



FABPANEL™ 170 8 Cores

1195 mm Wide
Cover = 25 mm

Fire = 60 minutes
Topping = 0 mm

T +27 11 706 4560
F +27 11 463 5589
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PO Box 364 Paulshof 2056
www.concreteslabs.co.za
slabs@iafrica.com

Designed to Eurocodes and EN1168

SECTION

Hollow core slab	FabPanel 170	N° Cores	8	$A_b =$	1973.5 cm ²	$A_n/A_b =$	68.3%
	$b_{mod} =$	1200 mm		$A_n =$	1347.8 cm ²	$A_{jnt} =$	64.6 cm ²
	$h_p =$	170 mm		$I_{yc} =$	42928.8 cm ⁴	$e_{zt} =$	81.16 mm
Support depth	70 mm			$b_w =$	364.8 mm	$e_{zb} =$	88.84 mm
Topping	0 mm			$A_{top} =$	0.00 cm ²		

MATERIALS

Concrete

Hollow core slab	C50	Code ref.	EN206-1		
In situ joint/topping	C30	Density	2400 kg/m ³	Aggregate	Limestone
		Density	2400 kg/m ³	Aggregate	Quartzite

Prestressing reinforcement

Type	Diam. (mm)	A_p (mm ²)	Grade	f_{pk} (N/mm ²)	$f_{p0.1k}$ (N/mm ²)	E_p (N/mm ²)	$F_{p0.1k}$ (kN)
S7	Ø9.53	54.8	Y1860	1860	1674	201000	91.8
S7	Ø12.7	98.7	Y1860	1860	1674	201000	165.2

S7 = 7-wire strand

Prestressing of <u>top</u> reinforcement	70%	• f_{pk}		
Prestressing of <u>bottom</u> reinforcement	70%	• f_{pk}		
Concrete cover on <u>bottom</u> reinforcement	25 mm	$\Delta c =$	0 mm	

Mild reinforcement

Type	Diam. (mm)	A_s (mm ²)	Grade	f_{uk} (N/mm ²)	f_{yk} (N/mm ²)	E_s (N/mm ²)
RB	N/A	N/A	B500	550	500	200000

RB = Ribbed bar

UTILITY FEATURES

User Category :	A	Domestic and residential areas
Exposure class :	XC1	
Fire resistance :	60 min.	

DESIGN FACTORS

Load safety factors

Permanent load :	$\gamma_g =$	1.35
Variable load :	$\gamma_q =$	1.50

Combination factors

$\psi_0 =$	0.7
$\psi_1 =$	0.5
$\psi_2 =$	0.3

DEFLECTION CRITERIA

Total long term deflection: variable load	$UZ < L /$	250	with $\psi_2 =$	30%	loads = $SW_{slab} + SW_{top} + \Sigma PL + \psi_2 \cdot \Sigma VL$	SW = self weight
Additional long term deflection: variable load	$\Delta UZ < L /$	500	with $\psi_2 =$	30%	loads = $\Sigma PL + \psi_2 \cdot \Sigma VL$	PL = permanent load
						VL = variable load



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Reinforcement type	STR 01	STR 02	STR 03							
Top reinforcement			2xØ9.53							
Bottom reinforcement	5xØ9.53	7xØ9.53	9xØ9.53							
Reinforcement (kg/m ²)	1.80	2.52	3.96							
M _{Rd} (kNm/m)	49.3	65.8	82.9							
V _{nc,Rd} (kN/m)	58.6	60.5	63.9							
V _{c,Rd} (kN/m)	38.1	46.0	65.3							

Permanent load g (kN/m ²)	Variable load q (kN/m ²)	CLEAR SPAN (IN METERS)											
1.50	1.50	6.88	8.11	8.44									
1.50	2.00	6.71	7.82	8.24									
1.50	2.50	6.49	7.50	8.07									
1.50	3.00	6.25	7.21	7.90									
1.50	3.50	6.03	6.96	7.75									
1.50	4.00	5.83	6.73	7.55									
1.50	5.00	5.49	6.34	7.11									
1.50	6.00	5.20	6.00	6.73									
1.50	7.00	4.95	5.72	6.41									
1.50	8.00	4.73	5.47	6.13									
1.50	9.00	4.54	5.25	5.89									
1.50	10.00	4.38	5.05	5.70									
1.50	12.50	4.02	4.65	5.22									
1.50	15.00	3.64	4.33	4.80									
1.50	20.00	3.10	3.65	3.83									

SECTION - self weight

Precast slab :	2.64	kN/m ²				
Joint :	0.13	kN/m ²	--> Sum =	2.77	kN/m ²	(slab + joint)
Topping :	0.00	kN/m ²	--> Sum =	2.77	kN/m ²	(slab + joint + topping)

UTILITY FEATURES

User Category :	A	Domestic and residential areas
Exposure class :	XC1	Fire resistance : 60 min.

DEFLECTION CRITERIA

- Long term part of variable load $\psi_2 = 0.3$
- Long term TOTAL deflection under self weight of the slab + total permanent load + 30% of the variable load $< L / 250$
 - Long term ADDITIONAL deflection under total permanent load + 30% of the variable load $< L / 500$



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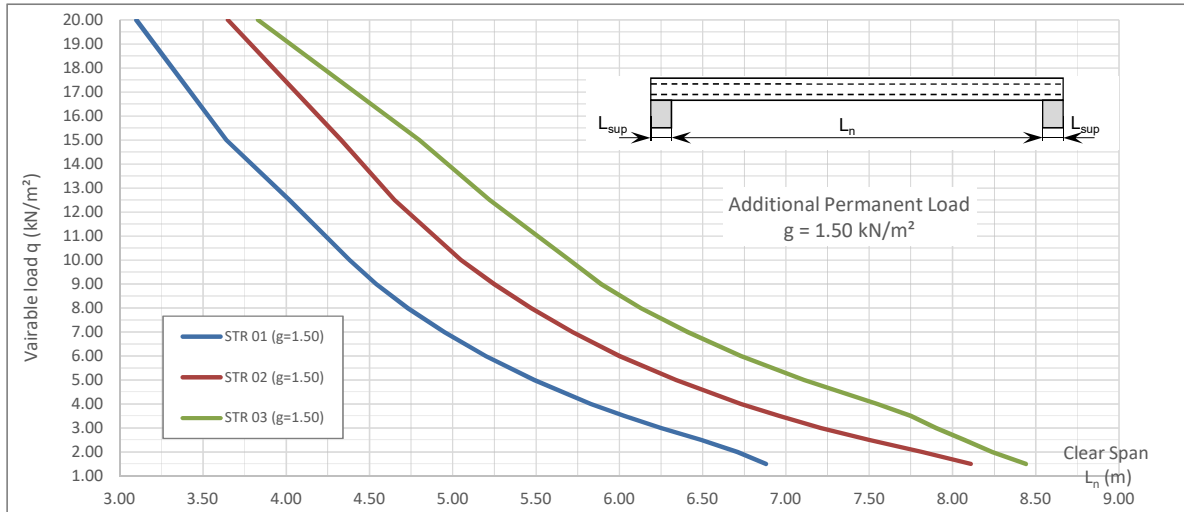
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MATERIALS

Concrete	Precast slab :	C50	Density =	2400	kg/m ³		
	Joint/Topping :	C30	Density =	2400	kg/m ³		
Prestressing steel	Strand Ø9.53	Y1860	f _{pk} =	1860	N/mm ²	f _{p0.1k} =	1674 N/mm ²
	Strand Ø12.7	Y1860	f _{pk} =	1860	N/mm ²	f _{p0.1k} =	1674 N/mm ²
	Prestressing of <u>top</u> reinforcement		70%	• f _{pk}			
	Prestressing of <u>bottom</u> reinforcement		70%	• f _{pk}			
	Concrete cover on <u>bottom</u> reinforcement		25	mm	Δc =	0	mm

SECTION - self weight

Precast slab :	2.64	kN/m ²			
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- Long term TOTAL deflection under self weight of the slab + total permanent load + 30% of the variable load < L / 250
 - Long term ADDITIONAL deflection under total permanent load + 30% of the variable load < L / 500