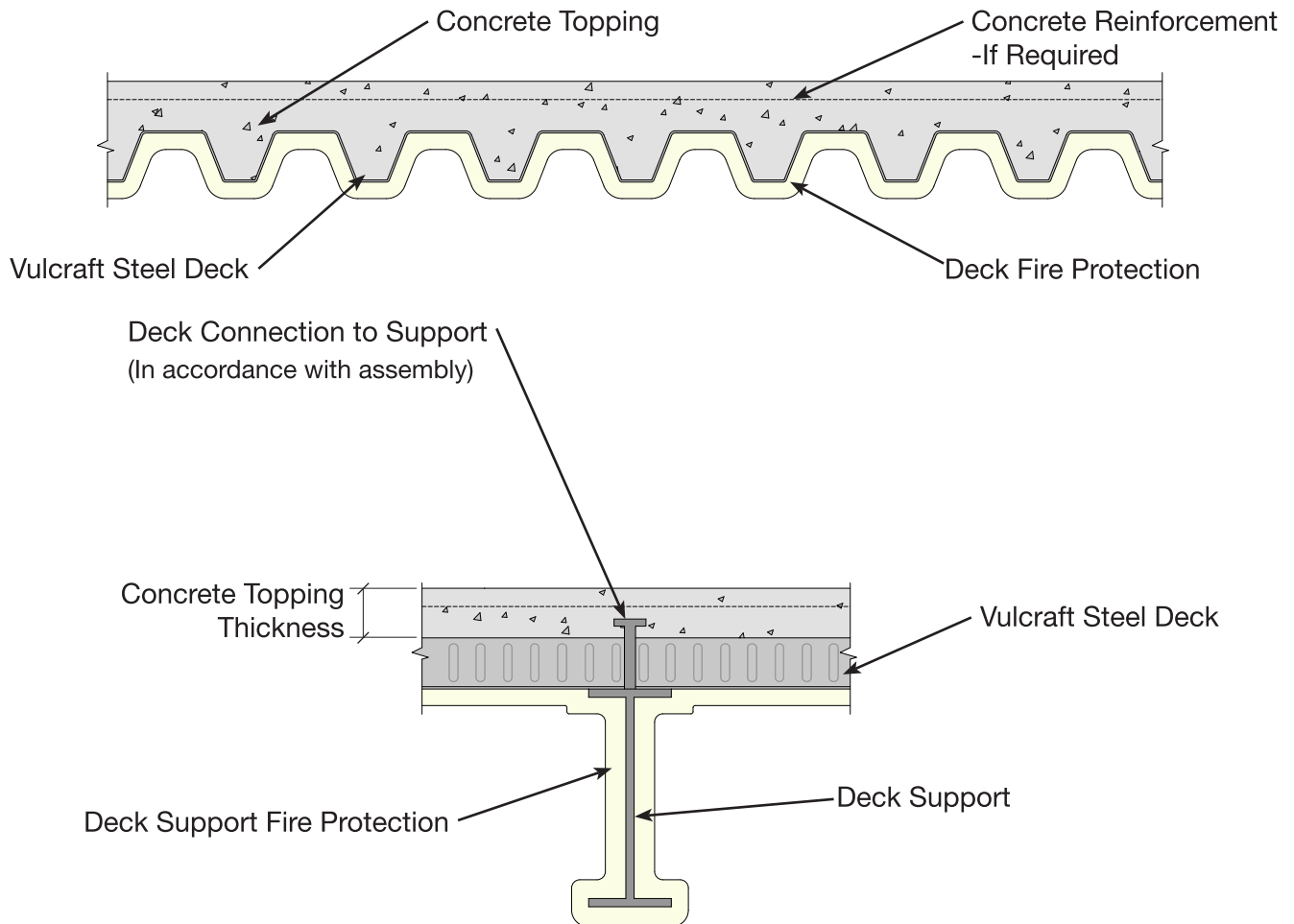


# VULCRAFT® COMPOSITE & NON-COMPOSITE DECK UL FIRE RATED ASSEMBLIES

## USE UL RECOGNIZED COMPOSITE AND NON-COMPOSITE DECKS FOR YOUR FIRE RATED ASSEMBLIES WITH STRUCTURAL CONCRETE FILL

- Vulcraft composite and non-composite slabs may be used to meet hourly fire ratings. The type and thickness of concrete specified will generally determine whether fireproofing will be required on the underside of the composite or non-composite deck.



## REPRESENTATIVE FIRE RATED ASSEMBLY

The table on the following pages lists the UL fire rated assemblies that include Vulcraft composite and non-composite decks profiles. This summary table is provided to assist in identification of assemblies to meet specific project requirements. Refer to the particular UL assembly for full details of construction including, specific information about concrete slab, framing, type of fire protection, deck types and span limitations.

# VULCRAFT® COMPOSITE DECK UL FIRE RATED ASSEMBLIES



## UL Fire Resistance Ratings

Restrained Assembly Ratings (hr.)	Type of Protection	Concrete Thickness & Type	UL Design No.	Deck Type						Unrestrained Beam Rating (hr.)
				1.5VL	2VL	3VL	1.5VLP	2VLP	3VLP	
3/4	Unprotected Deck	2 1/2" LW	D914 #	✓	✓	✓	✓	✓	✓	1
			D916 #	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3
1	Exposed Grid	2 1/2" NW	D216 +	✓	✓	✓		✓	✓	2, 3
		2" NW & LW	D743 *		✓	✓		✓	✓	1, 1 1/2, 2, 3
	Cementitious	2 1/2" NW & LW	D703 *	✓	✓	✓	✓	✓	✓	1 1/2
			D712 *		✓	✓			✓	2
			D722 *		✓	✓		✓	✓	1, 1 1/2, 2
			D739 *	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3, 4
			D759 *	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3
			D859 *		✓	✓		✓	✓	1, 1.5, 2, 3
	Sprayed Fiber	2 1/2" NW & LW	D832 *	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3
			D847 *		✓	✓		✓	✓	1, 1 1/2, 3
			D858 *		✓	✓		✓	✓	1, 1 1/2, 2, 3, 4
			D871 *		✓	✓		✓	✓	1, 1 1/2, 2, 3
D902 #			✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3	
Unprotected Deck	2 1/2" LW	D914 #	✓	✓	✓	✓	✓	✓	1	
		D916 #	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3	
		D919 #	✓	✓	✓	✓	✓	✓	1, 1 1/2	
	3 1/2" NW	D902 #	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3	
		D916 #	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3	
		D919 #	✓	✓	✓	✓	✓	✓	1, 1 1/2	
1 1/2	Gypsum Board	2 1/2" NW	D502 *	✓	✓	✓		✓	✓	1 1/2, 2
		2" NW & LW	D743 *		✓	✓		✓	✓	1, 1 1/2, 2, 3
	Cementitious	2 1/2" NW & LW	D703 *	✓	✓	✓	✓	✓	✓	1 1/2
			D712 *		✓	✓			✓	2
			D722 *		✓	✓		✓	✓	1, 1 1/2, 2
			D739 *	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3, 4
			D759 *	✓	✓	✓	✓	✓	✓	1, 1 1/2, 2, 3
			D919 #	✓	✓	✓	✓	✓	✓	1, 1 1/2

✓<sup>+</sup> 1.5VLI Only

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# VULCRAFT® COMPOSITE DECK

## UL FIRE RATED ASSEMBLIES



### UL Fire Resistance Ratings (continued)

Restrained Assembly Ratings (hr.)	Type of Protection	Concrete Thickness & Type	UL Design No.	Deck Type						Unrestrained Beam Rating (hr.)	
				1.5VL	2VL	3VL	1.5VLP	2VLP	3VLP		
1½	Sprayed Fiber	2" NW & LW	D859 *		✓	✓		✓	✓	1,1½,2,3	
			D832 *	✓	✓	✓	✓	✓	✓	1,1½,2,3	
		2½" NW & LW	D847 *		✓	✓		✓	✓	1,1½,3	
			D858 *		✓	✓		✓	✓	1,1½,2,3,4	
			D871 *		✓	✓		✓	✓	1,1½,2,3	
	Unprotected Deck	3" LW	D902 #	✓	✓	✓	✓	✓	✓	1,1½,2,3	
			D916 #	✓	✓	✓	✓	✓	✓	1,1½,2,3	
		4" NW	D919 #	✓	✓	✓	✓	✓	✓	1,1½	
			D902 #	✓	✓	✓	✓	✓	✓	1,1½,2,3	
			D916 #	✓	✓	✓	✓	✓	✓	1,1½,2,3	
	D919 #	✓	✓	✓	✓	✓	✓	1,1½			
	Exposed Grid	2½" NW	D216 +	✓	✓	✓		✓	✓	2,3	
	Gypsum Board	2½" NW	D502 +	✓	✓	✓		✓	✓	1½,2	
	2	Cementitious	2" NW & LW	D743 *		✓	✓		✓	✓	1,1½,2,3
				D746 *	✓						1,1½,2,3
2½" LW			D752 *	✓	✓	✓	✓	✓	✓	1,1½,2,	
			D703 *	✓	✓	✓	✓	✓	✓	1½	
			D712 *		✓	✓			✓	2	
2½" NW & LW			D716 *	✓	✓	✓		✓	✓	1½,2	
			D722 *		✓	✓		✓	✓	1,1½,2	
			D739 *		✓	✓	✓	✓	✓	1,1½,2,3,4	
			D745 *		✓	✓				1,1½,2	
			D750 *	✓	✓	✓				1½,2	
2½" NW		D755*	✓	✓	✓	✓	✓	✓	1,1½,2,3		
		D759*	✓	✓	✓	✓	✓	✓	1,1½,2,3		
		D760 *	✓+	✓	✓				1,1½,2,3,4		
		D730 *		✓	✓		✓	✓			
		D742 *	✓	✓	✓				1,1½		

✓+ 1.5VLI Only

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# VULCRAFT® COMPOSITE DECK UL FIRE RATED ASSEMBLIES



## UL Fire Resistance Ratings (continued)

Restrained Assembly Ratings (hr.)	Type of Protection	Concrete Thickness & Type	UL Design No.	Deck Type						Unrestrained Beam Rating (hr.)	
				1.5VL	2VL	3VL	1.5VLP	2VLP	3VLP		
2	Sprayed Fiber	2" NW & LW	D859 *		✓	✓		✓	✓	1,1½,2,3	
			D822 *		✓	✓		✓	✓	1	
			D825 *	✓	✓	✓		✓	✓	1,1½,2	
		D831 *		✓	✓		✓	✓	1,1½,2		
		D832 *	✓	✓	✓	✓	✓	✓	1,1½,2,3		
		D833 *	✓	✓	✓		✓	✓	1½		
		D847 *		✓	✓		✓	✓	1,1½,3		
		D858 *		✓	✓		✓	✓	1,1½,2,3,4		
		D861 *		✓	✓				1,1½		
		D871 *		✓	✓		✓	✓	1,1½,2,3		
			2½" LW	D862 *		✓	✓			1	
			¾" LW	D860 *		✓	✓			1,1½,2	
		Unprotected Deck	¾" LW	D826 #	✓	✓	✓	✓	✓	✓	1,1½,2
	D840 #			✓	✓	✓	✓	✓	✓	1,1½	
	D902 #			✓	✓	✓	✓	✓	✓	1,1½,2,3	
	D907 #			✓	✓	✓	✓	✓	✓	1,2	
	D913 #			✓	✓	✓	✓	✓	✓	1	
	D916 #			✓	✓	✓	✓	✓	✓	1,1½,2,3	
	D919 #			✓	✓	✓	✓	✓	✓	1,1½	
	D920 #				✓	✓		✓	✓	1½	
D902 #	✓			✓	✓	✓	✓	✓	1,1½,2,3		
D916 #	✓			✓	✓	✓	✓	✓	1,1½,2,3		
		4½" NW	D919 #	✓	✓	✓	✓	✓	1,1½		

✓<sup>+</sup> 1.5VLI Only

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# VULCRAFT® COMPOSITE DECK

## UL FIRE RATED ASSEMBLIES



### UL Fire Resistance Ratings (continued)

Restrained Assembly Ratings (hr.)	Type of Protection	Concrete Thickness & Type	UL Design No.	Deck Type						Unrestrained Beam Rating (hr.)	
				1.5VL	2VL	3VL	1.5VLP	2VLP	3VLP		
3	Exposed Grid	3¼" NW	D216 +	✓	✓	✓		✓	✓	2,3	
		2" NW & LW	D743 *		✓	✓		✓	✓	1,1½,2,3	
		2½" LW	D746 *	✓						1,1½,2,3	
	Cementitious	2½" NW & LW		D703 *	✓	✓	✓	✓	✓	✓	1½
				D708 *	✓+	✓	✓	✓	✓	✓	1½,3
				D739 *	✓	✓	✓	✓	✓	✓	1,1½,2,3,4
				D755	✓	✓	✓	✓	✓	✓	1,1½,2,3
				D759	✓	✓	✓	✓	✓	✓	1,1½,2,3
				D760 *	✓+	✓	✓				1,1½,2,3,4
				D754 *	✓	✓	✓				1½,2
	Sprayed Fiber	2½" NW & LW	3¼" NW	D742 *	✓	✓	✓				1,1½
			2" NW & LW	D859 *		✓	✓		✓	✓	1,1½,2,3
				D816 *	✓	✓	✓		✓	✓	1½,2
				D831 *		✓	✓		✓	✓	1,1½,2
				D832 *	✓	✓	✓	✓	✓	✓	1,1½,2,3
				D833 *	✓	✓	✓		✓	✓	1½
				D858*		✓	✓		✓	✓	1,1½,2,3,4
	Unprotected Deck	5¼" NW		D871 *		✓	✓		✓	✓	1,1½,2,3
			3¼" LW	D860 *		✓	✓				1,1½,2
				D902 #	✓	✓	✓	✓	✓	✓	1,1½,2,3
			4 ⅜" LW	D916 #	✓	✓	✓	✓	✓	✓	1,1½,2,3
			D919 #	✓	✓	✓	✓	✓	✓	1,1½	
			D902 #	✓	✓	✓	✓	✓	✓	1,1½,2,3	
			D916 #	✓	✓	✓	✓	✓	✓	1,1½,2,3	
Cementitious	2½" NW & LW		D919 #	✓	✓	✓	✓	✓	✓	1,1½	
			D760 *	✓+	✓	✓				1,1½,2,3,4	
			D739 *	✓	✓	✓	✓	✓	✓	1,1½,2,3,4	
		3¼" LW	D754 *	✓	✓	✓				1½,2	
		Sprayed Fiber	2½" NW & LW		D858 *		✓	✓		✓	✓
3¼" LW	D860 *				✓	✓				1,1½,2	

✓+ 1.5VLI Only

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# VULCRAFT® NON-COMPOSITE DECK UL FIRE RATED ASSEMBLIES



## UL Fire Resistance Ratings

Restrained Assembly Ratings (hr.)	Type of Protection	Concrete Thickness & Type	UL Design No.	Deck Type				Unrestrained Beam Rating (hr.)
				0.6C	1.0C	1.3C	1.5C	
<b>1</b>	Exposed Grid	2½" NW	<b>G256 +</b>	✓	✓	✓	✓	1,2,3
	Cementitious	2½" NW & LW	<b>G701</b>	✓	✓	✓	✓	1,1½,2,3
			<b>G705</b>	✓	✓	✓	✓	1,1½,2,3
	Sprayed Fiber	2¾" NW & LW	<b>G801</b>	✓	✓	✓	✓	1,1½,2
<b>1½</b>	Exposed Grid	2" NW	<b>G229 +</b>	✓	✓	✓	✓	1½,2,3
		2½" NW	<b>G228 +</b>	✓	✓	✓	✓	1½,2
			<b>G243 +</b>	✓	✓	✓	✓	1½,2
			<b>G213 +</b>	✓	✓	✓	✓	1½,2,3
	Gypsum Board	2" NW & LW	<b>G502 +</b>	✓	✓	✓	✓	
	Cementitious	2½" NW & LW	<b>G701</b>	✓	✓	✓	✓	1,1½,2,3
			<b>G705</b>	✓	✓	✓	✓	1,1½,2,3
	Sprayed Fiber	2¾" NW & LW	<b>G801</b>	✓	✓	✓	✓	1,1½,2
<b>2</b>	Exposed Grid	2½" NW	<b>G227 +</b>	✓	✓	✓	✓	2,3
			<b>G228 +</b>	✓	✓	✓	✓	1½,2
			<b>G229 +</b>	✓	✓	✓	✓	1½,2,3
			<b>G243 +</b>	✓	✓	✓	✓	1½,2
			<b>G256 +</b>	✓	✓	✓	✓	1,2,3
			<b>G213 +</b>	✓	✓	✓	✓	1½,2,3
	Gypsum Board	2" NW	<b>G505 +</b>	✓	✓	✓	✓	
		2½" NW & LW	<b>G529 +</b>	✓	✓	✓	✓	2,3
			<b>G514 +</b>	✓	✓	✓	✓	3
		2½" NW	<b>G523 +</b>	✓	✓	✓	✓	2,3
		Cementitious	2½" NW & LW	<b>G701</b>	✓	✓	✓	✓
<b>G705</b>	✓			✓	✓	✓	1,1½,2,3	
Sprayed Fiber	2¾" NW & LW	<b>G801</b>	✓	✓	✓	✓	1,1½,2	
<b>3</b>	Exposed Grid	3¼" NW	<b>G229 +</b>	✓	✓	✓	✓	1½,2,3
		3½" NW	<b>G213 +</b>	✓	✓	✓	✓	1½,2,3
			<b>G256 +</b>	✓	✓	✓	✓	1½,2,3
	Gypsum Board	3¼" NW & LW	<b>G529 +</b>	✓	✓	✓	✓	2,3
	Cementitious	2¾" NW & LW	<b>G701</b>	✓	✓	✓	✓	1,1½,2,3
			<b>G705</b>	✓	✓	✓	✓	1,1½,2,3
	Sprayed Fiber	2¾" NW & LW	<b>G801</b>	✓	✓	✓	✓	1,1½,2

# VULCRAFT® DOVETAIL FORMLOK® DECK UL FIRE RATED ASSEMBLIES



## UL Fire Resistance Ratings

Restrained Assembly Ratings (hr.)	Type of Protection	Concrete Thickness & Type	UL Design No.	Deck Type		Unrestrained Beam Rating (hr.)
				2D	3.5D	
1 <sup>10</sup>	Unprotected Deck	2" LW & 2¾" NW	D904	✓		¾
			D961	✓		¾
			D917	✓		
			D928	✓		¾
1½	Unprotected Deck	2" LW & 2" NW	D947		✓	
			D964		✓	
			D984		✓	
2	Unprotected Deck	2½" LW, 3" SLW & ¾" NW	D904	✓		1
			D961	✓		1
			D917	✓		¾
			D928	✓		1
		2" LW & 2¼" NW	D947		✓	¾
			D964		✓	¾
D984		✓	¾			
3	Unprotected Deck	¾" LW, 4" SLW & 4¾" NW	D904	✓		1
			D961	✓		1
			D917	✓		¾
			D928	✓		1
		2¼" LW & 3¾" NW	D947		✓	1½
			D964		✓	1½
D984		✓	1½			



# VULCRAFT® COMPOSITE & NON-COMPOSITE DECK UL FIRE RATED ASSEMBLIES

## Notes:

1. Refer to the UL “Fire Resistance Directory” for the necessary construction details.
2. 1.5VL = 1.5VL, 1.5VLI, and 1.5PLVLI  
 2VL = 2VLI, 2VLJ, and 2PLVLI  
 3VL = 3VLI, 3VLJ, and 3PLVLI  
 1.5VLP = 1.5VLP and 1.5PLVLP  
 2VLP = 2VLP, and 2PLVLP  
 3VLP = 3VLP, and 3PLVLP
3. Concrete thickness is thickness of slab above deck, in.
4. 1.5VLR may be used in designs D832, D902, and D916.
5. All Dovetail FormLok composite deck assemblies are subject to an upper live load limit of 130 psf.
6. Fluted deck finish shall be galvanized unless noted otherwise.
  - + Denotes fluted deck finish is not critical when used in D2-- & D5-- Series designs. Deck finish shall be galvanized or phosphatized/painted.
  - \* Fluted deck finish is critical for fire resistance. Fluted deck finish shall be galvanized or phosphatized/painted. This gray paint is a special type of paint and is compatible with the spray-applied fire protection and is U.L. approved for use in the denoted D7-- & D8-- Series designs.
  - # Denotes fluted deck finish is not critical for fire resistance. Fluted deck finish shall be galvanized or phosphatized/painted.
7. Vulcraft cellular deck used in the listed assemblies shall be galvanized.
8. Vulcraft cellular deck units are approved by UL for use as electrical raceways under UL Standard 209.
9. Dramix® fibers may be used in UL or ULC fire rated assemblies in lieu of WWR. See UL file R19307 for additional information.
10. Restrained Assembly Rating is 1½ hr with listed NW concrete thickness.

## Concrete Thickness

(in.)	(mm)
2	51
2½	64
2¾	70
3¼	83
3½	89
4	102
4 <sup>3</sup> / <sub>16</sub>	106
4½	114
4¾	121
5¼	133

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