



# FABPANEL™ 250+ 7 Cores

1245 mm Wide  
Cover = 30 mm

Fire = 60 minutes  
Topping = 100 mm

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134 Eccleston Crescent, Bryanston, Sandton  
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Designed to Eurocodes and EN1168

## SECTION

Hollow core slab	<b>FabPanel 250+</b>	N° Cores	<b>7</b>	$A_b =$	<b>2987.7</b> cm <sup>2</sup>	$A_n/A_b =$	<b>59.0%</b>
	$b_{mod} =$	<b>1250</b> mm		$A_n =$	<b>1763.7</b> cm <sup>2</sup>	$A_{jnt} =$	<b>135.0</b> cm <sup>2</sup>
	$h_p =$	<b>250</b> mm		$I_{yc} =$	<b>134576.5</b> cm <sup>4</sup>	$e_{z1} =$	<b>126.15</b> mm
Support depth	<b>70</b> mm			$b_w =$	<b>305.0</b> mm	$e_{zb} =$	<b>123.85</b> mm
Topping	<b>100</b> mm			$A_{top} =$	<b>1250.00</b> cm <sup>2</sup>		

## MATERIALS

### Concrete

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

### Prestressing reinforcement

				Code ref.	<b>EN10138</b>		
Type	Diam. (mm)	$A_p$ (mm <sup>2</sup> )	Grade	$f_{pk}$ (N/mm <sup>2</sup> )	$f_{p0.1k}$ (N/mm <sup>2</sup> )	$E_p$ (N/mm <sup>2</sup> )	$F_{p0.1k}$ (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	<b>70%</b>	• $f_{pk}$		
Prestressing of <u>bottom</u> reinforcement	<b>70%</b>	• $f_{pk}$		
Concrete cover on <u>bottom</u> reinforcement	<b>30</b> mm	$\Delta c =$	<b>0</b> mm	

### Mild reinforcement

				Code ref.	<b>EN10080</b>		
Type	Diam. (mm)	$A_s$ (mm <sup>2</sup> )	Grade	$f_{uk}$ (N/mm <sup>2</sup> )	$f_{yk}$ (N/mm <sup>2</sup> )	$E_s$ (N/mm <sup>2</sup> )	
RB	N/A	N/A	B500	550	500	200000	

RB = Ribbed bar

## UTILITY FEATURES

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

## DESIGN FACTORS

### Load safety factors

Permanent load :	$\gamma_g =$	<b>1.35</b>
Variable load :	$\gamma_q =$	<b>1.50</b>

### Combination factors

$\psi_0 =$	<b>0.7</b>
$\psi_1 =$	<b>0.5</b>
$\psi_2 =$	<b>0.3</b>

## DEFLECTION CRITERIA

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



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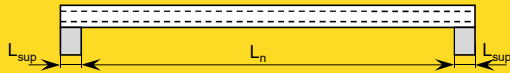
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This Load Span Table is for guidance only and should not be considered as a complete calculation.

Reinforcement type	STR 01	STR 02								
Top reinforcement	2xØ9.53	2xØ9.53								
Bottom reinforcement	6xØ12.7	8xØ12.7								
Reinforcement (kg/m <sup>2</sup> )	4.41	5.65								
M <sub>Rd</sub> (kNm/m)	223.2	279.5								
V <sub>nc,Rd</sub> (kN/m)	92.7	96.9								
V <sub>c,Rd</sub> (kN/m)	98.7	114.2								

Permanent load g (kN/m <sup>2</sup> )	Variable load q (kN/m <sup>2</sup> )	CLEAR SPAN (IN METERS)												
1.50	1.50	13.22	14.19											
1.50	2.00	13.14	13.95											
1.50	2.50	12.93	13.71											
1.50	3.00	12.52	13.50											
1.50	3.50	12.13	13.29											
1.50	4.00	11.77	13.09											
1.50	5.00	11.14	12.46											
1.50	6.00	10.60	11.86											
1.50	7.00	10.14	11.34											
1.50	8.00	9.72	10.88											
1.50	9.00	9.36	10.19											
1.50	10.00	9.03	9.56											
1.50	12.50	8.05	8.27											
1.50	15.00	7.10	7.31											
1.50	20.00	5.78	5.95											



### SECTION - self weight

Precast slab :	3.32	kN/m <sup>2</sup>			
Joint :	0.25	kN/m <sup>2</sup>	--> Sum =	3.58	kN/m <sup>2</sup> (slab + joint)
Topping :	2.35	kN/m <sup>2</sup>	--> Sum =	5.93	kN/m <sup>2</sup> (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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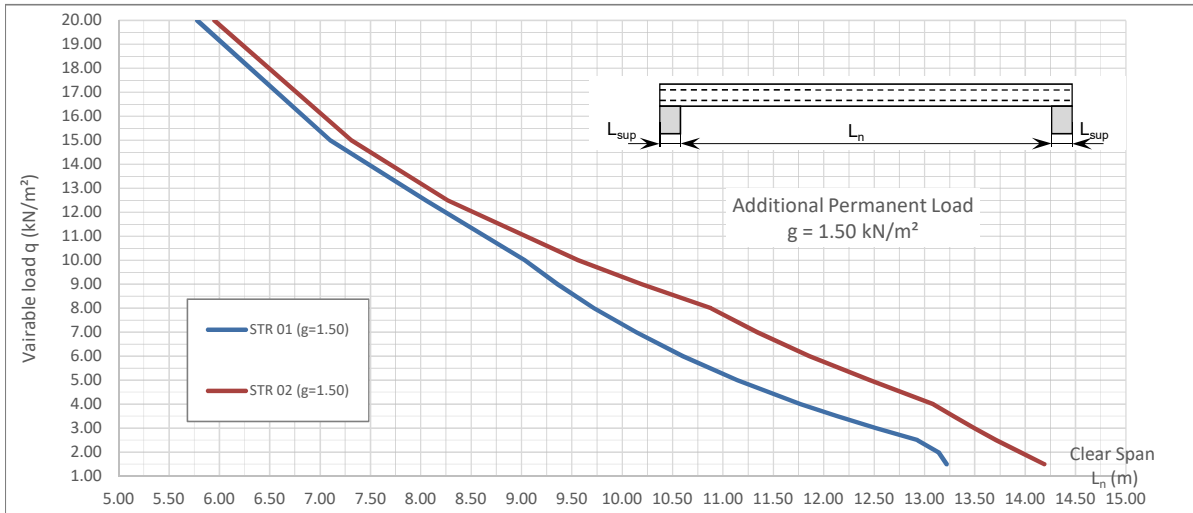
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V <sub>c,Rd</sub> (kN/m)	98.7	114.2								



## MATERIALS

<b>Concrete</b>	Precast slab :	<b>C50</b>	Density =	<b>2400</b>	kg/m <sup>3</sup>		
	Joint/Topping :	<b>C30</b>	Density =	<b>2400</b>	kg/m <sup>3</sup>		
<b>Prestressing steel</b>							
	Strand Ø9.53	<b>Y1860</b>	f <sub>pk</sub> =	<b>1860</b>	N/mm <sup>2</sup>	f <sub>p0.1k</sub> =	<b>1674</b> N/mm <sup>2</sup>
	Strand Ø12.7	<b>Y1860</b>	f <sub>pk</sub> =	<b>1860</b>	N/mm <sup>2</sup>	f <sub>p0.1k</sub> =	<b>1674</b> N/mm <sup>2</sup>
	Prestressing of <u>top</u> reinforcement		<b>70%</b>	• f <sub>pk</sub>			
	Prestressing of <u>bottom</u> reinforcement		<b>70%</b>	• f <sub>pk</sub>			
	Concrete cover on <u>bottom</u> reinforcement		<b>30</b>	mm	Δc =	<b>0</b>	mm

## SECTION - self weight

Precast slab :	<b>3.32</b>	kN/m <sup>2</sup>			
Joint :	<b>0.25</b>	kN/m <sup>2</sup>	--> Sum =	<b>3.58</b>	kN/m <sup>2</sup> (slab + joint)
Topping :	<b>2.35</b>	kN/m <sup>2</sup>	--> Sum =	<b>5.93</b>	kN/m <sup>2</sup> (slab + joint + topping)

## UTILITY FEATURES

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Exposure class :	<b>XC1</b>	Fire resistance : <b>60</b> min.

## DEFLECTION CRITERIA

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