

# MetFloor® 55

The ultimate in lightweight steel decking for all multi-rise buildings

***MetFloor® 55 is a traditional dovetail re-entrant composite floor deck.***

Its profile provides an excellent mechanical key into the concrete slab, offering a strong shear bond performance augmented by stiffeners located in the profile trough. MetFloor® 55 presents a virtually flat soffit and a relatively thin slab is required to meet fire design requirements.

- **Shear studs**

MetFloor® 55 has a wide trough which gives you great flexibility and efficiency when placing shear studs.

- **Composite beams' fire performance**

Even for two hours fire rating, the top flange of the steel beam does not require fire protection when used with MetFloor® 55 composite deck.

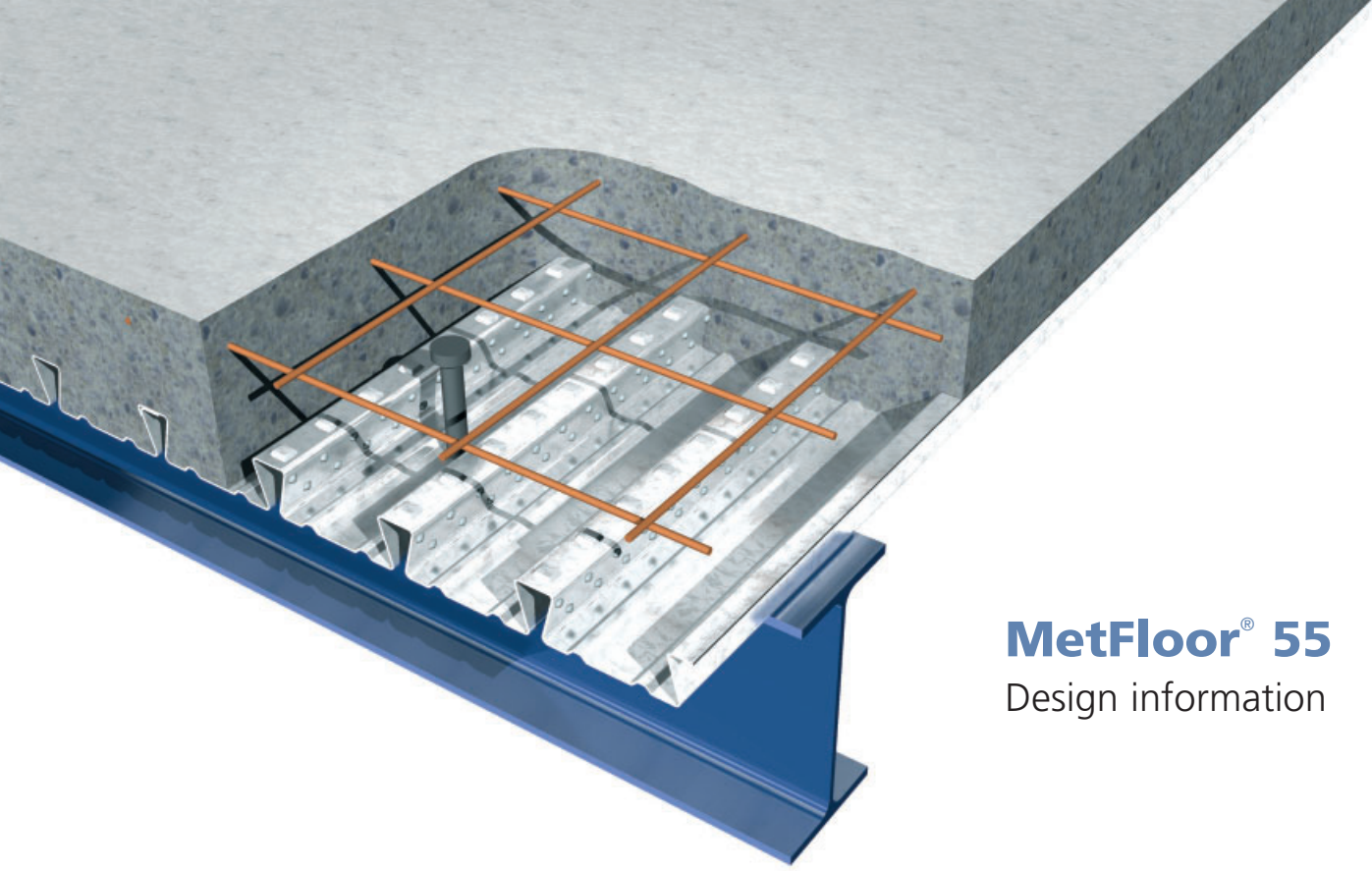
- **Under floor services**

Services are easy to attach to MetFloor® 55, with the ribs presenting a dovetailed recessed groove in the concrete slab at 150mm centres. This provides the perfect connection for service hangars via a wedge nut or similar device.

- **Slab's fire performance**

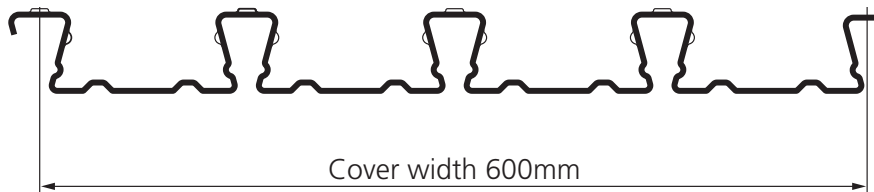
Because the dovetail has a very small opening very little heat is transferred through the slab if there is a fire. So when you design for fire purposes you will need a smaller slab depth.





## MetFloor® 55

### Design information



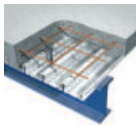
#### MetFloor® 55 Composite Slab - volume & weight

Slab Depth (mm)	Concrete volume (m <sup>3</sup> /m <sup>2</sup> )	Weight of Concrete (kN/m <sup>2</sup> )	
		Normal weight Concrete Wet	Dry
105	0.096	2.26	2.21
110	0.101	2.38	2.33
115	0.106	2.50	2.44
120	0.111	2.61	2.56
125	0.116	2.73	2.67
130	0.121	2.85	2.79
150	0.141	3.32	3.25
200	0.191	4.50	4.40

#### Volume & weight table notes

1. Beam and deck deflections are not included in the above table
2. Deck and mesh weights are not included in the above table.
3. Concrete densities are:  
NWC (wet) 2400kg/m<sup>3</sup>  
NWC (dry) 2350kg/m<sup>3</sup>





**MetFloor® 55 - Span table - normal weight concrete using mesh**

Props	Span**	Fire Rating	Slab Depth (mm)	Mesh	MAXIMUM SPAN (m) with no additional reinforcements Deck Thickness (mm)								
					0.9			1			1.2		
					Total Applied Load (kN/m <sup>2</sup> )								
					3.5	5.0	10.0	3.5	5.0	10.0	3.5	5.0	10.0
No Temporary props	Single Span	1 hr	120	A142	2.8a	2.8a	2.8a	3a	3a	2.9m	3.4a	3.4a	3.2m
		1.5 hr	130	A142	2.8a	2.8a	2.3m	3a	3a	2.3m	3.3a	3.3a	2.6m
		2 hr	140	A193	2.5m	2.2m	1.8m	2.7m	2.4m	1.9m	2.9m	2.6m	2m
	Double Span	1 hr	120	A142	3.4a	3.4a	2.9m	3.5a	3.5a	3m	4a	4a	3.2m
		1.5 hr	130	A142	3.3a	3.3a	2.6m	3.4a	3.4a	2.6m	3.7a	3.7a	2.8m
		2 hr	200	A393	2.8a	2.8a	2.8a	3a	3a	3a	3.4a	3.4a	3.4a
Props at Mid-Span Only	Single Span	1 hr	120	A252	3.7m	3.4m	2.7m	3.7m	3.4m	2.7m	4m	3.7m	2.9m
		1.5 hr	130	A393	3.5m	3.1m	2.5m	3.5m	3.1m	2.5m	3.6m	3.3m	2.6m
		2 hr	200	A393	2.8m	2.6m	2.2m	2.8m	2.6m	2.2m	3m	2.8m	2.3m
	Double Span	1 hr	120	A252	4.3m	4m	3.2m	4.4m	4m	3.2m	4.6m	4.2m	3.4m
		1.5 hr	130	A393	4.5m	4.1m	3.2m	4.5m	4.1m	3.3m	4.5m	4.1m	3.3m
		2 hr	200	A393	4.4m	4.1m	3.3m	4.4m	4.1m	3.3m	4.5m	4.1m	3.4m

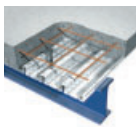
Please refer to page 28 for full information on span tables.

\*\*In all cases the slab is designed as simply supported

**Design Criteria**

- a: Deck bending resistance check
- e: Interaction of bending moment and web crushing
- i: Construction stage deflection
- j: Imposed load deflection check
- k: Total load deflection check
- l: Natural frequency check
- m: Fire design

Notes:  
Concrete densities are:  
NWC (wet) 2400kg/m<sup>3</sup>  
NWC (dry) 2350kg/m<sup>3</sup>



**MetFloor® 55 - Span table - lightweight concrete using mesh**

Props	Span**	Fire Rating	Slab Depth (mm)	Mesh	MAXIMUM SPAN (m) with no additional reinforcements Deck Thickness (mm)								
					0.9			1			1.2		
					Total Applied Load (kN/m <sup>2</sup> )								
					3.5	5.0	10.0	3.5	5.0	10.0	3.5	5.0	10.0
No Temporary props	Single Span	1 hr	120	A142	3.0a	3.0a	2.8m	3.2a	3.2a	2.9m	3.6a	3.6a	3.2m
		1.5 hr	130	A142	3.0a	3.0a	2.3m	3.2a	3.2a	2.4m	3.5a	3.5a	2.6m
		2 hr	140	A193	2.9a	2.5m	1.9m	2.9m	2.5m	1.9m	3.1m	2.7m	2.0m
	Double Span	1 hr	120	A142	3.6a	3.6a	3.0m	3.7a	3.7a	3.1m	4.2a	4.2a	3.3m
		1.5 hr	130	A142	3.5a	3.5a	2.7m	3.7a	3.7m	2.8m	4.1a	3.9m	2.9m
		2 hr	140	A193	3.4a	3.3m	2.5m	3.6a	3.4m	2.5m	3.9m	3.5m	2.6m
			200	A252	3.0a	3.0a	3.0a	3.3a	3.3a	3.2m	3.7a	3.7a	3.3m
Props at Mid-Span Only	Single Span	1 hr	120	A252	3.9m	3.5m	2.7m	4.0m	3.6m	2.8m	4.3m	3.9m	3.0m
		1.5 hr	130	A393	3.6m	3.2m	2.5m	3.7m	3.3m	2.6m	3.9m	3.5m	2.7m
		2 hr	200	A393	3.0m	2.8m	2.2m	3.1m	2.8m	2.3m	3.2m	2.9m	2.4m
	Double Span	1 hr	120	A252	4.7m	4.2m	3.2m	4.7m	4.3m	3.3m	5.0m	4.5m	3.5m
		1.5 hr	130	A393	4.8m	4.3m	3.4m	4.9m	4.4m	3.4m	5.1m	4.5m	3.5m
		2 hr	200	A393	4.7m	4.3m	3.5m	4.8m	4.4m	3.5m	4.9m	4.5m	3.6m



**MetFloor® 55 - Span table - Using Grade 350 Steel - Normal Weight Concrete using Fibredeck**

Props	Span**	Fire Rating	Slab Depth (mm)	Fibredeck (Dossage)	MAXIMUM SPAN (m) with no additional reinforcements Deck Thickness (mm)								
					0.9			1			1.2		
					Total Applied Load (kN/m <sup>2</sup> )								
					3.5	5.0	10.0	3.5	5.0	10.0	3.5	5.0	10.0
No Temporary props	Single Span	1 hr	120	25	2.8a	2.8a	2.8a	3.0a	3.0a	3.0a	3.4a	3.4a	3.4a
		1.5 hr	130	30	2.8a	2.8a	2.8a	3.0a	3.0a	3.0a	3.3a	3.3a	3.3a
		2 hr	140	35	2.7a	2.7a	2.7a	2.9a	2.9a	2.9a	3.2a	3.2a	3.2a
	Double Span	1 hr	120	25	3.4a	3.4a	3.4a	3.5a	3.5a	3.5a	4.0a	4.0a	4.0a
		1.5 hr	130	30	3.3a	3.3a	3.2m	3.4a	3.4a	3.3m	3.7a	3.7a	3.6m
		2 hr	200	35	2.8a	2.8a	2.8a	3.0a	3.0a	3.0a	3.4a	3.4a	3.4a
Props at Mid-Span Only	Single Span	1 hr	120	25	4.4l	4.4k	3.9j	4.7k	4.7k	4.0j	5.0k	4.8k	4.1j
		1.5 hr	130	30	4.0m	3.7m	2.9m	4.2m	3.8m	3.0m	4.4m	4.0m	3.2m
		2 hr	200	35	4.4m	4.2m	3.5m	4.6m	4.4m	3.6m	4.8m	4.6m	3.7m
	Double Span	1 hr	120	25	5.0k	4.7k	3.9j	5.1k	4.8k	4.0j	5.2k	4.9k	4.1j
		1.5 hr	130	30	4.4m	4.0m	3.1m	4.4m	4.1m	3.2m	4.7m	4.3m	3.4m
		2 hr	200	35	4.8m	4.5m	3.6m	4.9m	4.6m	3.7m	5.2m	4.8m	3.9m



