' - 2"
	18	19' - 3" / 20' - 5"	17' - 10"	16' - 7"	18' - 9" / 20' - 8"	18' - 0"	16' - 9"
	16	19' - 10" / 22' - 10"	19' - 7" / 19' - 11"	18' - 5"	19' - 5" / 23' - 3"	19' - 1" / 20' - 1"	18' - 5" / 18' - 7"
6.75	20	19' - 1" / 19' - 5"	16' - 11"	15' - 8"	18' - 7" / 19' - 9"	17' - 1"	15' - 10"
	19	19' - 6" / 20' - 2"	17' - 7"	16' - 4"	19' - 0" / 20' - 5"	17' - 10"	16' - 6"
	18	19' - 9" / 20' - 8"	18' - 2"	16' - 10"	19' - 4" / 21' - 0"	18' - 4"	17' - 0"
	16	20' - 5" / 23' - 3"	20' - 1" / 20' - 3"	18' - 9"	19' - 11" / 23' - 7"	19' - 7" / 20' - 6"	18' - 11" / 18' - 11"
7	20	19' - 7" / 19' - 9"	17' - 2"	15' - 11"	19' - 1" / 20' - 0"	17' - 5"	16' - 1"
	19	20' - 0" / 20' - 5"	17' - 11"	16' - 8"	19' - 6" / 20' - 9"	18' - 1"	16' - 9"
	18	20' - 4" / 21' - 0"	18' - 5"	17' - 2"	19' - 10" / 21' - 3"	18' - 7"	17' - 4"
	16	20' - 11" / 23' - 7"	20' - 7"	19' - 1"	20' - 6" / 23' - 11"	20' - 1" / 20' - 10"	19' - 3"
7.25	20	20' - 0"	17' - 5"	16' - 2"	19' - 7" / 20' - 4"	17' - 8"	16' - 4"
	19	20' - 6" / 20' - 9"	18' - 2"	16' - 11"	20' - 0" / 21' - 0"	18' - 4"	17' - 1"
	18	20' - 9" / 21' - 3"	18' - 8"	17' - 5"	20' - 4" / 21' - 7"	18' - 11"	17' - 7"
	16	21' - 5" / 23' - 10"	20' - 11"	19' - 5"	21' - 0" / 24' - 3"	20' - 7" / 21' - 2"	19' - 7"
7.5	20	20' - 3"	17' - 8"	16' - 5"	20' - 0" / 20' - 7"	17' - 11"	16' - 7"
	19	20' - 11" / 21' - 0"	18' - 5"	17' - 2"	20' - 5" / 21' - 4"	18' - 8"	17' - 4"
	18	21' - 3" / 21' - 6"	18' - 11"	17' - 8"	20' - 10" / 21' - 10"	19' - 2"	17' - 10"
	16	21' - 11" / 24' - 2"	21' - 2"	19' - 8"	21' - 6" / 24' - 7"	21' - 1" / 21' - 5"	19' - 11"
7.75	20	20' - 6"	17' - 11"	16' - 8"	20' - 6" / 20' - 10"	18' - 2"	16' - 10"
	19	21' - 3"	18' - 8"	17' - 5"	20' - 11" / 21' - 7"	18' - 11"	17' - 7"
	18	21' - 9"	19' - 2"	17' - 11"	21' - 3" / 22' - 1"	19' - 5"	18' - 1"
	16	22' - 5" / 24' - 6"	21' - 6"	20' - 0"	22' - 0" / 24' - 10"	21' - 7" / 21' - 9"	20' - 2"
8	20	20' - 9"	18' - 2"	16' - 11"	21' - 0" / 21' - 1"	18' - 5"	17' - 1"
	19	21' - 6"	18' - 11"	17' - 7"	21' - 5" / 21' - 10"	19' - 2"	17' - 10"
	18	22' - 0"	19' - 5"	18' - 2"	21' - 9" / 22' - 4"	19' - 8"	18' - 4"
	16	22' - 11" / 24' - 9"	21' - 9"	20' - 3"	22' - 6" / 25' - 2"	22' - 0"	20' - 6"
8.25	20	20' - 8"	18' - 5"	17' - 2"	21' - 4"	18' - 8"	17' - 4"
	19	21' - 8"	19' - 2"	17' - 10"	21' - 11" / 22' - 1"	19' - 5"	18' - 1"
	18	22' - 3"	19' - 8"	18' - 5"	22' - 4" / 22' - 7"	19' - 11"	18' - 7"
	16	23' - 6" / 25' - 0"	22' - 0"	20' - 6"	23' - 0" / 25' - 5"	22' - 4"	20' - 9"

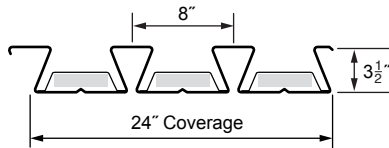
NOTES:

- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
4000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	14.86 / 19.76	8.91 / 11.85	11.89 / 15.8	10.032	6.119	28256.0	-0.2304
		19	15.57 / 21.35	9.99 / 13.82	12.78 / 17.59	11.460	6.119	27494.1	-0.2713
		18	16.21 / 22.84	10.93 / 15.68	13.57 / 19.26	9.663	6.119	26783.0	-0.3095
		16	17.58 / 26.13	12.87 / 19.87	15.22 / 23	11.434	6.119	25025.0	-0.2969
	5.75	20	16.97 / 22.39	9.99 / 13.16	13.48 / 17.78	10.717	6.457	28256.0	-0.2304
		19	17.75 / 24.15	11.19 / 15.34	14.47 / 19.74	12.259	6.457	27494.1	-0.2713
		18	18.45 / 25.8	12.25 / 17.39	15.35 / 21.59	13.633	6.457	26783.0	-0.3095
		16	19.95 / 29.43	14.41 / 22.01	17.18 / 25.72	12.346	6.457	25025.0	-0.2969
	6	20	19.29 / 25.27	11.15 / 14.56	15.22 / 19.91	11.401	6.795	28256.0	-0.2304
		19	20.14 / 27.2	12.49 / 16.95	16.31 / 22.08	13.058	6.795	27494.1	-0.2713
		18	20.91 / 29.01	13.67 / 19.2	17.29 / 24.11	14.539	6.795	26783.0	-0.3095
		16	22.55 / 33	16.08 / 24.28	19.32 / 28.64	13.323	6.795	25025.0	-0.2969
	6.25	20	21.82 / 28.39	12.39 / 16.05	17.11 / 22.22	12.085	7.133	28256.0	-0.2304
		19	22.75 / 30.51	13.88 / 18.66	18.31 / 24.59	13.857	7.133	27494.1	-0.2713
		18	23.59 / 32.49	15.19 / 21.13	19.39 / 26.81	15.445	7.133	26783.0	-0.3095
		16	25.39 / 36.87	17.87 / 26.68	21.63 / 31.78	18.736	7.133	25025.0	-0.2969
	6.5	20	24.58 / 31.77	13.72 / 17.62	19.15 / 24.7	12.769	7.471	28256.0	-0.2304
		19	25.59 / 34.09	15.37 / 20.48	20.48 / 27.29	14.656	7.471	27494.1	-0.2713
		18	26.51 / 36.26	16.83 / 23.17	21.67 / 29.71	16.351	7.471	26783.0	-0.3095
		16	28.48 / 41.04	19.8 / 29.22	24.14 / 35.13	19.878	7.471	25025.0	-0.2969
	6.75	20	27.58 / 35.43	15.13 / 19.27	21.36 / 27.35	13.454	7.809	28256.0	-0.2304
		19	28.68 / 37.96	16.96 / 22.39	22.82 / 30.17	15.455	7.809	27494.1	-0.2713
		18	29.68 / 40.31	18.57 / 25.32	24.13 / 32.82	17.257	7.809	26783.0	-0.3095
		16	31.82 / 45.52	21.85 / 31.9	26.84 / 38.71	21.021	7.809	25025.0	-0.2969
4000 PSI Lightweight Concrete (110 PCF)	5.5	20	11.22 / 16.29	7.95 / 11.88	9.58 / 14.09	10.032	4.589	28256.0	-0.2304
		19	11.87 / 17.89	8.85 / 13.77	10.36 / 15.83	11.460	4.589	27494.1	-0.2713
		18	12.45 / 19.37	9.69 / 15.26	11.07 / 17.31	9.663	4.589	26783.0	-0.3095
		16	13.69 / 22.66	11.53 / 18.55	12.61 / 20.6	11.434	4.589	25025.0	-0.2969
	5.75	20	12.75 / 18.37	8.9 / 13.17	10.82 / 15.77	10.717	4.843	28256.0	-0.2304
		19	13.46 / 20.13	9.91 / 15.43	11.68 / 17.78	12.259	4.843	27494.1	-0.2713
		18	14.1 / 21.77	10.79 / 17.59	12.44 / 19.68	13.633	4.843	26783.0	-0.3095
		16	15.46 / 25.4	12.64 / 21.52	14.05 / 23.46	12.346	4.843	25025.0	-0.2969
	6	20	14.42 / 20.63	9.93 / 14.53	12.18 / 17.58	11.401	5.096	28256.0	-0.2304
		19	15.2 / 22.56	11.05 / 17.02	13.13 / 19.79	13.058	5.096	27494.1	-0.2713
		18	15.91 / 24.37	12.03 / 19.38	13.97 / 21.87	14.539	5.096	26783.0	-0.3095
		16	17.39 / 28.36	14.02 / 24.75	15.7 / 26.55	13.323	5.096	25025.0	-0.2969
	6.25	20	16.25 / 23.07	11.04 / 15.98	13.65 / 19.53	12.085	5.350	28256.0	-0.2304
		19	17.11 / 25.19	12.28 / 18.7	14.7 / 21.95	13.857	5.350	27494.1	-0.2713
		18	17.87 / 27.17	13.37 / 21.28	15.62 / 24.22	15.445	5.350	26783.0	-0.3095
		16	19.49 / 31.54	15.57 / 27.14	17.53 / 29.34	18.736	5.350	25025.0	-0.2969
	6.5	20	18.24 / 25.71	12.23 / 17.51	15.24 / 21.61	12.769	5.603	28256.0	-0.2304
		19	19.17 / 28.02	13.61 / 20.47	16.39 / 24.25	14.656	5.603	27494.1	-0.2713
		18	20.01 / 30.18	14.81 / 23.28	17.41 / 26.73	16.351	5.603	26783.0	-0.3095
		16	21.78 / 34.96	17.24 / 29.66	19.51 / 32.31	19.878	5.603	25025.0	-0.2969
	6.75	20	20.4 / 28.54	13.5 / 19.12	16.95 / 23.83	13.454	5.857	28256.0	-0.2304
		19	21.41 / 31.07	15.02 / 22.34	18.22 / 26.71	15.455	5.857	27494.1	-0.2713
		18	22.33 / 33.42	16.35 / 25.4	19.34 / 29.41	17.257	5.857	26783.0	-0.3095
		16	24.25 / 38.62	19.04 / 32.31	21.64 / 35.47	21.021	5.857	25025.0	-0.2969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

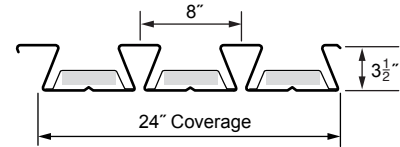
NOTES:

1. Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
2. Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
3. Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
4. The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
4000 PSI Normal-Weight Concrete (145 PCF)	7	20	30.83 / 39.37	16.63 / 21.02	23.73 / 30.2	14.138	8.147	28256.0	-0.2304
		19	32.03 / 42.12	18.65 / 24.41	25.34 / 33.26	16.254	8.147	27494.1	-0.2713
		18	33.11 / 44.67	20.42 / 27.59	26.77 / 36.13	18.163	8.147	26783.0	-0.3095
		16	35.43 / 50.33	24.04 / 34.72	29.74 / 42.52	22.164	8.147	25025.0	-0.2969
	7.25	20	34.34 / 43.61	18.22 / 22.86	26.28 / 33.23	14.822	8.485	28256.0	-0.2304
		19	35.64 / 46.58	20.43 / 26.52	28.04 / 36.55	17.052	8.485	27494.1	-0.2713
		18	36.82 / 49.35	22.38 / 29.96	29.6 / 39.66	19.069	8.485	26783.0	-0.3095
		16	39.33 / 55.47	26.36 / 37.67	32.85 / 46.57	23.307	8.485	25025.0	-0.2969
	7.5	20	38.13 / 48.16	19.9 / 24.78	29.01 / 36.47	15.506	8.823	28256.0	-0.2304
		19	39.53 / 51.36	22.32 / 28.74	30.93 / 40.05	17.851	8.823	27494.1	-0.2713
		18	40.8 / 54.35	24.45 / 32.45	32.63 / 43.4	19.975	8.823	26783.0	-0.3095
		16	43.52 / 60.97	28.82 / 40.77	36.17 / 50.87	24.450	8.823	25025.0	-0.2969
	7.75	20	42.21 / 53.02	21.66 / 26.79	31.93 / 39.91	16.190	9.161	28256.0	-0.2304
		19	43.72 / 56.48	24.31 / 31.06	34.01 / 43.77	18.650	9.161	27494.1	-0.2713
		18	45.09 / 59.7	26.64 / 35.06	35.86 / 47.38	20.880	9.161	26783.0	-0.3095
		16	48.02 / 66.82	31.41 / 44	39.71 / 55.41	25.593	9.161	25025.0	-0.2969
	8	20	46.58 / 58.22	23.51 / 28.9	35.05 / 43.56	16.875	9.499	28256.0	-0.2304
		19	48.2 / 61.93	26.39 / 33.48	37.3 / 47.71	19.449	9.499	27494.1	-0.2713
		18	49.68 / 65.39	28.94 / 37.78	39.31 / 51.59	21.786	9.499	26783.0	-0.3095
		16	52.84 / 73.05	34.14 / 47.38	43.49 / 60.21	26.736	9.499	25025.0	-0.2969
	8.25	20	51.27 / 63.76	25.45 / 31.09	38.36 / 47.42	17.559	9.837	28256.0	-0.2304
		19	53.01 / 67.74	28.58 / 36.01	40.79 / 51.88	20.248	9.837	27494.1	-0.2713
		18	54.59 / 71.45	31.34 / 40.62	42.97 / 56.03	22.692	9.837	26783.0	-0.3095
		16	57.98 / 79.66	37 / 50.89	47.49 / 65.28	27.879	9.837	25025.0	-0.2969
4000 PSI Lightweight Concrete (110 PCF)	7	20	22.74 / 31.59	14.85 / 20.82	18.79 / 26.2	14.138	6.110	28256.0	-0.2304
		19	23.84 / 34.33	16.53 / 24.31	20.18 / 29.32	16.254	6.110	27494.1	-0.2713
		18	24.83 / 36.88	17.99 / 27.61	21.41 / 32.25	18.163	6.110	26783.0	-0.3095
		16	26.92 / 42.54	20.95 / 35.1	23.93 / 38.82	22.164	6.110	25025.0	-0.2969
	7.25	20	25.25 / 34.85	16.28 / 22.6	20.76 / 28.73	14.822	6.364	28256.0	-0.2304
		19	26.45 / 37.82	18.12 / 26.37	22.29 / 32.09	17.052	6.364	27494.1	-0.2713
		18	27.52 / 40.58	19.73 / 29.94	23.63 / 35.26	19.069	6.364	26783.0	-0.3095
		16	29.79 / 46.7	22.98 / 38.01	26.39 / 42.36	23.307	6.364	25025.0	-0.2969
	7.5	20	27.96 / 38.33	17.79 / 24.47	22.88 / 31.4	15.506	6.617	28256.0	-0.2304
		19	29.25 / 41.54	19.81 / 28.53	24.53 / 35.04	17.851	6.617	27494.1	-0.2713
		18	30.42 / 44.53	21.58 / 32.37	26 / 38.45	19.975	6.617	26783.0	-0.3095
		16	32.87 / 51.14	25.14 / 41.06	29.01 / 46.1	24.450	6.617	25025.0	-0.2969
	7.75	20	30.87 / 42.05	19.38 / 26.42	25.13 / 34.24	16.190	6.871	28256.0	-0.2304
		19	32.27 / 45.5	21.6 / 30.79	26.93 / 38.15	18.650	6.871	27494.1	-0.2713
		18	33.52 / 48.72	23.53 / 34.91	28.52 / 41.82	20.880	6.871	26783.0	-0.3095
		16	36.17 / 55.84	27.42 / 44.24	31.8 / 50.04	25.593	6.871	25025.0	-0.2969
	8	20	33.99 / 46.01	21.06 / 28.46	27.53 / 37.23	16.875	7.124	28256.0	-0.2304
		19	35.49 / 49.72	23.48 / 33.14	29.48 / 41.43	19.449	7.124	27494.1	-0.2713
		18	36.84 / 53.18	25.58 / 37.56	31.21 / 45.37	21.786	7.124	26783.0	-0.3095
		16	39.69 / 60.83	29.83 / 47.55	34.76 / 54.19	26.736	7.124	25025.0	-0.2969
	8.25	20	37.32 / 50.21	22.82 / 30.58	30.07 / 40.4	17.559	7.377	28256.0	-0.2304
		19	38.93 / 54.19	25.45 / 35.6	32.19 / 44.89	20.248	7.377	27494.1	-0.2713
		18	40.38 / 57.9	27.74 / 40.33	34.06 / 49.11	22.692	7.377	26783.0	-0.3095
		16	43.45 / 66.1	32.37 / 51	37.91 / 58.55	27.879	7.377	25025.0	-0.2969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

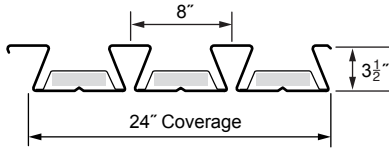
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite Acoustical

FACTORED SHEAR-BOND STRENGTH OF SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans												
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"	
4000 PSI Normal-Weight Concrete (145 PCF)	7"	20	3.153	2.766	2.450	2.371	2.163	1.987	1.837	1.707	1.594	1.496	1.410	1.333	
	63 PSF	19	3.550	3.111	2.752	2.452	2.400	2.199	2.026	1.877	1.747	1.633	1.533	1.444	
	1.6 cu.yd/(100sq.ft)	18	3.889	3.404	3.007	2.676	2.396	2.376	2.183	2.017	1.872	1.745	1.633	1.534	
	6x6 - W2.0 x W2.0	16	4.790	4.219	3.751	3.362	3.032	2.750	2.743	2.545	2.372	2.219	2.085	1.966	
	7.25"	20	3.298	2.893	2.562	2.479	2.262	2.078	1.921	1.785	1.667	1.564	1.474	1.394	
	66 PSF	19	3.713	3.253	2.877	2.564	2.510	2.299	2.119	1.962	1.827	1.708	1.603	1.511	
	1.68 cu.yd/(100sq.ft)	18	4.067	3.560	3.145	2.799	2.506	2.484	2.283	2.109	1.958	1.825	1.708	1.604	
	6x6 - W2.0 x W2.0	16	5.009	4.412	3.923	3.516	3.171	2.875	2.868	2.661	2.480	2.321	2.180	2.055	
	7.5"	20	3.442	3.020	2.859	2.588	2.361	2.169	2.005	1.863	1.740	1.633	1.539	1.455	
	69 PSF	19	3.875	3.396	3.003	2.676	2.620	2.400	2.211	2.048	1.907	1.782	1.673	1.577	
	1.76 cu.yd/(100sq.ft)	18	4.245	3.716	3.282	2.921	2.616	2.593	2.383	2.201	2.043	1.905	1.782	1.674	
	6x6 - W2.0 x W2.0	16	5.228	4.605	4.095	3.669	3.310	3.001	2.994	2.777	2.588	2.422	2.275	2.145	
	7.75"	20	3.586	3.146	2.979	2.696	2.460	2.260	2.089	1.941	1.813	1.702	1.603	1.517	
	72 PSF	19	4.038	3.538	3.129	3.001	2.730	2.500	2.304	2.134	1.987	1.857	1.743	1.643	
	1.83 cu.yd/(100sq.ft)	18	4.423	3.871	3.420	3.044	2.725	2.701	2.483	2.294	2.129	1.984	1.857	1.744	
	6x6 - W2.0 x W2.0	16	5.448	4.798	4.266	3.823	3.448	3.127	3.119	2.893	2.696	2.523	2.370	2.234	
	8"	20	3.731	3.273	3.099	2.805	2.559	2.351	2.173	2.020	1.886	1.770	1.668	1.578	
	75 PSF	19	4.201	3.681	3.255	3.121	2.840	2.601	2.397	2.220	2.066	1.932	1.813	1.709	
	1.91 cu.yd/(100sq.ft)	18	4.601	4.027	3.558	3.166	3.075	2.810	2.583	2.386	2.214	2.064	1.931	1.814	
	4x4 - W1.4 x W1.4	16	5.667	4.991	4.438	3.977	3.587	3.253	3.244	3.009	2.804	2.624	2.465	2.324	
	8.25"	20	3.875	3.399	3.219	2.914	2.658	2.442	2.257	2.098	1.959	1.839	1.732	1.639	
	78 PSF	19	4.363	3.823	3.381	3.242	2.950	2.702	2.489	2.306	2.146	2.007	1.884	1.775	
	1.99 cu.yd/(100sq.ft)	18	4.779	4.183	3.695	3.289	3.194	2.919	2.682	2.478	2.300	2.144	2.006	1.884	
	6x6 - W2.9 x W2.9	16	5.886	5.184	4.610	4.131	3.726	3.651	3.369	3.126	2.913	2.726	2.560	2.413	
4000 PSI Lightweight Concrete (110 PCF)	7"	20	3.153	2.766	2.450	2.186	2.117	1.937	1.783	1.650	1.534	1.432	1.342	1.262	
	48 PSF	19	3.550	3.111	2.752	2.452	2.198	1.981	1.973	1.820	1.686	1.569	1.466	1.374	
	1.6 cu.yd/(100sq.ft)	18	3.889	3.404	3.007	2.676	2.396	2.157	2.130	1.960	1.812	1.681	1.566	1.463	
	6x6 - W2.0 x W2.0	16	4.790	4.219	3.751	3.362	3.032	2.750	2.505	2.488	2.311	2.156	2.018	1.895	
	7.25"	20	3.298	2.893	2.562	2.286	2.214	2.026	1.865	1.726	1.604	1.498	1.403	1.320	
	50 PSF	19	3.713	3.253	2.877	2.564	2.299	2.247	2.063	1.903	1.763	1.641	1.532	1.436	
	1.68 cu.yd/(100sq.ft)	18	4.067	3.560	3.145	2.799	2.506	2.255	2.227	2.050	1.894	1.758	1.637	1.529	
	6x6 - W2.0 x W2.0	16	5.009	4.412	3.923	3.516	3.171	2.875	2.619	2.601	2.417	2.254	2.109	1.981	
	7.5"	20	3.442	3.020	2.674	2.386	2.311	2.115	1.947	1.801	1.674	1.563	1.465	1.378	
	52 PSF	19	3.875	3.396	3.003	2.676	2.400	2.345	2.153	1.986	1.840	1.712	1.599	1.499	
	1.76 cu.yd/(100sq.ft)	18	4.245	3.716	3.282	2.921	2.616	2.354	2.325	2.139	1.977	1.835	1.708	1.596	
	6x6 - W2.0 x W2.0	16	5.228	4.605	4.095	3.669	3.310	3.001	2.734	2.715	2.522	2.352	2.201	2.067	
	7.75"	20	3.586	3.146	2.786	2.486	2.407	2.203	2.028	1.877	1.744	1.628	1.526	1.435	
	54 PSF	19	4.038	3.538	3.129	2.789	2.500	2.444	2.243	2.069	1.918	1.784	1.666	1.561	
	1.83 cu.yd/(100sq.ft)	18	4.423	3.871	3.420	3.044	2.725	2.453	2.422	2.229	2.060	1.911	1.780	1.663	
	6x6 - W2.0 x W2.0	16	5.448	4.798	4.266	3.823	3.448	3.127	2.849	2.828	2.627	2.450	2.293	2.153	
	8"	20	3.731	3.273	2.898	2.754	2.504	2.292	2.110	1.952	1.815	1.694	1.587	1.493	
	57 PSF	19	4.201	3.681	3.255	2.901	2.601	2.542	2.333	2.152	1.995	1.856	1.733	1.624	
	1.91 cu.yd/(100sq.ft)	18	4.601	4.027	3.558	3.166	2.835	2.551	2.519	2.318	2.142	1.988	1.851	1.729	
	4x4 - W1.4 x W1.4	16	5.667	4.991	4.438	3.977	3.587	3.253	3.181	2.942	2.733	2.548	2.385	2.239	
	8.25"	20	3.875	3.399	3.010	2.861	2.601	2.380	2.191	2.027	1.885	1.759	1.649	1.551	
	59 PSF	19	4.363	3.823	3.381	3.013	2.892	2.640	2.423	2.236	2.072	1.927	1.800	1.687	
	1.99 cu.yd/(100sq.ft)	18	4.779	4.183	3.695	3.289	2.945	2.857	2.616	2.408	2.225	2.065	1.922	1.796	
	6x6 - W2.9 x W2.9	16	5.886	5.184	4.610	4.131	3.726	3.379	3.303	3.055	2.838	2.646	2.477	2.325	

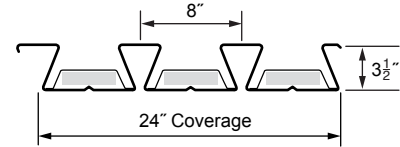
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite Acoustical

FACTORED SHEAR-BOND STRENGTH OF SLABS



4000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans												
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"	
4000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	2.287	2.006	1.777	1.585	1.569	1.441	1.332	1.238	1.156	1.085	1.022	0.967	
	45 PSF	19	2.575	2.256	1.996	1.778	1.595	1.437	1.470	1.361	1.267	1.185	1.112	1.048	
	1.14 cu.yd/(100sq.ft)	18	2.821	2.469	2.181	1.941	1.738	1.564	1.584	1.464	1.359	1.267	1.185	1.113	
	6x6 - W1.4 x W1.4	16	3.475	3.060	2.721	2.439	2.199	1.995	1.817	1.848	1.722	1.612	1.515	1.428	
	5.75"	20	2.431	2.133	1.889	1.685	1.668	1.532	1.416	1.316	1.229	1.153	1.087	1.028	
	48 PSF	19	2.738	2.399	2.122	1.891	1.695	1.528	1.562	1.447	1.347	1.260	1.182	1.114	
	1.22 cu.yd/(100sq.ft)	18	2.999	2.625	2.319	2.064	1.848	1.663	1.684	1.556	1.444	1.346	1.260	1.184	
	6x6 - W1.4 x W1.4	16	3.694	3.253	2.893	2.592	2.338	2.120	1.932	1.964	1.831	1.713	1.610	1.518	
	6"	20	2.576	2.260	2.001	1.786	1.767	1.623	1.500	1.394	1.302	1.222	1.151	1.089	
	51 PSF	19	2.900	2.541	2.248	2.003	1.796	1.796	1.655	1.533	1.427	1.334	1.252	1.180	
	1.29 cu.yd/(100sq.ft)	18	3.177	2.781	2.456	2.186	1.958	1.762	1.784	1.648	1.530	1.426	1.335	1.254	
	6x6 - W1.4 x W1.4	16	3.913	3.446	3.065	2.746	2.477	2.246	2.046	2.080	1.939	1.815	1.705	1.607	
	6.25"	20	2.720	2.386	2.113	1.886	1.866	1.714	1.584	1.472	1.375	1.290	1.216	1.150	
	54 PSF	19	3.063	2.684	2.374	2.115	1.897	1.897	1.748	1.619	1.507	1.409	1.323	1.246	
	1.37 cu.yd/(100sq.ft)	18	3.355	2.937	2.594	2.309	2.067	1.860	1.884	1.740	1.615	1.506	1.409	1.324	
	6x6 - W1.4 x W1.4	16	4.132	3.639	3.236	2.900	2.616	2.372	2.161	2.196	2.047	1.916	1.800	1.697	
	6.5"	20	2.864	2.513	2.225	2.154	1.965	1.805	1.668	1.551	1.448	1.359	1.280	1.211	
	57 PSF	19	3.225	2.826	2.500	2.227	1.997	1.997	1.840	1.705	1.587	1.484	1.393	1.312	
	1.45 cu.yd/(100sq.ft)	18	3.533	3.092	2.732	2.431	2.177	1.959	1.984	1.833	1.701	1.586	1.484	1.394	
	6x6 - W1.4 x W1.4	16	4.352	3.833	3.408	3.054	2.755	2.498	2.493	2.312	2.155	2.017	1.895	1.786	
	6.75"	20	3.009	2.640	2.337	2.262	2.064	1.896	1.752	1.629	1.521	1.427	1.345	1.272	
	60 PSF	19	3.388	2.969	2.626	2.340	2.291	2.098	1.933	1.791	1.667	1.558	1.463	1.378	
	1.52 cu.yd/(100sq.ft)	18	3.711	3.248	2.869	2.554	2.287	2.267	2.083	1.925	1.787	1.665	1.558	1.464	
	6x6 - W2.0 x W2.0	16	4.571	4.026	3.580	3.208	2.893	2.624	2.618	2.429	2.263	2.118	1.990	1.876	
4000 PSI Lightweight Concrete (110 PCF)	5.5"	20	2.287	2.006	1.777	1.585	1.423	1.285	1.294	1.197	1.113	1.039	0.974	0.916	
	34 PSF	19	2.575	2.256	1.996	1.778	1.595	1.437	1.300	1.321	1.224	1.139	1.064	0.998	
	1.14 cu.yd/(100sq.ft)	18	2.821	2.469	2.181	1.941	1.738	1.564	1.413	1.423	1.316	1.221	1.138	1.063	
	6x6 - W1.4 x W1.4	16	3.475	3.060	2.721	2.439	2.199	1.995	1.817	1.662	1.679	1.567	1.467	1.378	
	5.75"	20	2.431	2.133	1.889	1.685	1.513	1.366	1.376	1.273	1.183	1.105	1.035	0.974	
	36 PSF	19	2.738	2.399	2.122	1.891	1.695	1.528	1.382	1.404	1.301	1.211	1.131	1.060	
	1.22 cu.yd/(100sq.ft)	18	2.999	2.625	2.319	2.064	1.848	1.663	1.503	1.513	1.399	1.298	1.209	1.130	
	6x6 - W1.4 x W1.4	16	3.694	3.253	2.893	2.592	2.338	2.120	1.932	1.766	1.785	1.665	1.559	1.464	
	6"	20	2.576	2.260	2.001	1.786	1.603	1.583	1.457	1.348	1.254	1.170	1.097	1.032	
	38 PSF	19	2.900	2.541	2.248	2.003	1.796	1.618	1.612	1.487	1.378	1.283	1.198	1.123	
	1.29 cu.yd/(100sq.ft)	18	3.177	2.781	2.456	2.186	1.958	1.762	1.592	1.602	1.481	1.375	1.280	1.196	
	6x6 - W1.4 x W1.4	16	3.913	3.446	3.065	2.746	2.477	2.246	2.046	1.871	1.890	1.763	1.650	1.550	
	6.25"	20	2.720	2.386	2.113	1.886	1.693	1.672	1.539	1.424	1.324	1.236	1.158	1.089	
	41 PSF	19	3.063	2.684	2.374	2.115	1.897	1.709	1.702	1.570	1.455	1.354	1.265	1.186	
	1.37 cu.yd/(100sq.ft)	18	3.355	2.937	2.594	2.309	2.067	1.860	1.681	1.692	1.564	1.451	1.352	1.263	
	6x6 - W1.4 x W1.4	16	4.132	3.639	3.236	2.900	2.616	2.372	2.161	1.976	1.995	1.861	1.742	1.636	
	6.5"	20	2.864	2.513	2.225	1.986	1.783	1.760	1.620	1.499	1.394	1.301	1.219	1.147	
	43 PSF	19	3.225	2.826	2.500	2.227	1.997	1.800	1.792	1.654	1.532	1.426	1.332	1.248	
	1.45 cu.yd/(100sq.ft)	18	3.533	3.092	2.732	2.431	2.177	1.959	1.770	1.781	1.646	1.528	1.423	1.330	
	6x6 - W1.4 x W1.4	16	4.352	3.833	3.408	3.054	2.755	2.498	2.275	2.261	2.101	1.959	1.834	1.722	
	6.75"	20	3.009	2.640	2.337	2.086	2.020	1.849	1.702	1.575	1.464	1.367	1.281	1.205	
	45 PSF	19	3.388	2.969	2.626	2.340	2.098	1.890	1.883	1.737	1.609	1.498	1.399	1.311	
	1.52 cu.yd/(100sq.ft)	18	3.711	3.248	2.869	2.554	2.287	2.058	2.033	1.871	1.729	1.605	1.494	1.396	
	6x6 - W2.0 x W2.0	16	4.571	4.026	3.580	3.208	2.893	2.624	2.390	2.375	2.206	2.057	1.926	1.809	

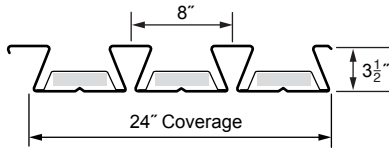
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	309	243	195	159	123	101	78 / 84	56 / 70	- / 58	- / 49	- / 41
	45 PSF	19	348	273	219	178	146	122	86 / 94	63 / 78	44 / 65	- / 55	- / 46
	1.14 cu.yd/(100sq.ft)	18	380	298	238	194	159	132	94 / 102	69 / 85	49 / 71	- / 59	- / 50
	6x6 - W1.4 x W1.4	16	472	373	300	246	204	171	145	81 / 115	59 / 98	42 / 83	- / 71
	5.75"	20	329	258	207	169	130	107	89	67 / 74	47 / 62	- / 52	- / 43
	48 PSF	19	370	290	232	189	156	130	100	74 / 83	53 / 69	- / 58	- / 49
	1.22 cu.yd/(100sq.ft)	18	404	317	254	206	169	141	109	81 / 91	59 / 76	41 / 63	- / 53
	6x6 - W1.4 x W1.4	16	500	396	319	261	217	182	154	95 / 122	70 / 104	51 / 88	- / 76
	6"	20	348	274	220	179	138	114	94	78	57 / 66	- / 55	- / 46
	51 PSF	19	392	307	246	200	165	128	106	87 / 88	64 / 74	45 / 62	- / 52
	1.29 cu.yd/(100sq.ft)	18	428	336	269	218	179	149	115	95 / 96	70 / 80	50 / 67	- / 56
	6x6 - W1.4 x W1.4	16	500	420	338	277	230	193	163	111 / 129	83 / 110	61 / 94	43 / 80
	6.25"	20	368	289	232	189	146	120	99	83	68 / 69	48 / 58	- / 49
	54 PSF	19	413	325	260	211	174	135	112	93	75 / 78	54 / 65	- / 55
	1.37 cu.yd/(100sq.ft)	18	452	355	284	230	189	157	122	101	82 / 85	60 / 71	42 / 59
	6x6 - W1.4 x W1.4	16	500	443	357	292	242	203	172	128 / 137	97 / 116	72 / 99	52 / 85
	6.5"	20	387	305	244	188	154	126	105	87	73	58 / 61	40 / 51
	57 PSF	19	435	342	274	223	183	142	118	98	82	65 / 69	46 / 57
	1.45 cu.yd/(100sq.ft)	18	476	374	299	243	199	166	128	107	89	71 / 74	51 / 62
	6x6 - W1.4 x W1.4	16	500	467	376	308	255	214	171	144	112 / 122	84 / 104	62 / 89
	6.75"	20	407	320	256	198	161	133	110	92	77	64	50 / 54
	60 PSF	19	457	359	288	234	181	149	124	103	86	72	56 / 60
	1.52 cu.yd/(100sq.ft)	18	500	392	314	255	209	163	135	112	94	78	62 / 66
	6x6 - W2.0 x W2.0	16	500	490	395	323	268	225	179	151	128	99 / 110	74 / 94
5000 PSI Lightweight Concrete (110 PCF)	5.5"	20	309	243	195	159	131	109	64 / 85	46 / 71	- / 60	- / 51	- / 43
	34 PSF	19	348	273	219	178	146	122	102	52 / 80	- / 67	- / 57	- / 48
	1.14 cu.yd/(100sq.ft)	18	380	298	238	194	159	132	111	57 / 87	41 / 73	- / 61	- / 52
	6x6 - W1.4 x W1.4	16	472	373	300	246	201 / 204	161 / 171	131 / 145	108 / 124	51 / 99	- / 85	- / 73
	5.75"	20	329	258	207	169	139	116	75 / 91	55 / 76	- / 64	- / 54	- / 45
	36 PSF	19	370	290	232	189	156	130	109	61 / 85	44 / 71	- / 60	- / 51
	1.22 cu.yd/(100sq.ft)	18	404	317	254	206	169	141	118	67 / 93	49 / 78	- / 65	- / 55
	6x6 - W1.4 x W1.4	16	500	396	319	261	217	180 / 182	146 / 154	121 / 131	59 / 106	43 / 90	- / 78
	6"	20	348	274	220	179	148	116	87 / 96	64 / 81	47 / 68	- / 57	- / 48
	38 PSF	19	392	307	246	200	165	137	96 / 108	72 / 90	53 / 76	- / 64	- / 54
	1.29 cu.yd/(100sq.ft)	18	428	336	269	218	179	149	125	78 / 98	58 / 82	42 / 69	- / 58
	6x6 - W1.4 x W1.4	16	500	420	338	277	230	193	163	135 / 139	69 / 112	51 / 96	- / 82
	6.25"	20	368	289	232	189	156	122	100 / 102	75 / 85	55 / 71	- / 60	- / 51
	41 PSF	19	413	325	260	211	174	145	110 / 114	83 / 95	62 / 80	45 / 67	- / 57
	1.37 cu.yd/(100sq.ft)	18	452	355	284	230	189	157	132	90 / 104	68 / 87	50 / 73	- / 62
	6x6 - W1.4 x W1.4	16	500	443	357	292	242	203	172	147	80 / 118	60 / 101	44 / 87
	6.5"	20	387	305	244	199	164	129	107	86 / 90	64 / 75	47 / 63	- / 54
	43 PSF	19	435	342	274	223	183	153	120	95 / 100	72 / 84	53 / 71	- / 60
	1.45 cu.yd/(100sq.ft)	18	476	374	299	243	199	166	139	103 / 109	78 / 91	59 / 77	43 / 65
	6x6 - W1.4 x W1.4	16	500	467	376	308	255	214	181	120 / 146	92 / 125	70 / 107	52 / 92
	6.75"	20	407	320	256	209	164	135	112	94	76 / 79	56 / 67	40 / 56
	45 PSF	19	457	359	288	234	193	160	126	105	84 / 88	63 / 75	46 / 63
	1.52 cu.yd/(100sq.ft)	18	500	392	314	255	209	174	137	115	91 / 96	69 / 81	51 / 68
	6x6 - W2.0 x W2.0	16	500	490	395	323	268	225	191	137 / 154	106 / 131	81 / 112	61 / 96

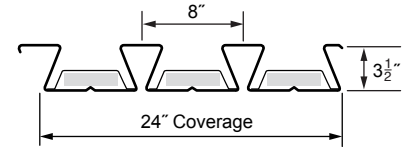
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

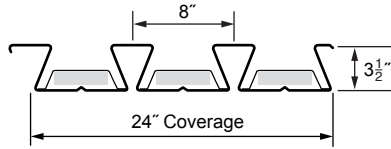
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)											
			Simple Spans											
			10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"	
5000 PSI Normal-Weight Concrete (145 PCF)	7"	20	335	269	207	169	139	115	96	80	67	56	41 / 47	
	63 PSF	19	376	301	245	190	156	129	108	90	75	63	47 / 53	
	1.6 cu.yd/(100sq.ft)	18	411	329	267	220	171	141	117	98	82	69	53 / 57	
	6x6 - W2.0 x W2.0	16	500	414	339	281	236	188	159	135	113 / 115	86 / 98	64 / 84	
	7.25"	20	351	281	217	177	145	120	100	84	70	59	49	
	66 PSF	19	394	315	256	199	164	135	113	94	79	66	55	
	1.68 cu.yd/(100sq.ft)	18	430	344	279	230	178	148	123	103	86	72	60	
	6x6 - W2.0 x W2.0	16	500	433	354	294	247	196	166	141	120	99 / 103	75 / 88	
	7.5"	20	366	281	226	185	152	126	105	88	73	62	52	
	69 PSF	19	411	329	267	208	171	141	118	98	82	69	58	
	1.76 cu.yd/(100sq.ft)	18	449	359	291	240	186	154	128	107	90	75	63	
	6x6 - W2.0 x W2.0	16	500	452	370	307	257	205	173	147	125	107	87 / 92	
	7.75"	20	381	293	236	192	158	131	109	91	76	64	54	
	72 PSF	19	428	343	265	216	178	147	123	102	86	72	60	
	1.83 cu.yd/(100sq.ft)	18	468	374	304	250	194	161	134	111	93	78	65	
	6x6 - W2.0 x W2.0	16	500	471	385	320	268	214	180	153	131	112	96	
	8"	20	397	304	245	200	165	136	113	95	79	67	56	
	75 PSF	19	445	357	276	225	185	153	128	107	89	75	63	
	1.91 cu.yd/(100sq.ft)	18	487	389	316	246	202	167	139	116	97	81	68	
	4x4 - W1.4 x W1.4	16	500	490	401	333	279	222	188	159	136	116	100	
	8.25"	20	412	316	255	208	171	142	118	99	83	69	58	
	78 PSF	19	463	370	287	234	192	159	132	111	93	78	65	
	1.99 cu.yd/(100sq.ft)	18	500	404	328	255	210	174	144	120	101	84	71	
	6x6 - W2.9 x W2.9	16	500	500	416	345	275	231	195	165	141	121	104	
5000 PSI Lightweight Concrete (110 PCF)	7"	20	335	269	219	172	142	118	99	83	65 / 70	48 / 59	- / 50	
	48 PSF	19	376	301	245	202	168	132	110	93	73 / 78	54 / 66	- / 56	
	1.6 cu.yd/(100sq.ft)	18	411	329	267	220	182	144	120	101	79 / 85	60 / 71	44 / 60	
	6x6 - W2.0 x W2.0	16	500	414	339	281	236	200	154 / 161	120 / 137	93 / 117	71 / 101	53 / 87	
	7.25"	20	351	281	229	180	148	123	103	87	73	56 / 62	40 / 52	
	50 PSF	19	394	315	256	211	166	138	115	97	82	63 / 69	46 / 58	
	1.68 cu.yd/(100sq.ft)	18	430	344	279	230	191	150	126	105	89	69 / 75	51 / 63	
	6x6 - W2.0 x W2.0	16	500	433	354	294	247	209	169	136 / 144	105 / 123	81 / 106	62 / 91	
	7.5"	20	366	293	239	187	155	129	108	90	76	64	48 / 54	
	52 PSF	19	411	329	267	220	174	144	121	101	85	72	54 / 61	
	1.76 cu.yd/(100sq.ft)	18	449	359	291	240	199	157	131	110	92	78	60 / 66	
	6x6 - W2.0 x W2.0	16	500	452	370	307	257	218	176	150	119 / 128	93 / 110	71 / 95	
	7.75"	20	381	306	249	195	161	134	112	94	79	67	55 / 57	
	54 PSF	19	428	343	279	230	181	150	126	105	89	75	62 / 63	
	1.83 cu.yd/(100sq.ft)	18	468	374	304	250	207	164	137	115	96	81	68	
	6x6 - W2.0 x W2.0	16	500	471	385	320	268	227	183	156	134	105 / 115	81 / 99	
	8"	20	397	318	248	203	168	139	117	98	83	70	59	
	57 PSF	19	445	357	290	239	188	156	131	110	92	78	66	
	1.91 cu.yd/(100sq.ft)	18	487	389	316	260	216	170	142	119	100	84	71	
	4x4 - W1.4 x W1.4	16	500	490	401	333	279	225	191	162	139	118 / 119	92 / 103	
	8.25"	20	412	330	258	211	174	145	121	102	86	73	61	
	59 PSF	19	463	370	301	237	195	162	136	114	96	81	68	
	1.99 cu.yd/(100sq.ft)	18	500	404	328	270	213	177	148	124	104	88	74	
	6x6 - W2.9 x W2.9	16	500	500	416	345	290	234	198	169	144	124	105 / 107	

NOTES:

1. The slab weight has been subtracted from the loads listed above.
2. Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
3. Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
4. Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

Total Slab Depth (in.)	Gage	Max. Service Stage Single Spans (ft.-in.)					
		5000 PSI Normal-Weight Concrete (145 PCF)			5000 PSI Lightweight Concrete (110 PCF)		
		LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf	LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf
5.5	20	16' - 10" / 17' - 4"	15' - 0"	13' - 10"	16' - 4" / 17' - 6"	15' - 1"	14' - 4"
	19	17' - 3" / 18' - 0"	15' - 7"	14' - 6"	16' - 9" / 18' - 2"	15' - 9"	14' - 11"
	18	17' - 6" / 18' - 5"	16' - 1"	15' - 5"	17' - 1" / 18' - 8"	16' - 3"	15' - 5"
	16	18' - 1" / 20' - 8"	17' - 9" / 17' - 11"	16' - 7"	17' - 8" / 20' - 11"	17' - 4" / 18' - 1"	17' - 2"
5.75	20	17' - 5" / 17' - 8"	15' - 4"	14' - 2"	16' - 11" / 17' - 10"	15' - 5"	14' - 3"
	19	17' - 9" / 18' - 4"	15' - 11"	14' - 10"	17' - 3" / 18' - 6"	16' - 1"	15' - 3"
	18	18' - 1" / 18' - 9"	16' - 5"	15' - 3"	17' - 7" / 19' - 0"	16' - 7"	15' - 9"
	16	18' - 8" / 21' - 1"	18' - 4" / 18' - 4"	17' - 0"	18' - 2" / 21' - 4"	17' - 10" / 18' - 6"	17' - 1"
6	20	17' - 11" / 18' - 0"	15' - 8"	14' - 6"	17' - 5" / 18' - 3"	15' - 9"	14' - 7"
	19	18' - 3" / 18' - 8"	16' - 3"	15' - 1"	17' - 9" / 18' - 10"	16' - 5"	15' - 3"
	18	18' - 7" / 19' - 1"	16' - 9"	15' - 7"	18' - 1" / 19' - 4"	16' - 11"	15' - 8"
	16	19' - 2" / 21' - 6"	18' - 9"	17' - 4"	18' - 9" / 21' - 9"	18' - 4" / 18' - 11"	17' - 6"
6.25	20	18' - 4"	15' - 11"	14' - 9"	17' - 11" / 18' - 6"	16' - 1"	14' - 11"
	19	18' - 10" / 18' - 11"	16' - 7"	15' - 5"	18' - 4" / 19' - 2"	16' - 9"	15' - 6"
	18	19' - 1" / 19' - 5"	17' - 1"	15' - 10"	18' - 8" / 19' - 8"	17' - 2"	16' - 0"
	16	19' - 9" / 21' - 10"	19' - 1"	17' - 8"	19' - 3" / 22' - 1"	18' - 11" / 19' - 3"	17' - 10"
6.5	20	18' - 7"	16' - 3"	15' - 1"	18' - 5" / 18' - 10"	16' - 5"	15' - 2"
	19	19' - 3"	16' - 10"	15' - 8"	18' - 10" / 19' - 6"	17' - 0"	15' - 10"
	18	19' - 8" / 19' - 8"	17' - 4"	16' - 2"	19' - 2" / 19' - 11"	17' - 6"	16' - 3"
	16	20' - 3" / 22' - 2"	19' - 5"	18' - 0"	19' - 9" / 22' - 6"	19' - 5" / 19' - 7"	18' - 2"
6.75	20	18' - 10"	16' - 6"	15' - 4"	19' - 0" / 19' - 2"	16' - 8"	15' - 5"
	19	19' - 6"	17' - 2"	15' - 11"	19' - 4" / 19' - 10"	17' - 4"	16' - 1"
	18	20' - 0"	17' - 7"	16' - 5"	19' - 8" / 20' - 3"	17' - 9"	16' - 7"
	16	20' - 10" / 22' - 6"	19' - 9"	18' - 4"	20' - 4" / 22' - 10"	19' - 11"	18' - 6"
7	20	19' - 2"	16' - 9"	15' - 7"	19' - 5"	16' - 11"	15' - 9"
	19	19' - 9"	17' - 5"	16' - 3"	19' - 10" / 20' - 1"	17' - 7"	16' - 4"
	18	20' - 3"	17' - 11"	16' - 8"	20' - 3" / 20' - 6"	18' - 1"	16' - 10"
	16	21' - 4" / 22' - 10"	20' - 0"	18' - 8"	20' - 10" / 23' - 2"	20' - 3"	18' - 10"
7.25	20	19' - 5"	17' - 0"	15' - 10"	19' - 8"	17' - 2"	16' - 0"
	19	20' - 1"	17' - 8"	16' - 6"	20' - 4"	17' - 10"	16' - 7"
	18	20' - 6"	18' - 2"	16' - 11"	20' - 9" / 20' - 9"	18' - 4"	17' - 1"
	16	21' - 10" / 23' - 1"	20' - 4"	18' - 11"	21' - 5" / 23' - 5"	20' - 7"	19' - 1"
7.5	20	19' - 8"	17' - 3"	16' - 1"	19' - 11"	17' - 5"	16' - 3"
	19	20' - 3"	17' - 11"	16' - 8"	20' - 7"	18' - 1"	16' - 10"
	18	20' - 9"	18' - 5"	17' - 2"	21' - 0"	18' - 7"	17' - 4"
	16	22' - 5" / 23' - 5"	20' - 7"	19' - 3"	21' - 11" / 23' - 9"	20' - 10"	19' - 5"
7.75	20	19' - 10"	17' - 6"	16' - 3"	20' - 2"	17' - 8"	16' - 5"
	19	20' - 6"	18' - 2"	16' - 11"	20' - 10"	18' - 4"	17' - 1"
	18	21' - 0"	18' - 7"	17' - 5"	21' - 3"	18' - 10"	17' - 7"
	16	22' - 11" / 23' - 8"	20' - 11"	19' - 6"	22' - 5" / 24' - 0"	21' - 2"	19' - 8"
8	20	20' - 1"	17' - 8"	16' - 6"	20' - 5"	17' - 11"	16' - 8"
	19	20' - 9"	18' - 4"	17' - 2"	21' - 1"	18' - 7"	17' - 4"
	18	21' - 2"	18' - 10"	17' - 7"	21' - 6"	19' - 1"	17' - 10"
	16	23' - 5" / 23' - 11"	21' - 2"	19' - 9"	22' - 11" / 24' - 4"	21' - 5"	19' - 11"
8.25	20	20' - 1"	17' - 11"	16' - 9"	20' - 8"	18' - 2"	16' - 11"
	19	20' - 11"	18' - 7"	17' - 4"	21' - 3"	18' - 10"	17' - 7"
	18	21' - 5"	19' - 1"	17' - 10"	21' - 9"	19' - 3"	18' - 0"
	16	23' - 11" / 24' - 2"	21' - 5"	20' - 0"	23' - 5" / 24' - 7"	21' - 8"	20' - 2"

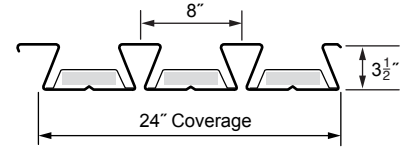
NOTES:

- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.



Versa-Dek® 3.5 LS Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
5000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	16.11 / 20.96	9.17 / 11.88	12.64 / 16.42	10.292	6.841	28256.0	-0.2304
		19	16.83 / 22.56	10.29 / 13.83	13.56 / 18.19	11.814	6.841	27494.1	-0.2713
		18	17.48 / 24.04	11.28 / 15.67	14.38 / 19.85	13.182	6.841	26783.0	-0.3095
		16	18.88 / 27.33	13.31 / 19.81	16.1 / 23.57	12.083	6.841	25025.0	-0.2969
	5.75	20	18.42 / 23.79	10.28 / 13.2	14.35 / 18.49	10.976	7.219	28256.0	-0.2304
		19	19.21 / 25.55	11.53 / 15.35	15.37 / 20.45	12.612	7.219	27494.1	-0.2713
		18	19.93 / 27.19	12.64 / 17.38	16.28 / 22.29	14.087	7.219	26783.0	-0.3095
		16	21.46 / 30.83	14.91 / 21.95	18.19 / 26.39	13.098	7.219	25025.0	-0.2969
	6	20	20.95 / 26.88	11.47 / 14.61	16.21 / 20.74	11.660	7.597	28256.0	-0.2304
		19	21.82 / 28.82	12.87 / 16.98	17.34 / 22.9	13.411	7.597	27494.1	-0.2713
		18	22.61 / 30.62	14.1 / 19.21	18.35 / 24.92	14.993	7.597	26783.0	-0.3095
		16	24.29 / 34.62	16.63 / 24.23	20.46 / 29.42	18.316	7.597	25025.0	-0.2969
	6.25	20	23.72 / 30.24	12.75 / 16.1	18.23 / 23.17	12.344	7.975	28256.0	-0.2304
		19	24.67 / 32.36	14.3 / 18.71	19.49 / 25.53	14.210	7.975	27494.1	-0.2713
		18	25.53 / 34.34	15.68 / 21.15	20.6 / 27.75	15.899	7.975	26783.0	-0.3095
		16	27.37 / 38.72	18.49 / 26.64	22.93 / 32.68	19.459	7.975	25025.0	-0.2969
	6.5	20	26.75 / 33.89	14.11 / 17.69	20.43 / 25.79	13.028	8.353	28256.0	-0.2304
		19	27.78 / 36.21	15.84 / 20.53	21.81 / 28.37	15.009	8.353	27494.1	-0.2713
		18	28.72 / 38.37	17.36 / 23.21	23.04 / 30.79	16.805	8.353	26783.0	-0.3095
		16	30.73 / 43.15	20.48 / 29.2	25.61 / 36.17	20.602	8.353	25025.0	-0.2969
	6.75	20	30.04 / 37.83	15.56 / 19.36	22.8 / 28.59	13.713	8.731	28256.0	-0.2304
		19	31.16 / 40.35	17.47 / 22.46	24.31 / 31.41	15.808	8.731	27494.1	-0.2713
		18	32.18 / 42.71	19.15 / 25.37	25.67 / 34.04	17.711	8.731	26783.0	-0.3095
		16	34.37 / 47.92	22.61 / 31.89	28.49 / 39.91	21.745	8.731	25025.0	-0.2969
5000 PSI Lightweight Concrete (110 PCF)	5.5	20	12.07 / 17.09	8.21 / 11.86	10.14 / 14.47	10.292	5.131	28256.0	-0.2304
		19	12.73 / 18.68	9.16 / 13.88	10.94 / 16.28	11.814	5.131	27494.1	-0.2713
		18	13.33 / 20.17	9.99 / 15.57	11.66 / 17.87	13.182	5.131	26783.0	-0.3095
		16	14.61 / 23.45	11.84 / 18.86	13.22 / 21.16	12.083	5.131	25025.0	-0.2969
	5.75	20	13.73 / 19.3	9.2 / 13.15	11.46 / 16.22	10.976	5.414	28256.0	-0.2304
		19	14.46 / 21.06	10.25 / 15.38	12.36 / 18.22	12.612	5.414	27494.1	-0.2713
		18	15.12 / 22.7	11.18 / 17.5	13.15 / 20.1	14.087	5.414	26783.0	-0.3095
		16	16.52 / 26.32	13.08 / 21.96	14.8 / 24.14	13.098	5.414	25025.0	-0.2969
	6	20	15.56 / 21.69	10.26 / 14.52	12.91 / 18.11	11.660	5.698	28256.0	-0.2304
		19	16.36 / 23.63	11.44 / 16.97	13.9 / 20.3	13.411	5.698	27494.1	-0.2713
		18	17.08 / 25.44	12.47 / 19.3	14.78 / 22.37	14.993	5.698	26783.0	-0.3095
		16	18.61 / 29.43	14.57 / 24.58	16.59 / 27	18.316	5.698	25025.0	-0.2969
	6.25	20	17.55 / 24.29	11.41 / 15.97	14.48 / 20.13	12.344	5.981	28256.0	-0.2304
		19	18.43 / 26.42	12.72 / 18.66	15.57 / 22.54	14.210	5.981	27494.1	-0.2713
		18	19.22 / 28.39	13.86 / 21.2	16.54 / 24.8	15.899	5.981	26783.0	-0.3095
		16	20.89 / 32.77	16.19 / 26.97	18.54 / 29.87	19.459	5.981	25025.0	-0.2969
	6.5	20	19.72 / 27.1	12.64 / 17.51	16.18 / 22.31	13.028	6.265	28256.0	-0.2304
		19	20.67 / 29.42	14.09 / 20.44	17.38 / 24.93	15.009	6.265	27494.1	-0.2713
		18	21.54 / 31.58	15.36 / 23.21	18.45 / 27.4	16.805	6.265	26783.0	-0.3095
		16	23.36 / 36.36	17.93 / 29.49	20.64 / 32.93	20.602	6.265	25025.0	-0.2969
	6.75	20	22.07 / 30.13	13.94 / 19.14	18.01 / 24.63	13.713	6.548	28256.0	-0.2304
		19	23.11 / 32.65	15.55 / 22.32	19.33 / 27.49	15.808	6.548	27494.1	-0.2713
		18	24.05 / 35	16.95 / 25.33	20.5 / 30.17	17.711	6.548	26783.0	-0.3095
		16	26.03 / 40.21	19.8 / 32.14	22.91 / 36.18	21.745	6.548	25025.0	-0.2969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

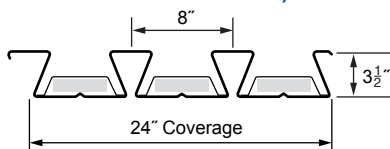
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
5000 PSI Normal-Weight Concrete (145 PCF)	7	20	33.6 / 42.08	17.1 / 21.12	25.35 / 31.6	14.397	9.108	28256.0	-0.2304
		19	34.82 / 44.83	19.2 / 24.49	27.01 / 34.66	16.607	9.108	27494.1	-0.2713
		18	35.93 / 47.38	21.06 / 27.65	28.5 / 37.52	18.617	9.108	26783.0	-0.3095
		16	38.31 / 53.04	24.87 / 34.72	31.59 / 43.88	22.888	9.108	25025.0	-0.2969
	7.25	20	37.46 / 46.66	18.73 / 22.97	28.09 / 34.82	15.081	9.486	28256.0	-0.2304
		19	38.78 / 49.63	21.04 / 26.63	29.91 / 38.13	17.406	9.486	27494.1	-0.2713
		18	39.98 / 52.4	23.08 / 30.05	31.53 / 41.22	19.523	9.486	26783.0	-0.3095
		16	42.56 / 58.52	27.26 / 37.7	34.91 / 48.11	24.030	9.486	25025.0	-0.2969
	7.5	20	41.63 / 51.57	20.44 / 24.92	31.03 / 38.25	15.765	9.854	28256.0	-0.2304
		19	43.05 / 54.78	22.97 / 28.87	33.01 / 41.82	18.205	9.864	27494.1	-0.2713
		18	44.35 / 57.77	25.21 / 32.56	34.78 / 45.17	20.429	9.864	26783.0	-0.3095
		16	47.13 / 64.39	29.79 / 40.81	38.46 / 52.6	25.173	9.864	25025.0	-0.2969
	7.75	20	46.1 / 56.84	22.25 / 26.95	34.18 / 41.89	16.450	10.043	28256.0	-0.2304
		19	47.64 / 60.29	25.01 / 31.21	36.32 / 45.75	19.004	10.242	27494.1	-0.2713
		18	49.04 / 63.52	27.45 / 35.19	38.24 / 49.35	21.335	10.242	26783.0	-0.3095
		16	52.04 / 70.64	32.46 / 44.07	42.25 / 57.35	26.316	10.242	25025.0	-0.2969
	8	20	50.91 / 62.47	24.14 / 29.07	37.53 / 45.77	17.134	10.232	28256.0	-0.2304
		19	52.56 / 66.18	27.15 / 33.65	39.86 / 49.92	19.802	10.620	27494.1	-0.2713
		18	54.07 / 69.64	29.81 / 37.93	41.94 / 53.79	22.241	10.620	26783.0	-0.3095
		16	57.29 / 77.3	35.27 / 47.47	46.28 / 62.38	27.459	10.620	25025.0	-0.2969
	8.25	20	56.07 / 68.47	26.13 / 31.29	41.1 / 49.88	17.818	10.421	28256.0	-0.2304
		19	57.84 / 72.45	29.39 / 36.2	43.61 / 54.33	20.601	10.998	27494.1	-0.2713
		18	59.45 / 76.16	32.28 / 40.79	45.87 / 58.48	23.147	10.998	26783.0	-0.3095
		16	62.91 / 84.37	38.22 / 51.01	50.57 / 67.69	28.602	10.998	25025.0	-0.2969
5000 PSI Lightweight Concrete (110 PCF)	7	20	24.62 / 33.38	15.34 / 20.85	19.98 / 27.11	14.397	6.831	28256.0	-0.2304
		19	25.75 / 36.12	17.1 / 24.3	21.43 / 30.21	16.607	6.831	27494.1	-0.2713
		18	26.77 / 38.67	18.65 / 27.56	22.71 / 33.12	18.617	6.831	26783.0	-0.3095
		16	28.92 / 44.33	21.78 / 34.93	25.35 / 39.63	22.888	6.831	25025.0	-0.2969
	7.25	20	27.37 / 36.86	16.81 / 22.64	22.09 / 29.75	15.081	7.115	28256.0	-0.2304
		19	28.59 / 39.83	18.75 / 26.37	23.67 / 33.1	17.406	7.115	27494.1	-0.2713
		18	29.7 / 42.6	20.45 / 29.89	25.08 / 36.25	19.523	7.115	26783.0	-0.3095
		16	32.03 / 48.72	23.9 / 37.85	27.96 / 43.29	24.030	7.115	25025.0	-0.2969
	7.5	20	30.33 / 40.59	18.37 / 24.52	24.35 / 32.56	15.765	7.398	28256.0	-0.2304
		19	31.65 / 43.8	20.5 / 28.54	26.07 / 36.17	18.205	7.398	27494.1	-0.2713
		18	32.84 / 46.79	22.36 / 32.34	27.6 / 39.56	20.429	7.398	26783.0	-0.3095
		16	35.37 / 53.4	26.14 / 40.91	30.75 / 47.15	25.173	7.398	25025.0	-0.2969
	7.75	20	33.51 / 44.57	20.01 / 26.49	26.76 / 35.53	16.450	7.681	28256.0	-0.2304
		19	34.93 / 48.03	22.34 / 30.82	28.64 / 39.42	19.004	7.681	27494.1	-0.2713
		18	36.22 / 51.25	24.38 / 34.9	30.3 / 43.07	21.335	7.681	26783.0	-0.3095
		16	38.95 / 58.37	28.5 / 44.09	33.73 / 51.23	26.316	7.681	25025.0	-0.2969
	8	20	36.91 / 48.82	21.73 / 28.54	29.32 / 38.68	17.134	7.965	28256.0	-0.2304
		19	38.45 / 52.53	24.28 / 33.19	31.36 / 42.86	19.802	7.965	27494.1	-0.2713
		18	39.84 / 55.99	26.5 / 37.56	33.17 / 46.77	22.241	7.965	26783.0	-0.3095
		16	42.78 / 63.64	31 / 47.42	36.89 / 55.53	27.459	7.965	25025.0	-0.2969
	8.25	20	40.56 / 53.33	23.55 / 30.68	32.05 / 42	17.818	8.248	28256.0	-0.2304
		19	42.2 / 57.31	26.31 / 35.66	34.26 / 46.48	20.601	8.248	27494.1	-0.2713
		18	43.7 / 61.02	28.73 / 40.34	36.21 / 50.68	23.147	8.248	26783.0	-0.3095
		16	46.86 / 69.22	33.63 / 50.88	40.24 / 60.05	28.602	8.248	25025.0	-0.2969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

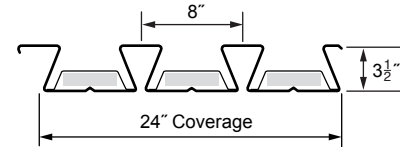
NOTES:

1. Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
2. Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
3. Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
4. The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite Acoustical

FACTORED SHEAR-BOND STRENGTH OF SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans												
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"	
5000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	2.226	1.945	1.715	1.524	1.507	1.380	1.271	1.176	1.095	1.023	0.961	0.905	
	45 PSF	19	2.503	2.184	1.924	1.706	1.522	1.365	1.397	1.289	1.195	1.113	1.040	0.976	
	1.14 cu.yd/(100sq.ft)	18	2.739	2.387	2.099	1.859	1.656	1.482	1.502	1.381	1.276	1.184	1.103	1.031	
	6x6 - W1.4 x W1.4	16	3.396	2.981	2.642	2.360	2.120	1.916	1.738	1.769	1.643	1.533	1.436	1.349	
	5.75"	20	2.366	2.068	1.824	1.620	1.602	1.467	1.351	1.251	1.164	1.088	1.021	0.963	
	48 PSF	19	2.661	2.322	2.045	1.814	1.618	1.451	1.486	1.371	1.270	1.183	1.106	1.037	
	1.22 cu.yd/(100sq.ft)	18	2.911	2.537	2.231	1.976	1.760	1.575	1.597	1.468	1.357	1.259	1.172	1.096	
	6x6 - W1.4 x W1.4	16	3.610	3.169	2.809	2.508	2.254	2.036	1.848	1.880	1.747	1.629	1.526	1.434	
	6"	20	2.507	2.191	1.932	1.716	1.698	1.554	1.431	1.325	1.233	1.153	1.082	1.020	
	51 PSF	19	2.819	2.460	2.166	1.922	1.715	1.715	1.574	1.452	1.346	1.253	1.171	1.099	
	1.29 cu.yd/(100sq.ft)	18	3.084	2.688	2.364	2.093	1.865	1.669	1.691	1.555	1.437	1.333	1.242	1.161	
	6x6 - W1.4 x W1.4	16	3.824	3.357	2.976	2.657	2.388	2.157	1.957	1.991	1.850	1.726	1.616	1.518	
	6.25"	20	2.647	2.313	2.040	1.813	1.793	1.641	1.511	1.399	1.302	1.217	1.143	1.077	
	54 PSF	19	2.977	2.598	2.288	2.029	1.811	1.811	1.662	1.533	1.421	1.323	1.237	1.160	
	1.37 cu.yd/(100sq.ft)	18	3.257	2.839	2.496	2.211	1.969	1.762	1.786	1.642	1.517	1.408	1.311	1.226	
	6x6 - W1.4 x W1.4	16	4.038	3.545	3.142	2.806	2.522	2.278	2.067	2.102	1.953	1.822	1.706	1.603	
	6.5"	20	2.788	2.436	2.149	2.077	1.888	1.728	1.592	1.474	1.371	1.282	1.204	1.134	
	57 PSF	19	3.135	2.736	2.409	2.137	1.907	1.907	1.750	1.614	1.497	1.393	1.302	1.222	
	1.45 cu.yd/(100sq.ft)	18	3.430	2.989	2.629	2.328	2.074	1.856	1.880	1.729	1.598	1.482	1.381	1.291	
	6x6 - W1.4 x W1.4	16	4.253	3.734	3.309	2.955	2.656	2.399	2.394	2.213	2.056	1.918	1.796	1.687	
	6.75"	20	2.928	2.559	2.257	2.182	1.983	1.815	1.672	1.548	1.441	1.347	1.264	1.192	
	60 PSF	19	3.293	2.874	2.531	2.245	2.196	2.003	1.838	1.696	1.572	1.463	1.368	1.283	
	1.52 cu.yd/(100sq.ft)	18	3.603	3.140	2.761	2.445	2.178	2.159	1.975	1.816	1.678	1.557	1.450	1.355	
	6x6 - W2.0 x W2.0	16	4.467	3.922	3.476	3.104	2.789	2.520	2.514	2.325	2.159	2.014	1.886	1.772	
5000 PSI Lightweight Concrete (110 PCF)	5.5"	20	2.226	1.945	1.715	1.524	1.362	1.223	1.233	1.136	1.052	0.978	0.913	0.855	
	34 PSF	19	2.503	2.184	1.924	1.706	1.522	1.365	1.228	1.249	1.152	1.067	0.992	0.925	
	1.14 cu.yd/(100sq.ft)	18	2.739	2.387	2.099	1.859	1.656	1.482	1.331	1.341	1.234	1.139	1.055	0.981	
	6x6 - W1.4 x W1.4	16	3.396	2.981	2.642	2.360	2.120	1.916	1.738	1.582	1.600	1.488	1.388	1.299	
	5.75"	20	2.366	2.068	1.824	1.620	1.448	1.301	1.310	1.208	1.118	1.040	0.970	0.909	
	36 PSF	19	2.661	2.322	2.045	1.814	1.618	1.451	1.306	1.327	1.225	1.134	1.054	0.984	
	1.22 cu.yd/(100sq.ft)	18	2.911	2.537	2.231	1.976	1.760	1.575	1.415	1.425	1.311	1.210	1.121	1.042	
	6x6 - W1.4 x W1.4	16	3.610	3.169	2.809	2.508	2.254	2.036	1.848	1.682	1.701	1.581	1.475	1.380	
	6"	20	2.507	2.191	1.932	1.716	1.534	1.514	1.388	1.279	1.184	1.101	1.028	0.963	
	38 PSF	19	2.819	2.460	2.166	1.922	1.715	1.537	1.531	1.406	1.297	1.201	1.117	1.042	
	1.29 cu.yd/(100sq.ft)	18	3.084	2.688	2.364	2.093	1.865	1.669	1.499	1.510	1.388	1.282	1.187	1.104	
	6x6 - W1.4 x W1.4	16	3.824	3.357	2.976	2.657	2.388	2.157	1.957	1.782	1.801	1.674	1.561	1.461	
	6.25"	20	2.647	2.313	2.040	1.813	1.620	1.599	1.466	1.351	1.251	1.163	1.085	1.016	
	41 PSF	19	2.977	2.598	2.288	2.029	1.811	1.623	1.616	1.485	1.370	1.268	1.179	1.100	
	1.37 cu.yd/(100sq.ft)	18	3.257	2.839	2.496	2.211	1.969	1.762	1.583	1.594	1.466	1.353	1.254	1.165	
	6x6 - W1.4 x W1.4	16	4.038	3.545	3.142	2.806	2.522	2.278	2.067	1.882	1.901	1.767	1.648	1.542	
	6.5"	20	2.788	2.436	2.149	1.909	1.706	1.683	1.544	1.422	1.317	1.224	1.143	1.070	
	43 PSF	19	3.135	2.736	2.409	2.137	1.907	1.709	1.702	1.563	1.442	1.336	1.241	1.158	
	1.45 cu.yd/(100sq.ft)	18	3.430	2.989	2.629	2.328	2.074	1.856	1.667	1.678	1.543	1.425	1.320	1.226	
	6x6 - W1.4 x W1.4	16	4.253	3.734	3.309	2.955	2.656	2.399	2.176	2.162	2.002	1.860	1.735	1.623	
	6.75"	20	2.928	2.559	2.257	2.005	1.939	1.768	1.621	1.494	1.383	1.286	1.200	1.124	
	45 PSF	19	3.293	2.874	2.531	2.245	2.003	1.795	1.788	1.642	1.514	1.403	1.304	1.216	
	1.52 cu.yd/(100sq.ft)	18	3.603	3.140	2.761	2.445	2.178	1.949	1.924	1.762	1.621	1.496	1.386	1.288	
	6x6 - W2.0 x W2.0	16	4.467	3.922	3.476	3.104	2.789	2.520	2.286	2.271	2.102	1.954	1.822	1.705	

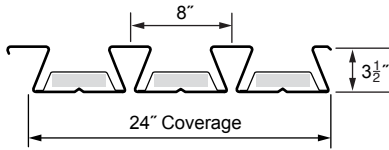
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite Acoustical

FACTORED SHEAR-BOND STRENGTH OF SLABS



5000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE														
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans											
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"
5000 PSI Normal-Weight Concrete (145 PCF)	7"	20	3.069	2.682	2.365	2.286	2.078	1.903	1.752	1.622	1.510	1.411	1.325	1.249
	63 PSF	19	3.451	3.011	2.652	2.352	2.301	2.099	1.926	1.777	1.647	1.534	1.433	1.345
	1.6 cu.yd/(100sq.ft)	18	3.776	3.290	2.893	2.563	2.283	2.262	2.070	1.903	1.759	1.631	1.519	1.420
	6x6 - W2.0 x W2.0	16	4.681	4.110	3.642	3.253	2.923	2.641	2.634	2.436	2.263	2.110	1.976	1.857
	7.25"	20	3.209	2.804	2.473	2.391	2.174	1.990	1.832	1.697	1.579	1.476	1.386	1.306
	66 PSF	19	3.609	3.149	2.773	2.460	2.406	2.195	2.014	1.858	1.723	1.604	1.499	1.406
	1.68 cu.yd/(100sq.ft)	18	3.948	3.441	3.026	2.680	2.387	2.365	2.164	1.990	1.839	1.706	1.589	1.485
	6x6 - W2.0 x W2.0	16	4.895	4.298	3.809	3.402	3.057	2.761	2.754	2.547	2.366	2.207	2.066	1.941
	7.5"	20	3.350	2.927	2.767	2.496	2.269	2.077	1.913	1.771	1.648	1.541	1.446	1.363
	69 PSF	19	3.767	3.287	2.895	2.568	2.511	2.291	2.103	1.940	1.798	1.674	1.565	1.468
	1.76 cu.yd/(100sq.ft)	18	4.121	3.592	3.158	2.797	2.492	2.469	2.259	2.077	1.919	1.781	1.658	1.550
	6x6 - W2.0 x W2.0	16	5.110	4.486	3.976	3.550	3.191	2.882	2.875	2.658	2.469	2.303	2.156	2.026
	7.75"	20	3.490	3.050	2.883	2.600	2.364	2.164	1.993	1.845	1.717	1.605	1.507	1.420
	72 PSF	19	3.925	3.425	3.016	2.887	2.617	2.387	2.191	2.021	1.873	1.744	1.630	1.529
	1.83 cu.yd/(100sq.ft)	18	4.294	3.742	3.291	2.915	2.596	2.572	2.354	2.164	2.000	1.855	1.728	1.615
	6x6 - W2.0 x W2.0	16	5.324	4.674	4.142	3.699	3.324	3.003	2.995	2.769	2.572	2.399	2.246	2.110
	8"	20	3.631	3.173	2.999	2.705	2.459	2.251	2.073	1.920	1.786	1.670	1.568	1.478
	75 PSF	19	4.083	3.563	3.138	3.004	2.722	2.483	2.279	2.102	1.949	1.814	1.696	1.591
	1.91 cu.yd/(100sq.ft)	18	4.467	3.893	3.423	3.032	2.941	2.676	2.448	2.251	2.080	1.930	1.797	1.680
	4x4 - W1.4 x W1.4	16	5.538	4.862	4.309	3.848	3.458	3.124	3.115	2.880	2.676	2.495	2.336	2.195
	8.25"	20	3.771	3.296	3.115	2.810	2.554	2.338	2.153	1.994	1.856	1.735	1.629	1.535
	78 PSF	19	4.241	3.701	3.259	3.120	2.827	2.579	2.367	2.184	2.024	1.884	1.761	1.652
	1.99 cu.yd/(100sq.ft)	18	4.640	4.043	3.556	3.149	3.055	2.779	2.543	2.338	2.160	2.004	1.866	1.744
	6x6 - W2.9 x W2.9	16	5.752	5.050	4.476	3.997	3.592	3.517	3.235	2.992	2.779	2.592	2.426	2.280
5000 PSI Lightweight Concrete (110 PCF)	7"	20	3.069	2.682	2.365	2.101	2.032	1.853	1.699	1.566	1.449	1.348	1.258	1.178
	48 PSF	19	3.451	3.011	2.652	2.352	2.099	1.882	1.873	1.720	1.587	1.470	1.366	1.274
	1.6 cu.yd/(100sq.ft)	18	3.776	3.290	2.893	2.563	2.283	2.043	2.016	1.847	1.698	1.568	1.452	1.349
	6x6 - W2.0 x W2.0	16	4.681	4.110	3.642	3.253	2.923	2.641	2.396	2.379	2.202	2.047	1.909	1.786
	7.25"	20	3.209	2.804	2.473	2.198	2.125	1.938	1.777	1.637	1.516	1.409	1.315	1.232
	50 PSF	19	3.609	3.149	2.773	2.460	2.195	2.143	1.959	1.799	1.659	1.537	1.428	1.332
	1.68 cu.yd/(100sq.ft)	18	3.948	3.441	3.026	2.680	2.387	2.136	2.109	1.931	1.776	1.639	1.518	1.411
	6x6 - W2.0 x W2.0	16	4.895	4.298	3.809	3.402	3.057	2.761	2.505	2.487	2.303	2.140	1.995	1.867
	7.5"	20	3.350	2.927	2.582	2.294	2.218	2.022	1.854	1.709	1.582	1.471	1.373	1.285
	52 PSF	19	3.767	3.287	2.895	2.568	2.291	2.237	2.044	1.877	1.732	1.604	1.491	1.390
	1.76 cu.yd/(100sq.ft)	18	4.121	3.592	3.158	2.797	2.492	2.230	2.201	2.015	1.853	1.711	1.584	1.472
	6x6 - W2.0 x W2.0	16	5.110	4.486	3.976	3.550	3.191	2.882	2.615	2.596	2.403	2.233	2.082	1.948
	7.75"	20	3.490	3.050	2.690	2.390	2.311	2.107	1.932	1.780	1.648	1.532	1.430	1.339
	54 PSF	19	3.925	3.425	3.016	2.675	2.387	2.330	2.130	1.956	1.804	1.671	1.553	1.448
	1.83 cu.yd/(100sq.ft)	18	4.294	3.742	3.291	2.915	2.596	2.323	2.293	2.099	1.931	1.782	1.651	1.534
	6x6 - W2.0 x W2.0	16	5.324	4.674	4.142	3.699	3.324	3.003	2.725	2.704	2.503	2.326	2.169	2.029
	8"	20	3.631	3.173	2.798	2.654	2.404	2.192	2.010	1.852	1.715	1.594	1.487	1.393
	57 PSF	19	4.083	3.563	3.138	2.783	2.483	2.424	2.215	2.035	1.877	1.738	1.615	1.506
	1.91 cu.yd/(100sq.ft)	18	4.467	3.893	3.423	3.032	2.701	2.417	2.385	2.184	2.008	1.853	1.717	1.595
	4x4 - W1.4 x W1.4	16	5.538	4.862	4.309	3.848	3.458	3.124	3.052	2.813	2.604	2.419	2.256	2.110
	8.25"	20	3.771	3.296	2.907	2.757	2.497	2.277	2.087	1.924	1.781	1.655	1.545	1.447
	59 PSF	19	4.241	3.701	3.259	2.891	2.770	2.518	2.301	2.113	1.949	1.805	1.678	1.564
	1.99 cu.yd/(100sq.ft)	18	4.640	4.043	3.556	3.149	2.805	2.717	2.477	2.268	2.086	1.925	1.783	1.656
	6x6 - W2.9 x W2.9	16	5.752	5.050	4.476	3.997	3.592	3.245	3.169	2.921	2.704	2.513	2.343	2.192

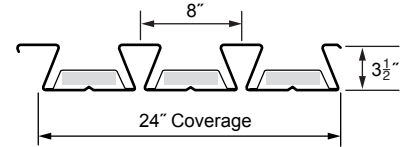
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

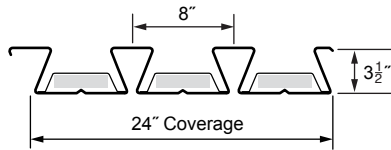
	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"
6000 PSI Normal-Weight Concrete (145 PCF)	5.5" 45 PSF 1.14 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	301	236	189	153	117	96	79	61 / 65	43 / 54	- / 45	-
		19	339	265	211	171	140	116	88	68 / 73	49 / 61	- / 50	- / 42
		18	370	289	230	186	152	126	96	74 / 79	54 / 66	- / 54	- / 45
		16	462	364	292	238	197	165	139	87 / 109	64 / 92	46 / 78	- / 66
	5.75" 48 PSF 1.22 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	320	251	201	163	125	102	84	69	52 / 58	- / 48	- / 40
		19	360	282	224	182	149	123	94	78	59 / 64	41 / 53	- / 44
		18	393	307	245	198	162	134	102	84	64 / 70	46 / 58	- / 48
		16	491	387	311	253	209	175	148	102 / 116	76 / 98	56 / 83	40 / 71
	6" 51 PSF 1.29 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	339	266	212	172	132	108	89	73	61	44 / 51	- / 42
		19	381	298	238	193	158	121	100	82	68	50 / 57	- / 47
		18	417	326	259	209	171	142	108	89	74	56 / 61	- / 51
		16	500	410	329	268	222	185	156	119 / 123	90 / 104	67 / 88	48 / 75
	6.25" 54 PSF 1.37 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	359	281	224	182	139	114	94	78	64	53	- / 44
		19	403	315	251	203	167	128	105	87	72	60	43 / 49
		18	440	344	274	221	181	149	114	94	78	65	48 / 53
		16	500	433	347	283	234	196	165	130	104 / 110	79 / 93	58 / 79
	6.5" 57 PSF 1.45 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	378	296	236	181	147	120	99	82	68	56	46 / 47
		19	424	332	264	214	175	135	111	92	76	63	52
		18	463	362	288	233	190	157	120	99	82	68	56
		16	500	456	366	298	247	206	163	137	116	92 / 98	69 / 83
	6.75" 60 PSF 1.52 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	397	311	248	190	154	126	104	86	71	59	49
		19	445	348	278	225	173	142	116	96	80	66	55
		18	487	380	303	245	200	154	127	104	86	71	59
		16	500	478	384	314	259	217	171	144	122	103	81 / 88
6000 PSI Lightweight Concrete (110 PCF)	5.5" 34 PSF 1.14 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	301	236	189	153	126	104	69 / 81	50 / 67	- / 56	- / 47	-
		19	339	265	211	171	140	116	97	56 / 75	41 / 62	- / 52	- / 43
		18	370	289	230	186	152	126	105	62 / 81	45 / 67	- / 56	- / 47
		16	462	364	292	238	197	165	136 / 139	112 / 118	54 / 94	40 / 80	- / 68
	5.75" 36 PSF 1.22 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	320	251	201	163	134	111	80 / 86	59 / 71	43 / 60	- / 50	- / 42
		19	360	282	224	182	149	123	103	66 / 80	48 / 66	- / 55	- / 46
		18	393	307	245	198	162	134	111	72 / 86	53 / 72	- / 60	- / 50
		16	491	387	311	253	209	175	148	125	64 / 100	47 / 85	- / 73
	6" 38 PSF 1.29 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	339	266	212	172	142	110	91	69 / 76	51 / 63	- / 53	- / 44
		19	381	298	238	193	158	131	102	77 / 84	57 / 70	42 / 59	- / 49
		18	417	326	259	209	171	142	118	84 / 91	63 / 76	46 / 63	- / 53
		16	500	410	329	268	222	185	156	133	74 / 106	56 / 90	41 / 77
	6.25" 41 PSF 1.37 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	359	281	224	182	149	116	96	80	60 / 67	44 / 56	- / 47
		19	403	315	251	203	167	138	107	89	67 / 74	49 / 62	- / 52
		18	440	344	274	221	181	149	125	97	73 / 80	54 / 67	40 / 56
		16	500	433	347	283	234	196	165	140	86 / 112	65 / 95	48 / 81
	6.5" 43 PSF 1.45 cu.yd/(100sq.ft) 6x6 - W1.4 x W1.4	20	378	296	236	192	157	123	101	84	70	52 / 59	- / 49
		19	424	332	264	214	175	145	113	94	78	58 / 65	42 / 54
		18	463	362	288	233	190	157	131	102	84 / 85	64 / 70	47 / 59
		16	500	456	366	298	247	206	174	128 / 139	98 / 118	75 / 100	57 / 86
	6.75" 45 PSF 1.52 cu.yd/(100sq.ft) 6x6 - W2.0 x W2.0	20	397	311	248	201	157	129	106	88	74	61 / 62	45 / 52
		19	445	348	278	225	184	153	119	99	82	68 / 69	51 / 57
		18	487	380	303	245	200	165	129	107	89	74	56 / 62
		16	500	478	384	314	259	217	183	146	113 / 124	87 / 106	67 / 90

NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than 1.17A_s (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.

Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM UNIFORM SUPERIMPOSED SERVICE LOADS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Maximum Uniform Superimposed Service Loads (psf)										
			Simple Spans										
			10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"
6000 PSI Normal-Weight Concrete (145 PCF)	7"	20	326	260	199	162	132	109	90	75	62	51	42
	63 PSF	19	365	291	236	182	148	122	101	83	69	57	47
	1.6 cu.yd/(100sq.ft)	18	398	317	256	210	162	133	109	90	75	62	51
	6x6 - W2.0 x W2.0	16	500	403	329	272	227	180	151	127	108	92	71 / 78
	7.25"	20	341	272	208	169	138	114	94	78	65	54	44
	66 PSF	19	382	304	246	190	155	128	105	87	72	60	50
	1.68 cu.yd/(100sq.ft)	18	417	332	268	219	169	139	114	95	78	65	53
	6x6 - W2.0 x W2.0	16	500	421	344	284	237	188	158	133	113	96	82
	7.5"	20	355	271	218	176	144	119	98	81	68	56	46
	69 PSF	19	399	318	257	198	162	133	110	91	76	63	52
	1.76 cu.yd/(100sq.ft)	18	435	346	280	229	176	145	119	99	82	68	56
	6x6 - W2.0 x W2.0	16	500	440	359	296	248	196	165	139	118	100	85
	7.75"	20	370	283	227	184	150	124	102	85	70	58	48
	72 PSF	19	415	331	255	206	169	139	115	95	79	65	54
	1.83 cu.yd/(100sq.ft)	18	453	361	291	238	184	151	124	103	85	70	58
	6x6 - W2.0 x W2.0	16	500	458	374	309	258	204	172	145	123	104	89
	8"	20	385	294	236	191	156	129	106	88	73	61	50
	75 PSF	19	432	344	265	215	175	144	119	99	82	68	56
	1.91 cu.yd/(100sq.ft)	18	471	375	303	234	191	157	129	107	89	73	60
	4x4 - W1.4 x W1.4	16	500	476	389	321	269	212	178	151	128	109	92
	8.25"	20	400	305	245	199	162	134	111	92	76	63	52
	78 PSF	19	449	358	275	223	182	150	124	103	85	70	58
	1.99 cu.yd/(100sq.ft)	18	490	390	315	243	199	163	134	111	92	76	63
	6x6 - W2.9 x W2.9	16	500	495	404	334	264	221	185	157	133	113	96
6000 PSI Lightweight Concrete (110 PCF)	7"	20	326	260	211	164	135	111	93	77	65	53 / 54	- / 45
	48 PSF	19	365	291	236	193	160	125	103	86	72	59 / 60	44 / 50
	1.6 cu.yd/(100sq.ft)	18	398	317	256	210	173	135	112	93	78	65	48 / 54
	6x6 - W2.0 x W2.0	16	500	403	329	272	227	191	153	128 / 130	100 / 111	77 / 94	58 / 81
	7.25"	20	341	272	221	172	141	117	97	81	68	56	45 / 47
	50 PSF	19	382	304	246	202	158	130	108	90	75	63	51 / 52
	1.68 cu.yd/(100sq.ft)	18	417	332	268	219	181	141	117	97	81	68	56
	6x6 - W2.0 x W2.0	16	500	421	344	284	237	200	161	136	113 / 116	88 / 99	68 / 84
	7.5"	20	355	284	230	179	147	122	101	84	70	59	49
	52 PSF	19	399	318	257	211	165	136	113	94	78	65	55
	1.76 cu.yd/(100sq.ft)	18	435	346	280	229	189	148	122	102	85	71	59
	6x6 - W2.0 x W2.0	16	500	440	359	296	248	209	168	142	121	100 / 103	78 / 88
	7.75"	20	370	296	240	187	153	127	105	88	73	61	51
	54 PSF	19	415	331	268	220	172	142	118	98	82	68	57
	1.83 cu.yd/(100sq.ft)	18	453	361	291	238	197	154	127	106	88	73	61
	6x6 - W2.0 x W2.0	16	500	458	374	309	258	218	175	148	126	107	88 / 92
	8"	20	385	308	239	194	160	132	110	91	76	64	53
	57 PSF	19	432	344	279	229	179	147	122	102	85	71	59
	1.91 cu.yd/(100sq.ft)	18	471	375	303	248	205	160	133	110	92	76	64
	4x4 - W1.4 x W1.4	16	500	476	389	321	269	216	182	154	131	112	96
	8.25"	20	400	320	248	202	166	137	114	95	79	66	55
	59 PSF	19	449	358	290	226	186	153	127	106	88	74	62
	1.99 cu.yd/(100sq.ft)	18	490	390	315	258	202	166	138	115	95	79	66
	6x6 - W2.9 x W2.9	16	500	495	404	334	279	224	189	160	136	116	99

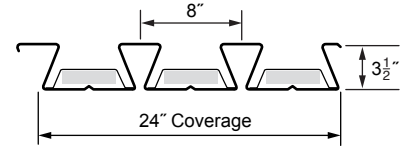
NOTES:

- The slab weight has been subtracted from the loads listed above.
- Uniform superimposed service loads were determined by dividing the superimposed LRFD design loads controlled by strength by the load factor of 1.6.
- Where two maximum uniform superimposed service loads are shown, first load is for slabs with no top reinforcing steel within the slab span. Second load is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where only one load is shown, the load is for slabs without top reinforcement. Addition of top reinforcement does not affect the maximum service loads in those cases.



Versa-Dek® 3.5 LS Composite Acoustical

MAXIMUM ALLOWABLE SPANS OF COMPOSITE SLABS FOR SERVICE STAGE



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

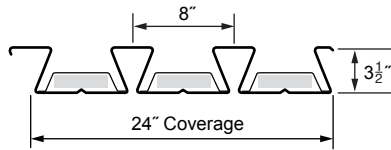
Total Slab Depth (in.)	Gage	Max. Service Stage Single Spans (ft.-in.)					
		6000 PSI Normal-Weight Concrete (145 PCF)			6000 PSI Lightweight Concrete (110 PCF)		
		LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf	LL=40 psf; SDL=20 psf	LL=80 psf; SDL=5 psf	LL=100 psf; SDL=5 psf
5.5	20	16' - 11"	14' - 8"	13' - 7"	16' - 7" / 17' - 1"	14' - 10"	14' - 0"
	19	17' - 6" / 17' - 6"	15' - 3"	14' - 7"	17' - 0" / 17' - 8"	15' - 10"	14' - 7"
	18	17' - 10" / 17' - 11"	15' - 9"	15' - 1"	17' - 4" / 18' - 1"	16' - 3"	15' - 1"
	16	18' - 5" / 20' - 2"	17' - 7"	16' - 4"	17' - 11" / 20' - 5"	17' - 7" / 17' - 9"	16' - 10"
5.75	20	17' - 3"	15' - 0"	13' - 11"	17' - 2" / 17' - 5"	15' - 2"	14' - 4"
	19	17' - 10"	15' - 7"	14' - 6"	17' - 6" / 18' - 0"	15' - 9"	15' - 0"
	18	18' - 3"	16' - 0"	14' - 11"	17' - 10" / 18' - 5"	16' - 2"	15' - 5"
	16	18' - 11" / 20' - 7"	17' - 11"	16' - 8"	18' - 6" / 20' - 9"	18' - 1" / 18' - 1"	16' - 9"
6	20	17' - 7"	15' - 4"	14' - 2"	17' - 8" / 17' - 9"	15' - 5"	14' - 4"
	19	18' - 2"	15' - 11"	14' - 9"	18' - 1" / 18' - 4"	16' - 1"	15' - 3"
	18	18' - 7"	16' - 4"	15' - 3"	18' - 5" / 18' - 9"	16' - 6"	15' - 9"
	16	19' - 6" / 20' - 11"	18' - 4"	17' - 0"	19' - 0" / 21' - 2"	18' - 6"	17' - 2"
6.25	20	17' - 10"	15' - 7"	14' - 6"	18' - 1"	15' - 9"	14' - 7"
	19	18' - 5"	16' - 2"	15' - 1"	18' - 7" / 18' - 8"	16' - 4"	15' - 2"
	18	18' - 10"	16' - 8"	15' - 6"	18' - 11" / 19' - 1"	16' - 9"	15' - 7"
	16	20' - 1" / 21' - 3"	18' - 8"	17' - 4"	19' - 7" / 21' - 6"	18' - 10"	17' - 6"
6.5	20	18' - 1"	15' - 10"	14' - 9"	18' - 4"	16' - 0"	14' - 10"
	19	18' - 9"	16' - 6"	15' - 4"	18' - 11"	16' - 7"	15' - 6"
	18	19' - 1"	16' - 11"	15' - 9"	19' - 4"	17' - 1"	15' - 11"
	16	20' - 7" / 21' - 7"	19' - 0"	17' - 8"	20' - 1" / 21' - 10"	19' - 2"	17' - 10"
6.75	20	18' - 5"	16' - 2"	15' - 0"	18' - 8"	16' - 4"	15' - 2"
	19	19' - 0"	16' - 9"	15' - 7"	19' - 3"	16' - 11"	15' - 9"
	18	19' - 4"	17' - 2"	16' - 0"	19' - 7"	17' - 4"	16' - 2"
	16	21' - 2" / 21' - 11"	19' - 3"	17' - 11"	20' - 8" / 22' - 2"	19' - 6"	18' - 1"
7	20	18' - 8"	16' - 5"	15' - 3"	18' - 11"	16' - 7"	15' - 5"
	19	19' - 3"	17' - 0"	15' - 10"	19' - 6"	17' - 2"	16' - 0"
	18	19' - 7"	17' - 5"	16' - 3"	19' - 10"	17' - 7"	16' - 5"
	16	21' - 8" / 22' - 2"	19' - 7"	18' - 3"	21' - 2" / 22' - 6"	19' - 9"	18' - 5"
7.25	20	18' - 10"	16' - 7"	15' - 6"	19' - 2"	16' - 10"	15' - 8"
	19	19' - 5"	17' - 3"	16' - 1"	19' - 9"	17' - 5"	16' - 3"
	18	19' - 10"	17' - 8"	16' - 6"	20' - 1"	17' - 10"	16' - 8"
	16	22' - 3" / 22' - 6"	19' - 10"	18' - 6"	21' - 9" / 22' - 9"	20' - 1"	18' - 8"
7.5	20	19' - 1"	16' - 10"	15' - 9"	19' - 5"	17' - 0"	15' - 10"
	19	19' - 8"	17' - 5"	16' - 4"	20' - 0"	17' - 8"	16' - 6"
	18	20' - 1"	17' - 10"	16' - 9"	20' - 4"	18' - 1"	16' - 11"
	16	22' - 9"	20' - 1"	18' - 9"	22' - 3" / 23' - 1"	20' - 4"	19' - 0"
7.75	20	19' - 4"	17' - 1"	15' - 11"	19' - 7"	17' - 3"	16' - 1"
	19	19' - 11"	17' - 8"	16' - 6"	20' - 2"	17' - 10"	16' - 8"
	18	20' - 3"	18' - 1"	16' - 11"	20' - 7"	18' - 3"	17' - 1"
	16	23' - 0"	20' - 4"	19' - 0"	22' - 9" / 23' - 4"	20' - 7"	19' - 3"
8	20	19' - 6"	17' - 3"	16' - 2"	19' - 10"	17' - 6"	16' - 4"
	19	20' - 1"	17' - 11"	16' - 9"	20' - 5"	18' - 1"	16' - 11"
	18	20' - 6"	18' - 4"	17' - 2"	20' - 9"	18' - 6"	17' - 4"
	16	23' - 3"	20' - 7"	19' - 3"	23' - 4" / 23' - 7"	20' - 10"	19' - 6"
8.25	20	19' - 9"	17' - 6"	16' - 4"	20' - 1"	17' - 8"	16' - 6"
	19	20' - 4"	18' - 1"	16' - 11"	20' - 7"	18' - 4"	17' - 1"
	18	20' - 8"	18' - 6"	17' - 4"	21' - 0"	18' - 9"	17' - 6"
	16	23' - 5"	20' - 10"	19' - 6"	23' - 10"	21' - 1"	19' - 9"

NOTES:

- Where two maximum service stage spans are shown, first span is for slabs with no top reinforcing steel within the slab span. Second span is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the slab span for long-term deflection control. This amount of top reinforcing steel results in the long-term deflection coefficient of 0.6.
- Where one span is shown, the maximum span is for slabs without top reinforcing steel. Addition of top reinforcing steel does not affect the maximum spans in those cases.

Versa-Dek® 3.5 LS Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
6000 PSI Normal-Weight Concrete (145 PCF)	5.5	20	17.23 / 22.05	9.38 / 11.9	13.3 / 16.97	10.464	7.494	28256.0	-0.2304
		19	17.96 / 23.64	10.53 / 13.84	14.25 / 18.74	12.049	7.494	27494.1	-0.2713
		18	18.62 / 25.13	11.56 / 15.67	15.09 / 20.4	13.484	7.494	26783.0	-0.3095
		16	20.05 / 28.42	13.67 / 19.77	16.86 / 24.1	12.595	7.494	25025.0	-0.2969
	5.75	20	19.72 / 25.05	10.51 / 13.23	15.11 / 19.14	11.149	7.908	28256.0	-0.2304
		19	20.52 / 26.82	11.8 / 15.38	16.16 / 21.1	12.848	7.908	27494.1	-0.2713
		18	21.25 / 28.46	12.95 / 17.39	17.1 / 22.93	14.390	7.908	26783.0	-0.3095
		16	22.81 / 32.09	15.31 / 21.92	19.06 / 27.01	17.655	7.908	25025.0	-0.2969
	6	20	22.45 / 28.34	11.73 / 14.65	17.09 / 21.49	11.833	8.322	28256.0	-0.2304
		19	23.33 / 30.28	13.17 / 17.01	18.25 / 23.64	13.647	8.322	27494.1	-0.2713
		18	24.13 / 32.08	14.45 / 19.23	19.29 / 25.66	15.296	8.322	26783.0	-0.3095
		16	25.84 / 36.08	17.09 / 24.21	21.46 / 30.14	18.798	8.322	25025.0	-0.2969
	6.25	20	25.44 / 31.91	13.03 / 16.16	19.23 / 24.04	12.517	8.736	28256.0	-0.2304
		19	26.4 / 34.04	14.64 / 18.75	20.52 / 26.39	14.446	8.736	27494.1	-0.2713
		18	27.27 / 36.02	16.07 / 21.19	21.67 / 28.6	16.202	8.736	26783.0	-0.3095
		16	29.15 / 40.4	19 / 26.64	24.07 / 33.52	19.941	8.736	25025.0	-0.2969
	6.5	20	28.7 / 35.79	14.42 / 17.75	21.56 / 26.77	13.201	9.150	28256.0	-0.2304
		19	29.75 / 38.11	16.21 / 20.59	22.98 / 29.35	15.245	9.150	27494.1	-0.2713
		18	30.7 / 40.28	17.79 / 23.25	24.25 / 31.76	17.108	9.150	26783.0	-0.3095
		16	32.75 / 45.06	21.04 / 29.2	26.89 / 37.13	21.084	9.150	25025.0	-0.2969
	6.75	20	32.25 / 39.99	15.9 / 19.44	24.08 / 29.72	13.885	9.564	28256.0	-0.2304
		19	33.39 / 42.52	17.88 / 22.54	25.63 / 32.53	16.044	9.564	27494.1	-0.2713
		18	34.43 / 44.88	19.63 / 25.43	27.03 / 35.16	18.014	9.564	26783.0	-0.3095
		16	36.66 / 50.09	23.22 / 31.91	29.94 / 41	22.227	9.564	25025.0	-0.2969
6000 PSI Lightweight Concrete (110 PCF)	5.5	20	12.83 / 17.81	8.42 / 11.84	10.63 / 14.83	10.464	5.621	28256.0	-0.2304
		19	13.51 / 19.4	9.41 / 13.85	11.46 / 16.63	12.049	5.621	27494.1	-0.2713
		18	14.12 / 20.89	10.27 / 15.75	12.2 / 18.32	13.484	5.621	26783.0	-0.3095
		16	15.43 / 24.18	12.12 / 19.14	13.77 / 21.66	12.595	5.621	25025.0	-0.2969
	5.75	20	14.62 / 20.13	9.44 / 13.14	12.03 / 16.64	11.149	5.931	28256.0	-0.2304
		19	15.36 / 21.89	10.54 / 15.35	12.95 / 18.62	12.848	5.931	27494.1	-0.2713
		18	16.03 / 23.53	11.5 / 17.45	13.77 / 20.49	14.390	5.931	26783.0	-0.3095
		16	17.46 / 27.16	13.47 / 22.2	15.47 / 24.68	17.655	5.931	25025.0	-0.2969
	6	20	16.57 / 22.66	10.53 / 14.52	13.55 / 18.59	11.833	6.242	28256.0	-0.2304
		19	17.39 / 24.6	11.76 / 16.95	14.57 / 20.77	13.647	6.242	27494.1	-0.2713
		18	18.13 / 26.4	12.83 / 19.25	15.48 / 22.83	15.296	6.242	26783.0	-0.3095
		16	19.69 / 30.39	15.02 / 24.46	17.36 / 27.43	18.798	6.242	25025.0	-0.2969
	6.25	20	18.71 / 25.4	11.71 / 15.98	15.21 / 20.69	12.517	6.552	28256.0	-0.2304
		19	19.6 / 27.52	13.07 / 18.64	16.34 / 23.08	14.446	6.552	27494.1	-0.2713
		18	20.41 / 29.5	14.27 / 21.16	17.34 / 25.33	16.202	6.552	26783.0	-0.3095
		16	22.12 / 33.88	16.7 / 26.85	19.41 / 30.36	19.941	6.552	25025.0	-0.2969
	6.5	20	21.04 / 28.36	12.97 / 17.53	17 / 22.95	13.201	6.862	28256.0	-0.2304
		19	22.01 / 30.68	14.48 / 20.43	18.25 / 25.56	15.245	6.862	27494.1	-0.2713
		18	22.9 / 32.84	15.8 / 23.18	19.35 / 28.01	17.108	6.862	26783.0	-0.3095
		16	24.76 / 37.62	18.49 / 29.38	21.63 / 33.5	21.084	6.862	25025.0	-0.2969
	6.75	20	23.57 / 31.56	14.31 / 19.16	18.94 / 25.36	13.885	7.173	28256.0	-0.2304
		19	24.63 / 34.08	15.98 / 22.32	20.3 / 28.2	16.044	7.173	27494.1	-0.2713
		18	25.59 / 36.44	17.44 / 25.31	21.52 / 30.87	18.014	7.173	26783.0	-0.3095
		16	27.62 / 41.64	20.42 / 32.04	24.02 / 36.84	22.227	7.173	25025.0	-0.2969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

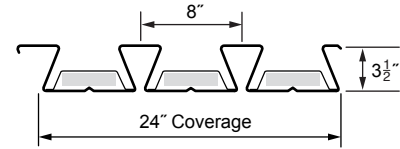
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than 1.17As (where As is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined in accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite Acoustical

MOMENTS OF INERTIA, POSITIVE MOMENT AND SHEAR CAPACITIES OF COMPOSITE SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth (in.)	Gage	Moment of Inertia of Slab Section Transformed to Steel (in. ⁴ /ft)			ϕM_n (ft-kips/ft)	ϕV_n (kips/ft)	Shear-Bond Strength Coefficients	
			Uncracked, I_u	Cracked, I_c	Average, I_{avg}			m	k
6000 PSI Normal-Weight Concrete (145 PCF)	7	20	36.1 / 44.53	17.47 / 21.22	26.79 / 32.87	14.570	9.911	28256.0	-0.2304
		19	37.34 / 47.27	19.65 / 24.58	28.49 / 35.93	16.842	9.978	27494.1	-0.2713
		18	38.47 / 49.83	21.58 / 27.73	30.02 / 38.78	18.920	9.978	26783.0	-0.3095
		16	40.88 / 55.49	25.53 / 34.76	33.21 / 45.12	23.370	9.978	25025.0	-0.2969
	7.25	20	40.27 / 49.42	19.13 / 23.08	29.7 / 36.25	15.254	10.118	28256.0	-0.2304
		19	41.61 / 52.39	21.52 / 26.73	31.56 / 39.56	17.641	10.392	27494.1	-0.2713
		18	42.83 / 55.16	23.64 / 30.14	33.23 / 42.65	19.826	10.392	26783.0	-0.3095
		16	45.45 / 61.28	27.99 / 37.75	36.72 / 49.51	24.513	10.392	25025.0	-0.2969
	7.5	20	44.77 / 54.66	20.88 / 25.04	32.82 / 39.85	15.938	10.325	28256.0	-0.2304
		19	46.21 / 57.87	23.5 / 28.99	34.85 / 43.43	18.440	10.806	27494.1	-0.2713
		18	47.53 / 60.86	25.81 / 32.67	36.67 / 46.77	20.732	10.806	26783.0	-0.3095
		16	50.36 / 67.48	30.58 / 40.88	40.47 / 54.18	25.655	10.806	25025.0	-0.2969
	7.75	20	49.61 / 60.29	22.72 / 27.09	36.17 / 43.69	16.622	10.532	28256.0	-0.2304
		19	51.17 / 63.75	25.58 / 31.34	38.37 / 47.54	19.239	11.220	27494.1	-0.2713
		18	52.59 / 66.97	28.11 / 35.32	40.35 / 51.14	21.638	11.220	26783.0	-0.3095
		16	55.64 / 74.09	33.31 / 44.16	44.47 / 59.12	26.798	11.220	25025.0	-0.2969
	8	20	54.82 / 66.31	24.65 / 29.23	39.73 / 47.77	17.307	10.739	28256.0	-0.2304
		19	56.49 / 70.02	27.76 / 33.81	42.12 / 51.91	20.038	11.633	27494.1	-0.2713
		18	58.01 / 73.48	30.51 / 38.08	44.26 / 55.78	22.544	11.633	26783.0	-0.3095
		16	61.29 / 81.14	36.19 / 47.58	48.74 / 64.36	27.941	11.633	25025.0	-0.2969
	8.25	20	60.39 / 72.73	26.67 / 31.46	43.53 / 52.1	17.991	10.946	28256.0	-0.2304
		19	62.18 / 76.71	30.04 / 36.38	46.11 / 56.55	20.837	12.047	27494.1	-0.2713
		18	63.82 / 80.42	33.04 / 40.96	48.43 / 60.69	23.450	12.047	26783.0	-0.3095
		16	67.34 / 88.63	39.21 / 51.15	53.27 / 69.89	29.084	12.047	25025.0	-0.2969
6000 PSI Lightweight Concrete (110 PCF)	7	20	26.31 / 35	15.73 / 20.88	21.02 / 27.94	14.570	7.483	28256.0	-0.2304
		19	27.46 / 37.74	17.57 / 24.31	22.52 / 31.02	16.842	7.483	27494.1	-0.2713
		18	28.5 / 40.29	19.19 / 27.54	23.84 / 33.92	18.920	7.483	26783.0	-0.3095
		16	30.71 / 45.95	22.47 / 34.83	26.59 / 40.39	23.370	7.483	25025.0	-0.2969
	7.25	20	29.26 / 38.68	17.24 / 22.69	23.25 / 30.69	15.254	7.794	28256.0	-0.2304
		19	30.51 / 41.65	19.27 / 26.39	24.89 / 34.02	17.641	7.794	27494.1	-0.2713
		18	31.64 / 44.42	21.04 / 29.89	26.34 / 37.15	19.826	7.794	26783.0	-0.3095
		16	34.03 / 50.54	24.64 / 37.76	29.34 / 44.15	24.513	7.794	25025.0	-0.2969
	7.5	20	32.45 / 42.63	18.83 / 24.58	25.64 / 33.61	15.938	8.104	28256.0	-0.2304
		19	33.79 / 45.84	21.05 / 28.58	27.42 / 37.21	18.440	8.104	27494.1	-0.2713
		18	35.01 / 48.83	23 / 32.35	29.01 / 40.59	20.732	8.104	26783.0	-0.3095
		16	37.6 / 55.44	26.95 / 40.82	32.28 / 48.13	25.655	8.104	25025.0	-0.2969
	7.75	20	35.87 / 46.85	20.51 / 26.56	28.19 / 36.71	16.622	8.415	28256.0	-0.2304
		19	37.32 / 50.31	22.94 / 30.86	30.13 / 40.59	19.239	8.415	27494.1	-0.2713
		18	38.64 / 53.53	25.06 / 34.91	31.85 / 44.22	21.638	8.415	26783.0	-0.3095
		16	41.43 / 60.65	29.38 / 44.02	35.41 / 52.34	26.798	8.415	25025.0	-0.2969
	8	20	39.54 / 51.35	22.28 / 28.63	30.91 / 39.99	17.307	8.725	28256.0	-0.2304
		19	41.1 / 55.07	24.92 / 33.25	33.01 / 44.16	20.038	8.725	27494.1	-0.2713
		18	42.52 / 58.53	27.24 / 37.6	34.88 / 48.06	22.544	8.725	26783.0	-0.3095
		16	45.53 / 66.18	31.95 / 47.36	38.74 / 56.77	27.941	8.725	25025.0	-0.2969
	8.25	20	43.46 / 56.14	24.13 / 30.78	33.8 / 43.46	17.991	9.036	28256.0	-0.2304
		19	45.14 / 60.12	27 / 35.74	36.07 / 47.93	20.837	9.036	27494.1	-0.2713
		18	46.66 / 63.83	29.52 / 40.39	38.09 / 52.11	23.450	9.036	26783.0	-0.3095
		16	49.9 / 72.04	34.65 / 50.84	42.27 / 61.44	29.084	9.036	25025.0	-0.2969

ϕM_n is factored positive moment capacity; ϕV_n is factored vertical one-way shear capacity.

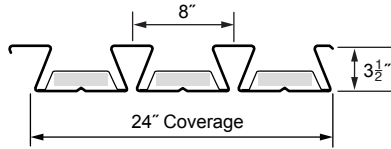
NOTES:

- Uncracked, cracked and average moments of inertia were calculated in accordance with ANSI/SDI C-2017.
For slab deflection calculations, the tabulated moments of inertia shall be used with the modulus of elasticity of 29500 ksi.
The first tabulated value is for slabs with no top reinforcing steel within the slab span. The second tabulated value is for slabs with top reinforcing steel in the amount of not less than $1.17A_s$ (where A_s is deck area) along the entire slab span.
- Factored positive moment capacities of the slabs were calculated using the ANSI/ASCE 3-91 general strain analysis method.
- Factored vertical one-way shear capacities of the slabs were determined on accordance with ANSI/SDI C-2017.
- The shear-bond strength of the slabs shall be calculated using ANSI/ASCE 3-91 Eq. (2-9) and the tabulated m and k coefficients.
See shear-bond strength table.



Versa-Dek® 3.5 LS Composite Acoustical

FACTORED SHEAR-BOND STRENGTH OF SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans												
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"	
6000 PSI Normal-Weight Concrete (145 PCF)	5.5"	20	2.170	1.890	1.660	1.469	1.452	1.324	1.215	1.121	1.039	0.968	0.905	0.850	
	45 PSF	19	2.438	2.119	1.858	1.641	1.457	1.300	1.332	1.224	1.130	1.047	0.975	0.911	
	1.14 cu.yd/(100sq.ft)	18	2.664	2.312	2.024	1.784	1.581	1.407	1.427	1.307	1.202	1.110	1.029	0.957	
	6x6 - W1.4 x W1.4	16	3.324	2.910	2.571	2.288	2.049	1.844	1.666	1.697	1.572	1.462	1.364	1.278	
	5.75"	20	2.307	2.009	1.765	1.561	1.544	1.408	1.292	1.192	1.105	1.029	0.963	0.904	
	48 PSF	19	2.592	2.253	1.976	1.745	1.549	1.382	1.416	1.301	1.201	1.113	1.036	0.968	
	1.22 cu.yd/(100sq.ft)	18	2.832	2.458	2.152	1.897	1.681	1.496	1.517	1.389	1.278	1.180	1.093	1.017	
	6x6 - W1.4 x W1.4	16	3.534	3.093	2.733	2.432	2.178	1.960	1.772	1.804	1.671	1.553	1.450	1.358	
	6"	20	2.444	2.128	1.870	1.654	1.635	1.492	1.369	1.263	1.171	1.090	1.020	0.957	
	51 PSF	19	2.745	2.386	2.093	1.848	1.641	1.641	1.500	1.378	1.272	1.179	1.098	1.025	
	1.29 cu.yd/(100sq.ft)	18	3.000	2.604	2.280	2.010	1.781	1.585	1.607	1.472	1.353	1.249	1.158	1.077	
	6x6 - W1.4 x W1.4	16	3.744	3.277	2.895	2.577	2.308	2.077	1.877	1.911	1.769	1.645	1.535	1.438	
	6.25"	20	2.581	2.247	1.974	1.747	1.727	1.575	1.445	1.334	1.236	1.151	1.077	1.011	
	54 PSF	19	2.899	2.520	2.210	1.952	1.733	1.733	1.584	1.456	1.344	1.245	1.159	1.083	
	1.37 cu.yd/(100sq.ft)	18	3.168	2.750	2.408	2.122	1.881	1.674	1.697	1.554	1.429	1.319	1.223	1.137	
	6x6 - W1.4 x W1.4	16	3.953	3.460	3.057	2.721	2.437	2.193	1.982	2.017	1.868	1.737	1.621	1.518	
	6.5"	20	2.718	2.367	2.079	2.007	1.819	1.659	1.522	1.404	1.302	1.213	1.134	1.065	
	57 PSF	19	3.053	2.654	2.327	2.055	1.825	1.825	1.668	1.533	1.415	1.311	1.221	1.140	
	1.45 cu.yd/(100sq.ft)	18	3.337	2.896	2.535	2.235	1.981	1.763	1.787	1.636	1.505	1.389	1.287	1.197	
	6x6 - W1.4 x W1.4	16	4.163	3.644	3.219	2.866	2.566	2.309	2.304	2.124	1.967	1.829	1.706	1.598	
	6.75"	20	2.855	2.486	2.184	2.109	1.910	1.742	1.599	1.475	1.368	1.274	1.191	1.119	
	60 PSF	19	3.207	2.788	2.445	2.159	2.110	1.917	1.752	1.610	1.486	1.377	1.282	1.198	
	1.52 cu.yd/(100sq.ft)	18	3.505	3.042	2.663	2.347	2.080	2.061	1.877	1.718	1.580	1.459	1.352	1.257	
	6x6 - W2.0 x W2.0	16	4.373	3.828	3.382	3.010	2.695	2.426	2.420	2.231	2.065	1.920	1.792	1.678	
6000 PSI Lightweight Concrete (110 PCF)	5.5"	20	2.170	1.890	1.660	1.469	1.307	1.168	1.177	1.081	0.997	0.923	0.857	0.800	
	34 PSF	19	2.438	2.119	1.858	1.641	1.457	1.300	1.163	1.184	1.087	1.002	0.927	0.860	
	1.14 cu.yd/(100sq.ft)	18	2.664	2.312	2.024	1.784	1.581	1.407	1.257	1.267	1.159	1.064	0.981	0.906	
	6x6 - W1.4 x W1.4	16	3.324	2.910	2.571	2.288	2.049	1.844	1.666	1.511	1.529	1.416	1.316	1.227	
	5.75"	20	2.307	2.009	1.765	1.561	1.389	1.242	1.252	1.149	1.059	0.981	0.911	0.850	
	36 PSF	19	2.592	2.253	1.976	1.745	1.549	1.382	1.236	1.258	1.155	1.065	0.985	0.914	
	1.22 cu.yd/(100sq.ft)	18	2.832	2.458	2.152	1.897	1.681	1.496	1.336	1.346	1.232	1.131	1.042	0.963	
	6x6 - W1.4 x W1.4	16	3.534	3.093	2.733	2.432	2.178	1.960	1.772	1.606	1.625	1.505	1.399	1.304	
	6"	20	2.444	2.128	1.870	1.654	1.472	1.451	1.326	1.217	1.122	1.039	0.965	0.900	
	38 PSF	19	2.745	2.386	2.093	1.848	1.641	1.464	1.457	1.333	1.224	1.128	1.043	0.968	
	1.29 cu.yd/(100sq.ft)	18	3.000	2.604	2.280	2.010	1.781	1.585	1.415	1.426	1.305	1.198	1.104	1.020	
	6x6 - W1.4 x W1.4	16	3.744	3.277	2.895	2.577	2.308	2.077	1.877	1.702	1.721	1.594	1.481	1.381	
	6.25"	20	2.581	2.247	1.974	1.747	1.554	1.533	1.400	1.285	1.185	1.097	1.019	0.950	
	41 PSF	19	2.899	2.520	2.210	1.952	1.733	1.546	1.539	1.407	1.292	1.191	1.101	1.022	
	1.37 cu.yd/(100sq.ft)	18	3.168	2.750	2.408	2.122	1.881	1.674	1.494	1.505	1.377	1.265	1.165	1.076	
	6x6 - W1.4 x W1.4	16	3.953	3.460	3.057	2.721	2.437	2.193	1.982	1.797	1.816	1.682	1.563	1.457	
	6.5"	20	2.718	2.367	2.079	1.839	1.637	1.614	1.474	1.353	1.248	1.155	1.073	1.001	
	43 PSF	19	3.053	2.654	2.327	2.055	1.825	1.628	1.620	1.481	1.360	1.254	1.160	1.076	
	1.45 cu.yd/(100sq.ft)	18	3.337	2.896	2.535	2.235	1.981	1.763	1.574	1.585	1.450	1.331	1.227	1.133	
	6x6 - W1.4 x W1.4	16	4.163	3.644	3.219	2.866	2.566	2.309	2.087	2.073	1.912	1.771	1.646	1.534	
	6.75"	20	2.855	2.486	2.184	1.932	1.866	1.695	1.548	1.421	1.310	1.213	1.127	1.051	
	45 PSF	19	3.207	2.788	2.445	2.159	1.917	1.710	1.702	1.556	1.429	1.317	1.218	1.130	
	1.52 cu.yd/(100sq.ft)	18	3.505	3.042	2.663	2.347	2.080	1.851	1.826	1.664	1.523	1.398	1.288	1.190	
	6x6 - W2.0 x W2.0	16	4.373	3.828	3.382	3.010	2.695	2.426	2.192	2.177	2.008	1.859	1.728	1.611	

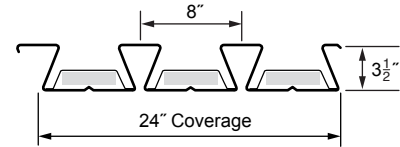
NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



Versa-Dek® 3.5 LS Composite Acoustical

FACTORED SHEAR-BOND STRENGTH OF SLABS



6000 PSI NORMAL-WEIGHT AND LIGHTWEIGHT CONCRETE

	Total Slab Depth, Concrete Weight, Concrete Volume, Min. Required WWF	Gage	Factored Shear-Bond Strength of Slab $\phi V_{n,shb}$ (kips/ft) / Spans												
			9' - 0"	10' - 0"	11' - 0"	12' - 0"	13' - 0"	14' - 0"	15' - 0"	16' - 0"	17' - 0"	18' - 0"	19' - 0"	20' - 0"	
6000 PSI Normal-Weight Concrete (145 PCF)	7"	20	2.992	2.605	2.289	2.210	2.002	1.826	1.676	1.546	1.433	1.335	1.249	1.172	
	63 PSF	19	3.361	2.921	2.562	2.262	2.211	2.009	1.836	1.687	1.557	1.444	1.343	1.255	
	1.6 cu.yd/(100sq.ft)	18	3.673	3.188	2.791	2.460	2.180	2.159	1.967	1.801	1.656	1.529	1.417	1.318	
	6x6 - W2.0 x W2.0	16	4.583	4.011	3.544	3.154	2.825	2.542	2.536	2.337	2.164	2.012	1.878	1.758	
	7.25"	20	3.129	2.725	2.393	2.311	2.094	1.910	1.752	1.617	1.499	1.396	1.306	1.226	
	66 PSF	19	3.515	3.055	2.679	2.366	2.312	2.101	1.920	1.764	1.628	1.510	1.405	1.312	
	1.68 cu.yd/(100sq.ft)	18	3.841	3.334	2.919	2.573	2.280	2.258	2.057	1.883	1.732	1.599	1.481	1.378	
	6x6 - W2.0 x W2.0	16	4.792	4.195	3.706	3.299	2.954	2.658	2.651	2.444	2.263	2.104	1.963	1.838	
	7.5"	20	3.266	2.844	2.683	2.412	2.185	1.993	1.829	1.688	1.565	1.457	1.363	1.280	
	69 PSF	19	3.669	3.189	2.797	2.470	2.413	2.193	2.004	1.841	1.700	1.576	1.466	1.370	
	1.76 cu.yd/(100sq.ft)	18	4.009	3.480	3.046	2.685	2.380	2.357	2.147	1.965	1.807	1.668	1.546	1.438	
	6x6 - W2.0 x W2.0	16	5.002	4.378	3.868	3.443	3.083	2.775	2.767	2.551	2.362	2.195	2.049	1.918	
	7.75"	20	3.403	2.963	2.796	2.513	2.277	2.077	1.906	1.758	1.630	1.518	1.420	1.333	
	72 PSF	19	3.822	3.323	2.914	2.785	2.514	2.285	2.088	1.919	1.771	1.642	1.528	1.427	
	1.83 cu.yd/(100sq.ft)	18	4.177	3.625	3.174	2.798	2.480	2.455	2.237	2.048	1.883	1.738	1.611	1.498	
	6x6 - W2.0 x W2.0	16	5.212	4.562	4.030	3.587	3.212	2.891	2.883	2.657	2.460	2.287	2.134	1.998	
	8"	20	3.540	3.082	2.909	2.615	2.369	2.161	1.983	1.829	1.696	1.580	1.477	1.387	
	75 PSF	19	3.976	3.456	3.031	2.897	2.616	2.377	2.172	1.996	1.842	1.708	1.589	1.484	
	1.91 cu.yd/(100sq.ft)	18	4.345	3.771	3.302	2.910	2.820	2.554	2.327	2.130	1.958	1.808	1.676	1.558	
	4x4 - W1.4 x W1.4	16	5.421	4.746	4.193	3.732	3.342	3.007	2.999	2.764	2.559	2.379	2.220	2.078	
	8.25"	20	3.677	3.202	3.021	2.716	2.460	2.244	2.059	1.900	1.762	1.641	1.535	1.441	
	78 PSF	19	4.130	3.590	3.148	3.009	2.717	2.469	2.256	2.073	1.913	1.774	1.651	1.542	
	1.99 cu.yd/(100sq.ft)	18	4.513	3.917	3.430	3.023	2.929	2.653	2.417	2.212	2.034	1.878	1.740	1.618	
	6x6 - W2.9 x W2.9	16	5.631	4.929	4.355	3.876	3.471	3.396	3.114	2.871	2.658	2.471	2.305	2.158	
6000 PSI Lightweight Concrete (110 PCF)	7"	20	2.992	2.605	2.289	2.025	1.956	1.776	1.622	1.489	1.373	1.271	1.181	1.101	
	48 PSF	19	3.361	2.921	2.562	2.262	2.009	1.792	1.783	1.630	1.497	1.380	1.276	1.184	
	1.6 cu.yd/(100sq.ft)	18	3.673	3.188	2.791	2.460	2.180	1.940	1.914	1.744	1.596	1.465	1.349	1.247	
	6x6 - W2.0 x W2.0	16	4.583	4.011	3.544	3.154	2.825	2.542	2.297	2.281	2.104	1.948	1.810	1.687	
	7.25"	20	3.129	2.725	2.393	2.118	2.045	1.858	1.697	1.557	1.436	1.329	1.235	1.152	
	50 PSF	19	3.515	3.055	2.679	2.366	2.101	2.049	1.865	1.705	1.565	1.443	1.334	1.238	
	1.68 cu.yd/(100sq.ft)	18	3.841	3.334	2.919	2.573	2.280	2.029	2.001	1.824	1.668	1.532	1.411	1.303	
	6x6 - W2.0 x W2.0	16	4.792	4.195	3.706	3.299	2.954	2.658	2.402	2.384	2.200	2.037	1.892	1.764	
	7.5"	20	3.266	2.844	2.498	2.210	2.135	1.939	1.771	1.625	1.499	1.387	1.289	1.202	
	52 PSF	19	3.669	3.189	2.797	2.470	2.193	2.139	1.946	1.779	1.634	1.506	1.392	1.292	
	1.76 cu.yd/(100sq.ft)	18	4.009	3.480	3.046	2.685	2.380	2.118	2.089	1.903	1.741	1.599	1.472	1.360	
	6x6 - W2.0 x W2.0	16	5.002	4.378	3.868	3.443	3.083	2.775	2.508	2.488	2.295	2.125	1.975	1.841	
	7.75"	20	3.403	2.963	2.603	2.303	2.224	2.020	1.845	1.693	1.561	1.445	1.343	1.252	
	54 PSF	19	3.822	3.323	2.914	2.573	2.285	2.228	2.027	1.854	1.702	1.569	1.451	1.346	
	1.83 cu.yd/(100sq.ft)	18	4.177	3.625	3.174	2.798	2.480	2.207	2.176	1.983	1.814	1.665	1.534	1.417	
	6x6 - W2.0 x W2.0	16	5.212	4.562	4.030	3.587	3.212	2.891	2.613	2.592	2.391	2.214	2.057	1.917	
	8"	20	3.540	3.082	2.708	2.564	2.314	2.101	1.919	1.762	1.624	1.503	1.397	1.303	
	57 PSF	19	3.976	3.456	3.031	2.677	2.377	2.318	2.109	1.928	1.770	1.632	1.509	1.400	
	1.91 cu.yd/(100sq.ft)	18	4.345	3.771	3.302	2.910	2.579	2.296	2.263	2.062	1.887	1.732	1.595	1.474	
	4x4 - W1.4 x W1.4	16	5.421	4.746	4.193	3.732	3.342	3.007	2.935	2.696	2.487	2.303	2.139	1.994	
	8.25"	20	3.677	3.202	2.813	2.663	2.403	2.183	1.993	1.830	1.687	1.562	1.451	1.353	
	59 PSF	19	4.130	3.590	3.148	2.780	2.659	2.407	2.190	2.003	1.839	1.694	1.567	1.454	
	1.99 cu.yd/(100sq.ft)	18	4.513	3.917	3.430	3.023	2.679	2.591	2.351	2.142	1.959	1.799	1.657	1.530	
	6x6 - W2.9 x W2.9	16	5.631	4.929	4.355	3.876	3.471	3.124	3.048	2.800	2.583	2.391	2.222	2.070	

NOTE:

The factored shear-bond strengths of the composite slabs were calculated using ANSI/ASCE 3-91 Eq. (2-9), the m and k coefficients obtained from tests and the resistance factor of 0.75 from ANSI/SDI C-2017.



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