

ComFlor 51 (CF51)

ComFlor 51 (CF51) is a traditional dovetail re-entrant composite floor deck. This profile provides an excellent mechanical key into the concrete slab, offering a strong shear bond performance, which is augmented by cross stiffeners located in the profile trough. ComFlor 51 presents a virtually flat soffit and a relatively thin slab is required to meet fire design requirements.

Shear studs

The wide trough of ComFlor 51 permits a flexible and efficient placement of shear studs, when composite beams are specified.

Fire performance of the composite beams

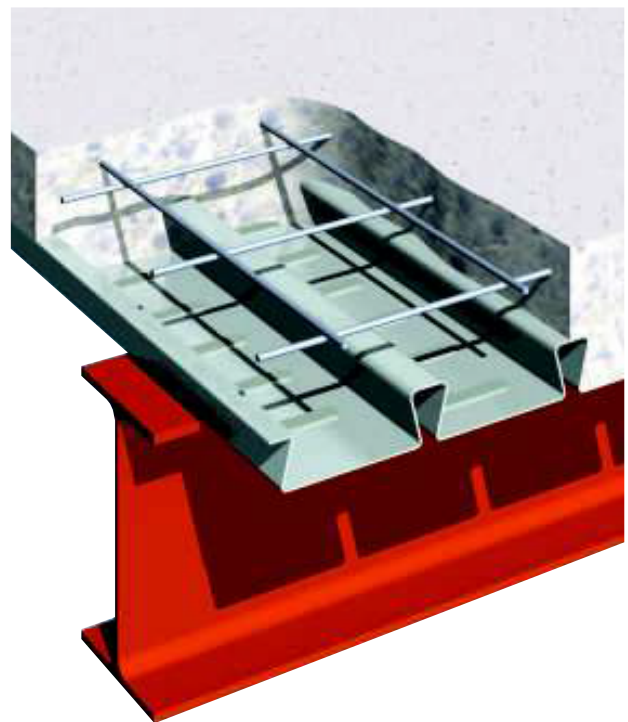
Even for the 90-minute fire rating, the top flange of the steel beam does not require fire protection, when used with ComFlor 51 composite deck.

Under floor services

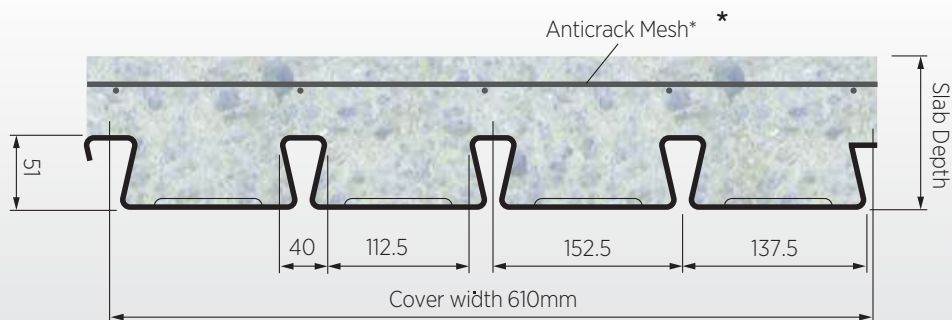
Services are easy to attach to ComFlor 51, with the ribs presenting a dovetailed recessed groove in the concrete slab at 152.5mm centres.

Fire performance of the slab

The dovetail presents a very small opening and contributes little to the transfer of heat through the slab in the event of fire. Thus a lesser slab depth is needed for fire design purposes.



Section through ComFlor 51 profile deck



*The use of fibre reinforced concrete eliminates the need for the anticrack mesh.

ComFlor 51 (CF51)

Comflor 51 composite slab - Volume and weight			
Overall slab depth (mm)	Concrete volume (m ³ /m ²)	Weigh of concrete (kN/m ²)	
		Wet	Dry
101	0.092	2.16	2.12
105	0.096	2.26	2.21
110	0.101	2.37	2.32
115	0.106	2.49	2.44
120	0.111	2.61	2.55
125	0.116	2.73	2.67
130	0.121	2.84	2.78
150	0.141	3.32	3.25
200	0.191	4.49	4.40
240	0.231	5.43	5.32

Volume & weight table notes

1. Deck and beam deflection (i.e. ponding is not allowed for in the table).
2. Deck and mesh weight not included in the weight of concrete figures.
3. Density of concrete is taken as:
Normal weight (wet) 2400 kg/m³
Normal weight (dry) 2350 kg/m³
Note: For lightweight concrete queries please email: support@viriform.com

Section properties (per metre width)							
Nominal thickness (mm)	Design thickness (mm)	Profile weight (kN/m ²)	Area of steel (mm ² /m)	Height to neutral axis (mm)	Moment of inertia (cm ⁴ /m)	Ultimate moment capacity (kNm/m)	
						Sagging	Hogging
0.90	0.86	0.13	1579	16.74	55.70	5.69	6.99
1.00	0.96	0.14	1759	16.73	62.10	6.34	7.93
1.20	1.16	0.17	2118	16.72	74.90	7.65	9.81

Design notes

Deck material

Zinc coated steel to BS EN 10147:2000, Fe E 350G, Z275, with a guaranteed minimum yield stress of 350 N/mm². Minimum zinc coating mass is 275 g/m² total including both sides.

Quick reference tables

The quick reference load/span and fire design tables, are intended as a guide for initial design, based on the parameters stated below the tables. The Comdek calculation design suite provides a full design programme. Please contact Viriform for more information.

Anti-crack mesh

The Eurocode 4 recommendation is that anti-crack mesh should comprise 0.2% of slab area for unpropped spans and 0.4% of slab area for propped spans. Corus Panels and Profiles in conjunction with The Steel Construction Institute has agreed to modify the requirement with regard to anti-crack mesh, to comply with the Eurocode 4 recommendations. Accordingly, mesh shown in the quick reference tables complies with EC4 and the design programme defaults to these values.

Mesh top cover must be a minimum of 15mm, and a maximum of 30mm. Mesh laps are to be 300mm for A142 mesh and 400mm for A193, A252 & A393 mesh.

Fire

For details on the performance of composite slabs comprising ComFlor 51 decking under a fire condition with nominal anti-crack mesh, please refer to the quick reference fire load tables in this guide. For other simplified design cases or for full fire engineering, please contact the Viriform Technical Team.

Should queries arise, please contact us on
+353 (0) 59 863 1316
or email support@viriform.com

Profile ComFlor 51 (composite deck)

ComFlor 51 / Mesh and Deck Fire Method / Unpropped

Single Span deck, continuous slab (m) - Normal weight concrete -
Eurocode - Beam width 152mm



Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	30 minutes	101	(A142)	2.77 (A142)	2.77 (A142)	2.77 (A142)	2.9 (A142)	2.9 (A142)	2.9 (A142)	3.15 (A142)	3.15 (A142)	3.15 (A142)
		110	(A142)	2.7 (A142)	2.7 (A142)	2.7 (A142)	2.83 (A142)	2.83 (A142)	2.83 (A142)	3.08 (A142)	3.08 (A142)	3.08 (A142)
		120	(A142)	2.63 (A142)	2.63 (A142)	2.63 (A142)	2.76 (A142)	2.76 (A142)	2.76 (A142)	3 (A142)	3 (A142)	3 (A142)
		130	(A193)	2.57 (A193)	2.57 (A193)	2.57 (A193)	2.69 (A193)	2.69 (A193)	2.69 (A193)	2.93 (A193)	2.93 (A193)	2.93 (A193)
		150	(A252)	2.48 (A252)	2.48 (A252)	2.48 (A252)	2.57 (A252)	2.57 (A252)	2.57 (A252)	2.8 (A252)	2.8 (A252)	2.8 (A252)
		200	(A393)	2.25 (A393)	2.25 (A393)	2.25 (A393)	2.33 (A393)	2.33 (A393)	2.33 (A393)	2.54 (A393)	2.54 (A393)	2.54 (A393)
		220	(A393)	2.18 (A393)	2.18 (A393)	2.18 (A393)	2.26 (A393)	2.26 (A393)	2.26 (A393)	2.46 (A393)	2.46 (A393)	2.46 (A393)
		240	(A393)	2.11 (A393)	2.11 (A393)	2.11 (A393)	2.2 (A393)	2.2 (A393)	2.2 (A393)	2.38 (A393)	2.38 (A393)	2.38 (A393)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	60 minutes	101	(A142)	2.77 (A142)	2.77 (A142)	2.77 (A142)	2.9 (A142)	2.9 (A142)	2.9 (A142)	3.15 (A142)	3.15 (A142)	3.15 (A142)
		110	(A142)	2.7 (A142)	2.7 (A142)	2.7 (A142)	2.83 (A142)	2.83 (A142)	2.83 (A142)	3.08 (A142)	3.08 (A142)	3.08 (A142)
		120	(A142)	2.63 (A142)	2.63 (A142)	2.63 (A142)	2.76 (A142)	2.76 (A142)	2.76 (A142)	3 (A142)	3 (A142)	3 (A142)
		130	(A193)	2.57 (A193)	2.57 (A193)	2.57 (A193)	2.69 (A193)	2.69 (A193)	2.69 (A193)	2.93 (A193)	2.93 (A193)	2.93 (A193)
		150	(A252)	2.48 (A252)	2.48 (A252)	2.48 (A252)	2.57 (A252)	2.57 (A252)	2.57 (A252)	2.8 (A252)	2.8 (A252)	2.8 (A252)
		200	(A393)	2.25 (A393)	2.25 (A393)	2.25 (A393)	2.33 (A393)	2.33 (A393)	2.33 (A393)	2.54 (A393)	2.54 (A393)	2.54 (A393)
		220	(A393)	2.18 (A393)	2.18 (A393)	2.18 (A393)	2.26 (A393)	2.26 (A393)	2.26 (A393)	2.46 (A393)	2.46 (A393)	2.46 (A393)
		240	(A393)	2.11 (A393)	2.11 (A393)	2.11 (A393)	2.2 (A393)	2.2 (A393)	2.2 (A393)	2.38 (A393)	2.38 (A393)	2.38 (A393)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	90 minutes	110	(A193)	2.69 (A193)	2.69 (A193)	2.69 (A252)	2.82 (A193)	2.82 (A193)	2.82 (A393)	3.06 (A193)	3.06 (A193)	3.06 (A393)
		120	(A193)	2.63 (A193)	2.63 (A193)	2.63 (A193)	2.76 (A193)	2.76 (A193)	2.76 (A193)	3 (A193)	3 (A193)	3 (A252)
		130	(A193)	2.57 (A193)	2.57 (A193)	2.57 (A193)	2.69 (A193)	2.69 (A193)	2.69 (A193)	2.93 (A193)	2.93 (A193)	2.93 (A193)
		150	(A252)	2.48 (A252)	2.48 (A252)	2.48 (A252)	2.57 (A252)	2.57 (A252)	2.57 (A252)	2.8 (A252)	2.8 (A252)	2.8 (A252)
		200	(A393)	2.25 (A393)	2.25 (A393)	2.25 (A393)	2.33 (A393)	2.33 (A393)	2.33 (A393)	2.54 (A393)	2.54 (A393)	2.54 (A393)
		220	(A393)	2.18 (A393)	2.18 (A393)	2.18 (A393)	2.26 (A393)	2.26 (A393)	2.26 (A393)	2.46 (A393)	2.46 (A393)	2.46 (A393)
		240	(A393)	2.11 (A393)	2.11 (A393)	2.11 (A393)	2.2 (A393)	2.2 (A393)	2.2 (A393)	2.38 (A393)	2.38 (A393)	2.38 (A393)

Profile ComFlor 51 (composite deck)

ComFlor 51 / Mesh and Deck Fire Method / Unpropped

Double Span (m) - Normal weight concrete -
Eurocode - Beam width 152mm



Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	30 minutes	101	(A142)	3.11 (A142)	3.11 (A142)	3.11 (A142)	3.27 (A142)	3.27 (A142)	3.27 (A142)	3.56 (A142)	3.56 (A142)	3.34 (A393)
		110	(A142)	3.08 (A142)	3.08 (A142)	3.08 (A142)	3.18 (A142)	3.18 (A142)	3.18 (A142)	3.46 (A142)	3.46 (A142)	3.46 (A393)
		120	(A142)	3.02 (A142)	3.02 (A142)	3.02 (A142)	3.15 (A142)	3.15 (A142)	3.15 (A142)	3.37 (A142)	3.37 (A142)	3.37 (A142)
		130	(A193)	2.93 (A193)	2.93 (A193)	2.93 (A193)	3.09 (A193)	3.09 (A193)	3.09 (A193)	3.29 (A193)	3.29 (A193)	3.29 (A193)
		150	(A252)	2.79 (A252)	2.79 (A252)	2.79 (A252)	2.94 (A252)	2.94 (A252)	2.94 (A252)	3.21 (A252)	3.21 (A252)	3.21 (A252)
		200	(A393)	2.51 (A393)	2.51 (A393)	2.51 (A393)	2.64 (A393)	2.64 (A393)	2.64 (A393)	2.89 (A393)	2.89 (A393)	2.89 (A393)
		220	(A393)	2.42 (A393)	2.42 (A393)	2.42 (A393)	2.55 (A393)	2.55 (A393)	2.55 (A393)	2.79 (A393)	2.79 (A393)	2.79 (A393)
		240	(A393)	2.34 (A393)	2.34 (A393)	2.34 (A393)	2.47 (A393)	2.47 (A393)	2.47 (A393)	2.7 (A393)	2.7 (A393)	2.7 (A393)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	60 minutes	101	(A142)	3.08 (A142)	2.95 (A142)	2.74 (A193)	3.26 (A142)	3.03 (A142)	2.96 (A252)	3.56 (A142)	3.38 (A193)	3.34 (A393)
		110	(A142)	3.08 (A142)	3.08 (A142)	2.89 (A193)	3.18 (A142)	3.18 (A142)	3.16 (A252)	3.46 (A142)	3.46 (A193)	3.46 (A393)
		120	(A142)	3.02 (A142)	3.01 (A142)	3.01 (A193)	3.15 (A142)	3.15 (A142)	3.15 (A252)	3.37 (A142)	3.37 (A142)	3.37 (A252)
		130	(A193)	2.93 (A193)	2.93 (A193)	2.93 (A193)	3.09 (A193)	3.09 (A193)	3.09 (A193)	3.29 (A193)	3.29 (A193)	3.29 (A252)
		150	(A252)	2.79 (A252)	2.79 (A252)	2.79 (A252)	2.94 (A252)	2.94 (A252)	2.94 (A252)	3.21 (A252)	3.21 (A252)	3.21 (A252)
		200	(A393)	2.51 (A393)	2.51 (A393)	2.51 (A393)	2.64 (A393)	2.64 (A393)	2.64 (A393)	2.89 (A393)	2.89 (A393)	2.89 (A393)
		220	(A393)	2.42 (A393)	2.42 (A393)	2.42 (A393)	2.55 (A393)	2.55 (A393)	2.55 (A393)	2.79 (A393)	2.79 (A393)	2.79 (A393)
		240	(A393)	2.34 (A393)	2.34 (A393)	2.34 (A393)	2.47 (A393)	2.47 (A393)	2.47 (A393)	2.7 (A393)	2.7 (A393)	2.7 (A393)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	90 minutes	110	(A193)	3 (A193)	3.07 (A393)	2.94 (2xA252)	3.15 (A252)	3.14 (A393)	2.97 (2xA252)	3.19 (A193)	3.3 (A393)	3.03 (2xA252)
		120	(A193)	3.01 (A193)	3.01 (A393)	3.01 (2xA193)	3.15 (A193)	3.14 (A393)	3.14 (2xA252)	3.36 (A193)	3.36 (A393)	3.36 (2xA252)
		130	(A193)	2.93 (A193)	2.93 (A252)	2.93 (A393)	3.09 (A193)	3.09 (A393)	3.09 (2xA193)	3.29 (A193)	3.29 (A393)	3.28 (2xA252)
		150	(A252)	2.79 (A252)	2.79 (A252)	2.79 (A252)	2.94 (A252)	2.94 (A252)	2.94 (A252)	3.21 (A252)	3.21 (A252)	3.21 (A393)
		200	(A393)	2.51 (A393)	2.51 (A393)	2.51 (A393)	2.64 (A393)	2.64 (A393)	2.64 (A393)	2.89 (A393)	2.89 (A393)	2.89 (A393)
		220	(A393)	2.42 (A393)	2.42 (A393)	2.42 (A393)	2.55 (A393)	2.55 (A393)	2.55 (A393)	2.79 (A393)	2.79 (A393)	2.79 (A393)
		240	(A393)	2.34 (A393)	2.34 (A393)	2.34 (A393)	2.47 (A393)	2.47 (A393)	2.47 (A393)	2.7 (A393)	2.7 (A393)	2.7 (A393)

Notes:

Spans are based on beam centres, with a 152 mm flange width and a minimum end bearing of 50 mm.

* In accordance with IS EN 1994-1-1 Clause 9.8.1(2) - Where the continuous slabs are designed as simply-supported in accordance with 9.4.2(5), the minimum cross-sectional area of anti-crack mesh reinforcement above the ribs should not be less than 0.2 % of the cross-sectional area of concrete above the ribs for unpropped construction. In order to maximise the FIRE LIMIT STATE spans, increased mesh sizing is required as specified in the above Mesh and Deck Fire Method tables.

Imposed load category - "storage type" has been considered. Psi values for storage type $\psi_0=1$, $\psi_1=0.9$, $\psi_2=0.8$ have been considered. For lesser Psi values Spans should be calculated by the user.

5Hz Natural frequency limit has been considered. It applies to the floor only and the effect of any supporting beams should be assessed by the user. 500 N/mm² Yield has been considered for Mesh and Bar. Steel Grade S350 and Concrete Grade C25/30.

Auto calculated modular ratio has been used for span calculations.

30mm Mesh cover has been considered for span calculations.

Construction stage (no ponding) Deflection limit = Span/180

Construction stage deflection limit = Span/130

Imposed load deflection limit = Span/350

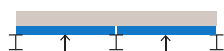
Total Load deflection limit = Span/250

Profile ComFlor 51 (composite deck)

ComFlor 51 / Mesh and Deck Fire Method / Propped

Single Span Propped deck, continuous slab (m)

Normal weight concrete - Eurocode - Beam width 152mm



Props	Fire Period	Slab depth (mm)	Mesh 0.4% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
1 line	30 minutes	101	(A393)	3.74 (A393)	3.44 (A393)	3.22 (A393)	3.78 (A393)	3.49 (A393)	3.26 (A393)	3.87 (A393)	3.57 (A393)	3.34 (A393)
		110	(A393)	3.97 (A393)	3.67 (A393)	3.44 (A393)	4.02 (A393)	3.72 (A393)	3.49 (A393)	4.12 (A393)	3.8 (A393)	3.57 (A393)
		120	(A393)	4.23 (A393)	3.92 (A393)	3.68 (A393)	4.28 (A393)	3.97 (A393)	3.73 (A393)	4.38 (A393)	4.06 (A393)	3.82 (A393)
		130	(A393)	4.48 (A393)	4.16 (A393)	3.92 (A393)	4.53 (A393)	4.21 (A393)	3.97 (A393)	4.64 (A393)	4.31 (A393)	4.05 (A393)
		150	(2xA252)	4.95 (2xA252)	4.62 (2xA252)	4.36 (2xA252)	5.01 (2xA252)	4.67 (2xA252)	4.42 (2xA252)	5.13 (2xA252)	4.79 (2xA252)	4.52 (2xA252)
		200	(2xA393)	4.46 (2xA393)	4.46 (2xA393)	4.46 (2xA393)	4.92 (2xA393)	4.92 (2xA393)	4.92 (2xA393)	5.67 (2xA393)	5.67 (2xA393)	5.48 (2xA393)
		220	(2xA393)	4.25 (2xA393)	4.25 (2xA393)	4.25 (2xA393)	4.69 (2xA393)	4.69 (2xA393)	4.69 (2xA393)	5.46 (2xA393)	5.46 (2xA393)	5.46 (2xA393)
		240	(2xA393)	4.06 (2xA393)	4.06 (2xA393)	4.06 (2xA393)	4.48 (2xA393)	4.48 (2xA393)	4.48 (2xA393)	5.24 (2xA393)	5.25 (2xA393)	5.25 (2xA393)

Props	Fire Period	Slab depth (mm)	Mesh 0.4% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
1 line	60 minutes	101	(A393)	3.74 (A393)	3.44 (A393)	3.11 (A393)	3.78 (A393)	3.49 (A393)	3.16 (A393)	3.87 (A393)	3.57 (A393)	3.27 (A393)
		110	(A393)	3.97 (A393)	3.62 (A393)	3.27 (A393)	4.02 (A393)	3.69 (A393)	3.33 (A393)	4.12 (A393)	3.8 (A393)	3.44 (A393)
		120	(A393)	4.23 (A393)	3.91 (2xA252)	3.64 (2xA252)	4.28 (A393)	3.97 (2xA252)	3.69 (2xA252)	4.38 (A393)	4.05 (2xA252)	3.8 (2xA252)
		130	(A393)	4.48 (A393)	4.15 (2xA252)	3.91 (2xA393)	4.53 (A393)	4.21 (2xA252)	3.96 (2xA393)	4.64 (A393)	4.31 (2xA252)	4.05 (2xA393)
		150	(2xA252)	4.95 (2xA252)	4.56 (2xA252)	4.36 (2xA393)	5.01 (2xA252)	4.62 (2xA252)	4.41 (2xA393)	5.13 (2xA252)	4.75 (2xA252)	4.51 (2xA393)
		200	(2xA393)	4.46 (2xA393)	4.46 (2xA393)	4.46 (2xA393)	4.92 (2xA393)	4.92 (2xA393)	4.92 (2xA393)	5.67 (2xA393)	5.67 (2xA393)	5.48 (2xA393)
		220	(2xA393)	4.25 (2xA393)	4.25 (2xA393)	4.25 (2xA393)	4.69 (2xA393)	4.69 (2xA393)	4.69 (2xA393)	5.46 (2xA393)	5.46 (2xA393)	5.46 (2xA393)
		240	(2xA393)	4.06 (2xA393)	4.06 (2xA393)	4.06 (2xA393)	4.48 (2xA393)	4.48 (2xA393)	4.48 (2xA393)	5.25 (2xA393)	5.25 (2xA393)	5.25 (2xA393)

Props	Fire Period	Slab depth (mm)	Mesh 0.4% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
1 line	90 minutes	110	(A393)	3.38 (A393)	2.97 (A393)	2.68 (A393)	3.43 (A393)	3.01 (A393)	2.72 (A393)	3.53 (A393)	3.1 (A393)	2.8 (A393)
		120	(2xA393)	4.21 (2xA393)	3.78 (2xA393)	3.42 (2xA393)	4.27 (2xA393)	3.82 (2xA393)	3.46 (2xA393)	4.36 (2xA393)	3.89 (2xA393)	3.53 (2xA393)
		130	(2xA393)	4.46 (2xA393)	4.02 (2xA393)	3.64 (2xA393)	4.52 (2xA393)	4.04 (2xA393)	3.68 (2xA393)	4.62 (2xA393)	4.12 (2xA393)	3.74 (2xA393)
		150	(2xA393)	4.71 (2xA393)	4.2 (2xA393)	3.83 (2xA393)	4.75 (2xA393)	4.24 (2xA393)	3.86 (2xA393)	4.84 (2xA393)	4.31 (2xA393)	3.93 (2xA393)
		200	(2xA393)	4.46 (2xA393)	4.46 (2xA393)	4.39 (2xA393)	4.92 (2xA393)	4.82 (2xA393)	4.43 (2xA393)	5.41 (2xA393)	4.9 (2xA393)	4.51 (2xA393)
		220	(2xA393)	4.25 (2xA393)	4.25 (2xA393)	4.25 (2xA393)	4.69 (2xA393)	4.69 (2xA393)	4.69 (2xA393)	5.46 (2xA393)	5.22 (2xA393)	4.82 (2xA393)
		240	(2xA393)	4.06 (2xA393)	4.06 (2xA393)	4.06 (2xA393)	4.48 (2xA393)	4.48 (2xA393)	4.48 (2xA393)	5.25 (2xA393)	5.25 (2xA393)	5.19 (2xA393)

Notes:

Spans are based on beam centres, with a 152mm flange width and a minimum end bearing of 50mm.
* In accordance with IS EN 1994-1-1 Clause 9.8.1(2) - Where the continuous slabs are designed as simply-supported in accordance with 9.4.2(5), the minimum cross-sectional area of anti-crack mesh reinforcement above the ribs should not be less than 0.4 % of the cross-sectional area of concrete above the ribs for propped construction.

Imposed load category - "storage type" has been considered. Psi values for storage type $\psi_0=1$, $\psi_1=0.9$, $\psi_2=0.8$ have been considered. For lesser Psi values Spans should be calculated by the user.

5Hz natural frequency limit has been considered. It applies to the floor only and the effect of any supporting beams should be assessed by the user. 100mm prop width has been considered.
500 N/mm² Yield has been considered for Mesh and Steel Grade S350 and Concrete Grade C25/30.
Auto calculated modular ratio has been used for span calculations.
30 mm Mesh cover has been considered for span calculations.
Construction stage (no ponding) Deflection limit = Span/180
Construction stage deflection limit = Span/130
Imposed load deflection limit = Span/350
Total Load deflection limit = Span/250

ComFlor 51 / Bar Fire Method / Unpropped

ComFlor 51 / Mesh and Deck Fire Method / Unpropped

Single span deck, single span slab (m) - Normal weight concrete -
Eurocode - Beam width 152mm (Note:- Single span deck single span
slab is only permitted using Bar Fire Method.)



Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	30 minutes	101	(A142)	2.76 (8)	2.76 (8)	2.76 (8)	2.9 (8)	2.9 (8)	2.9 (8)	3.14 (8)	3.14 (8)	3.14 (8)
		110	(A142)	2.69 (8)	2.69 (8)	2.69 (8)	2.83 (8)	2.83 (8)	2.83 (8)	3.07 (8)	3.07 (8)	3.07 (8)
		120	(A142)	2.62 (8)	2.62 (8)	2.62 (8)	2.75 (8)	2.75 (8)	2.75 (8)	2.99 (8)	2.99 (8)	2.99 (8)
		130	(A193)	2.56 (8)	2.56 (8)	2.56 (8)	2.69 (8)	2.69 (8)	2.69 (8)	2.92 (8)	2.92 (8)	2.92 (8)
		150	(A252)	2.47 (8)	2.47 (8)	2.47 (8)	2.55 (8)	2.55 (8)	2.55 (8)	2.79 (8)	2.79 (8)	2.79 (8)
		200	(A393)	2.25 (8)	2.25 (8)	2.25 (8)	2.32 (8)	2.32 (8)	2.32 (8)	2.54 (8)	2.54 (8)	2.54 (8)
		220	(A393)	2.18 (8)	2.18 (8)	2.18 (8)	2.25 (8)	2.25 (8)	2.25 (8)	2.45 (8)	2.45 (8)	2.45 (8)
		240	(A393)	2.11 (8)	2.11 (8)	2.11 (8)	2.19 (8)	2.19 (8)	2.19 (8)	2.38 (8)	2.38 (8)	2.38 (8)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	60 minutes	101	(A142)	2.76 (8)	2.76 (8)	2.76 (8)	2.9 (8)	2.9 (8)	2.9 (8)	3.14 (8)	3.14 (8)	2.99 (8)
		110	(A142)	2.69 (8)	2.69 (8)	2.69 (8)	2.83 (8)	2.83 (8)	2.83 (8)	3.07 (8)	3.07 (8)	3.07 (8)
		120	(A142)	2.62 (8)	2.62 (8)	2.62 (8)	2.75 (8)	2.75 (8)	2.75 (8)	2.99 (8)	2.99 (8)	2.99 (8)
		130	(A193)	2.56 (8)	2.56 (8)	2.56 (8)	2.69 (8)	2.69 (8)	2.69 (8)	2.92 (8)	2.92 (8)	2.92 (8)
		150	(A252)	2.47 (8)	2.47 (8)	2.47 (8)	2.55 (8)	2.55 (8)	2.55 (8)	2.79 (8)	2.79 (8)	2.79 (8)
		200	(A393)	2.25 (8)	2.25 (8)	2.25 (8)	2.32 (8)	2.32 (8)	2.32 (8)	2.54 (8)	2.54 (8)	2.54 (8)
		220	(A393)	2.18 (8)	2.18 (8)	2.18 (8)	2.25 (8)	2.25 (8)	2.25 (8)	2.45 (8)	2.45 (8)	2.45 (8)
		240	(A393)	2.11 (8)	2.11 (8)	2.11 (8)	2.19 (8)	2.19 (8)	2.19 (8)	2.38 (8)	2.38 (8)	2.38 (8)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	90 minutes	110	(A142)	2.55 (8)	2.55 (10)	2.55 (10)	2.75 (8)	2.82 (10)	2.69 (10)	3.04 (10)	3.04 (10)	3.04 (12)
		120	(A142)	2.62 (8)	2.62 (10)	2.62 (10)	2.75 (8)	2.75 (10)	2.75 (10)	2.99 (10)	2.99 (10)	2.98 (12)
		130	(A193)	2.56 (8)	2.56 (8)	2.56 (10)	2.69 (8)	2.68 (10)	2.68 (10)	2.92 (8)	2.92 (10)	2.92 (10)
		150	(A252)	2.47 (8)	2.47 (8)	2.47 (8)	2.55 (8)	2.55 (8)	2.56 (10)	2.79 (8)	2.79 (10)	2.79 (10)
		200	(A393)	2.25 (8)	2.25 (8)	2.25 (8)	2.32 (8)	2.32 (8)	2.32 (8)	2.54 (8)	2.54 (8)	2.54 (8)
		220	(A393)	2.18 (8)	2.18 (8)	2.18 (8)	2.25 (8)	2.25 (8)	2.25 (8)	2.45 (8)	2.45 (8)	2.45 (8)
		240	(A393)	2.11 (8)	2.11 (8)	2.11 (8)	2.19 (8)	2.19 (8)	2.19 (8)	2.38 (8)	2.38 (8)	2.38 (8)

ComFlor 51 / Bar Fire Method / Unpropped

ComFlor 51 / Mesh and Deck Fire Method / Unpropped

Double Span (m) - Normal weight concrete - Eurocode -
Beam width 152mm



Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m ²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	30 minutes	101	(A142)	3.1 (8)	3.1 (8)	3.1 (8)	3.25 (8)	3.25 (8)	3.25 (8)	3.54 (8)	3.54 (8)	3.37 (8)
		110	(A142)	3.07 (8)	3.07 (8)	3.07 (8)	3.15 (8)	3.15 (8)	3.15 (8)	3.46 (8)	3.46 (8)	3.46 (8)
		120	(A142)	3.01 (8)	3.01 (8)	3.01 (8)	3.15 (8)	3.15 (8)	3.15 (8)	3.37 (8)	3.37 (8)	3.37 (8)
		130	(A193)	2.93 (8)	2.93 (8)	2.93 (8)	3.08 (8)	3.08 (8)	3.08 (8)	3.28 (8)	3.28 (8)	3.28 (8)
		150	(A252)	2.79 (8)	2.79 (8)	2.79 (8)	2.94 (8)	2.94 (8)	2.94 (8)	3.21 (8)	3.21 (8)	3.21 (8)
		200	(A393)	2.51 (8)	2.51 (8)	2.51 (8)	2.64 (8)	2.64 (8)	2.64 (8)	2.89 (8)	2.89 (8)	2.89 (8)
		220	(A393)	2.42 (8)	2.42 (8)	2.42 (8)	2.55 (8)	2.55 (8)	2.55 (8)	2.79 (8)	2.79 (8)	2.79 (8)
		240	(A393)	2.34 (8)	2.34 (8)	2.34 (8)	2.46 (8)	2.46 (8)	2.46 (8)	2.69 (8)	2.69 (8)	2.69 (8)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m ²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	60 minutes	101	(A142)	3.1 (8)	3.1 (8)	3.08 (8)	3.15 (8)	3.15 (8)	3.05 (8)	3.44 (8)	3.44 (8)	3.38 (10)
		110	(A142)	3.07 (8)	3.07 (8)	3.07 (8)	3.15 (8)	3.15 (8)	3.15 (8)	3.45 (8)	3.45 (8)	3.45 (10)
		120	(A142)	3.01 (8)	3.01 (8)	3.01 (8)	3.15 (8)	3.15 (8)	3.15 (8)	3.37 (8)	3.37 (8)	3.37 (8)
		130	(A193)	2.93 (8)	2.93 (8)	2.93 (8)	3.08 (8)	3.08 (8)	3.08 (8)	3.28 (8)	3.28 (8)	3.28 (8)
		150	(A252)	2.79 (8)	2.79 (8)	2.79 (8)	2.94 (8)	2.94 (8)	2.94 (8)	3.21 (8)	3.21 (8)	3.21 (8)
		200	(A393)	2.51 (8)	2.51 (8)	2.51 (8)	2.64 (8)	2.64 (8)	2.64 (8)	2.89 (8)	2.89 (8)	2.89 (8)
		220	(A393)	2.42 (8)	2.42 (8)	2.42 (8)	2.55 (8)	2.55 (8)	2.55 (8)	2.79 (8)	2.79 (8)	2.79 (8)
		240	(A393)	2.34 (8)	2.34 (8)	2.34 (8)	2.46 (8)	2.46 (8)	2.46 (8)	2.69 (8)	2.69 (8)	2.69 (8)

Props	Fire Period	Slab depth (mm)	Mesh 0.2% minimum required*	Total applied load (kN/m ²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
None	90 minutes	110	(A142)	3.06 (10)	3.06 (10)	3.06 (12)	3.17 (10)	3.17 (12)	3.17 (12)	3.45 (10)	3.45 (12)	3.24 (12)
		120	(A142)	3.01 (8)	3.01 (10)	3 (12)	3.14 (10)	3.14 (10)	3.14 (12)	3.36 (10)	3.36 (12)	3.36 (12)
		130	(A193)	2.93 (8)	2.92 (10)	2.92 (10)	3.08 (8)	3.08 (10)	3.06 (10)	3.28 (10)	3.28 (10)	3.27 (12)
		150	(A252)	2.79 (8)	2.79 (8)	2.79 (8)	2.94 (8)	2.94 (8)	2.94 (10)	3.21 (8)	3.21 (8)	3.21 (10)
		200	(A393)	2.51 (8)	2.51 (8)	2.51 (8)	2.64 (8)	2.64 (8)	2.64 (8)	2.89 (8)	2.89 (8)	2.89 (8)
		220	(A393)	2.42 (8)	2.42 (8)	2.42 (8)	2.55 (8)	2.55 (8)	2.55 (8)	2.79 (8)	2.79 (8)	2.79 (8)
		240	(A393)	2.34 (8)	2.34 (8)	2.34 (8)	2.46 (8)	2.46 (8)	2.46 (8)	2.69 (8)	2.69 (8)	2.69 (8)

Notes:

Spans are based on beam centres, with a 152 mm flange width and a minimum end bearing of 50 mm.

* In accordance with IS EN 1994-1-1 Clause 9.8.1(2) - Where the continuous slabs are designed as simply-supported in accordance with 9.4.2(5), the minimum cross-sectional area of anti-crack mesh reinforcement above the ribs should not be less than 0.2 % of the cross-sectional area of concrete above the ribs for unpropped construction. Figures in brackets represent the diameter of the bar required - one bar in each deck trough 25mm above the trough.

Imposed load category - "storage type" has been considered. Psi values for storage type $\psi_0=1$, $\psi_1=0.9$, $\psi_2=0.8$ have been considered. For lesser Psi values Spans should be calculated by the user.

5Hz natural frequency limit has been considered. It applies to the floor only and the effect of any supporting beams should be assessed by the user. 500 N/mm² Yield has been considered for Mesh and Bar. Steel Grade S350 and Concrete Grade C25/30.

Auto calculated modular ratio has been used for span calculations.

30 mm Mesh cover has been considered for span calculations.

Construction stage (no ponding) Deflection limit = Span/180

Construction stage deflection limit = Span/130

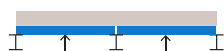
Imposed load deflection limit = Span/350

Total Load deflection limit = Span/250

Profile ComFlor 51 (composite deck)

ComFlor 51 / Bar Fire Method / Propped

Single Span Propped deck, continuous slab (m) - Normal weight concrete - Eurocode - Beam width 152mm (Note: Single span deck single span slab is only permitted using Bar Fire Method.)



Props	Fire Period	Slab depth (mm)	Mesh 0.4% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
1 line	30 minutes	101	(A252)	3.77 (8)	3.48 (8)	3.25 (8)	3.82 (8)	3.52 (8)	3.29 (8)	3.9 (8)	3.6 (8)	3.37 (8)
		110	(A252)	4.02 (8)	3.71 (8)	3.48 (8)	4.06 (8)	3.76 (8)	3.53 (8)	4.15 (8)	3.84 (8)	3.6 (8)
		120	(A393)	4.28 (8)	3.96 (8)	3.73 (8)	4.33 (8)	4.01 (8)	3.77 (8)	4.41 (8)	4.09 (8)	3.85 (8)
		130	(A393)	4.53 (8)	4.21 (8)	3.97 (8)	4.59 (8)	4.26 (8)	4.01 (8)	4.68 (8)	4.35 (8)	4.1 (8)
		150	(2xA252)	5.02 (8)	4.69 (8)	4.43 (8)	5.08 (8)	4.74 (8)	4.48 (8)	5.18 (8)	4.84 (8)	4.57 (8)
		200	(2xA393)	4.45 (8)	4.45 (8)	4.45 (8)	4.9 (8)	4.9 (8)	4.9 (8)	5.66 (8)	5.66 (8)	5.66 (8)
		220	(2xA393)	4.23 (8)	4.23 (8)	4.23 (8)	4.67 (8)	4.67 (8)	4.67 (8)	5.45 (8)	5.45 (8)	5.45 (8)
		240	(2xA393)	4.05 (8)	4.05 (8)	4.05 (8)	4.47 (8)	4.47 (8)	4.47 (8)	5.24 (8)	5.24 (8)	5.24 (8)

Props	Fire Period	Slab depth (mm)	Mesh 0.4% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
1 line	60 minutes	101	(A252)	3.77 (8)	3.49 (10)	3.27 (10)	3.82 (8)	3.53 (10)	3.31 (10)	3.9 (8)	3.61 (10)	3.38 (10)
		110	(A252)	4.02 (8)	3.73 (10)	3.5 (10)	4.06 (8)	3.77 (10)	3.54 (10)	4.15 (8)	3.85 (10)	3.62 (10)
		120	(A393)	4.28 (8)	3.99 (10)	3.75 (10)	4.33 (8)	4.03 (10)	3.79 (10)	4.41 (8)	4.11 (10)	3.87 (10)
		130	(A393)	4.53 (8)	4.24 (10)	4 (10)	4.59 (8)	4.29 (10)	4.04 (10)	4.68 (8)	4.37 (10)	4.11 (10)
		150	(2xA252)	5.02 (8)	4.72 (10)	4.46 (10)	5.08 (8)	4.78 (10)	4.51 (10)	5.21 (10)	4.87 (10)	4.6 (10)
		200	(2xA393)	4.45 (8)	4.45 (8)	4.45 (8)	4.9 (8)	4.9 (8)	4.9 (8)	5.66 (8)	5.66 (8)	5.66 (10)
		220	(2xA393)	4.23 (8)	4.23 (8)	4.23 (8)	4.67 (8)	4.67 (8)	4.67 (8)	5.45 (8)	5.45 (8)	5.45 (8)
		240	(2xA393)	4.05 (8)	4.05 (8)	4.05 (8)	4.47 (8)	4.47 (8)	4.47 (8)	5.23 (8)	5.23 (8)	5.23 (8)

Props	Fire Period	Slab depth (mm)	Mesh 0.4% minimum required*	Total applied load (kN/m²)								
				5.00	7.50	10.00	5.00	7.50	10.00	5.00	7.50	10.00
				0.90mm			1.00mm			1.20mm		
1 line	90 minutes	110	(A252)	4.1 (16)	3.8 (16)	3.57 (16)	4.13 (16)	3.83 (16)	3.6 (16)	4.2 (16)	3.89 (16)	3.66 (16)
		120	(A393)	4.38 (16)	4.07 (16)	3.82 (16)	4.42 (16)	4.11 (16)	3.87 (16)	4.49 (16)	4.17 (16)	3.93 (16)
		130	(A393)	4.66 (16)	4.33 (16)	4.08 (16)	4.7 (16)	4.37 (16)	4.12 (16)	4.77 (16)	4.44 (16)	4.19 (16)
		150	(2xA252)	5.1 (16)	4.85 (16)	4.58 (16)	5.23 (16)	4.88 (16)	4.62 (16)	5.3 (16)	4.96 (16)	4.69 (16)
		200	(2xA393)	4.42 (8)	4.42 (10)	4.43 (12)	4.88 (10)	4.88 (12)	4.87 (16)	5.64 (12)	5.64 (16)	5.64 (16)
		220	(2xA393)	4.23 (8)	4.23 (8)	4.23 (8)	4.67 (8)	4.67 (8)	4.67 (8)	5.44 (10)	5.44 (12)	5.44 (16)
		240	(2xA393)	4.05 (8)	4.05 (8)	4.05 (8)	4.47 (8)	4.47 (8)	4.47 (8)	5.22 (8)	5.22 (8)	5.21 (10)

Notes:

Spans are based on beam centres, with a 152 mm flange width and a minimum end bearing of 50 mm.

* In accordance with IS EN 1994-1-1 Clause 9.8.1(2) - Where the continuous slabs are designed as simply-supported in accordance with 9.4.2(5), the minimum cross-sectional area of anti-crack mesh reinforcement above the ribs should not be less than 0.4 % of the cross-sectional area of concrete above the ribs for propped construction. Figures in brackets represent the diameter of the bar required - one bar in each deck trough 25mm above the trough.

Imposed load category - "storage type" has been considered. Psi values for storage type $\psi_0=1$, $\psi_1=0.9$, $\psi_2=0.8$ have been considered. For lesser Psi values Spans should be calculated by the user.

5Hz natural frequency limit has been considered. It applies to the floor only and the effect of any supporting beams should be assessed by the user. 100mm prop width has been considered. 500 N/mm² Yield has been considered for Mesh and Bar. Steel Grade S350 and Concrete Grade C25/30. Auto calculated modular ratio has been used for span calculations. 30 mm Mesh cover has been considered for span calculations. Construction stage (no ponding) Deflection limit = Span/180
Construction stage deflection limit = Span/130
Imposed load deflection limit = Span/350
Total Load deflection limit = Span/250