# FABPANEL™ 200 6 Cores

**1195 mm Wide** **Fire = 60 minutes**
**Cover = 30 mm** **Topping = 50 mm**

**Designed to Eurocodes and EN1168**

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## SECTION

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Hollow core slab | | FabPanel 200 | | N° Cores | 6 | $A_b$ = | 2321.3 cm² | $A_n/A_b$ = | 57.5% |
| | $b_{mod}$ = | 1200 | mm | | | $A_n$ = | 1334.5 cm² | $A_{jnt}$ = | 76.8 cm² |
| | $h_p$ = | 200 | mm | | | $I_{yc}$ = | 64584.4 cm⁴ | $e_{zt}$ = | 101.04 mm |
| Support depth | | 70 | mm | | | $b_w$ = | 292.9 mm | $e_{zb}$ = | 98.96 mm |
| Topping | | 50 | mm | | | $A_{top}$ = | 600.00 cm² | | |

## MATERIALS

**Concrete** Code ref. **EN206-1**

| | | | | |
|---|---|---|---|---|
| Hollow core slab | C50 | Density | 2400 kg/m³ | Aggregate Limestone |
| In situ joint/topping | C30 | Density | 2400 kg/m³ | Aggregate Quartzite |

**Prestressing reinforcement** Code ref. **EN10138**

| Type | Diam. (mm) | $A_p$ (mm²) | Grade | $f_{pk}$ (N/mm²) | $f_{p0.1k}$ (N/mm²) | $E_p$ (N/mm²) | $F_{p0.1k}$ (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 top reinforcement 70% • $f_{pk}$
Prestressing of bottom reinforcement 70% • $f_{pk}$

Concrete cover on bottom reinforcement 30 mm $\Delta c$ = 0 mm

**Mild reinforcement** Code ref. **EN10080**

| Type | Diam. (mm) | $A_s$ (mm²) | Grade | $f_{uk}$ (N/mm²) | $f_{yk}$ (N/mm²) | $E_s$ (N/mm²) |
|---|---|---|---|---|---|---|
| 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 with $\psi_2$ = 30%
UZ < L / 250 loads = $SW_{slab} + SW_{top} + \Sigma PL + \psi_2 \cdot \Sigma VL$

Addtitional long term deflection: variable load with $\psi_2$ = 30%
$\Delta UZ$ < L / 500 loads = $\Sigma PL + \psi_2 \cdot \Sigma VL$

SW = self weight
PL = permanent load
VL = variable load

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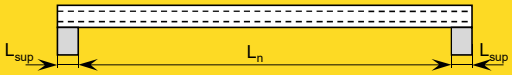
## Designed to Eurocodes and EN1168

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

| *Reinforcement type* | | STR 01 | STR 02 | STR 03 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| *Top reinforcement* | | | | 2xØ9.53 | | | | | | | |
| *Bottom reinforcement* | | 4xØ12.7 | 5xØ12.7 | 7xØ12.7 | | | | | | | |
| *Reinforcement (kg/m²)* | | 2.58 | 3.23 | 5.24 | | | | | | | |
| $M_{Rd}$ *(kNm/m)* | | 103.2 | 127.0 | 165.6 | | | | | | | |
| $V_{nc,Rd}$ *(kN/m)* | | 65.4 | 69.3 | 72.7 | | | | | | | |
| $V_{c,Rd}$ *(kN/m)* | | 63.0 | 78.0 | 91.7 | | | | | | | |

| *Permanent load* *g (kN/m²)* | *Variable load* *q (kN/m²)* | *CLEAR SPAN (IN METERS)* | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| ***1.50*** | ***1.50*** | 10.13 | 10.38 | 10.84 | | | | | | | | |
| ***1.50*** | ***2.00*** | 9.69 | 10.17 | 10.62 | | | | | | | | |
| ***1.50*** | ***2.50*** | 9.30 | 9.98 | 10.41 | | | | | | | | |
| ***1.50*** | ***3.00*** | 8.96 | 9.80 | 10.22 | | | | | | | | |
| ***1.50*** | ***3.50*** | 8.65 | 9.59 | 10.04 | | | | | | | | |
| ***1.50*** | ***4.00*** | 8.37 | 9.30 | 9.87 | | | | | | | | |
| ***1.50*** | ***5.00*** | 7.88 | 8.74 | 9.57 | | | | | | | | |
| ***1.50*** | ***6.00*** | 7.47 | 8.29 | 9.29 | | | | | | | | |
| ***1.50*** | ***7.00*** | 7.12 | 7.90 | 9.01 | | | | | | | | |
| ***1.50*** | ***8.00*** | 6.81 | 7.56 | 8.63 | | | | | | | | |
| ***1.50*** | ***9.00*** | 6.54 | 7.26 | 8.06 | | | | | | | | |
| ***1.50*** | ***10.00*** | 6.30 | 6.99 | 7.52 | | | | | | | | |
| ***1.50*** | ***12.50*** | 5.80 | 6.23 | 6.44 | | | | | | | | |
| ***1.50*** | ***15.00*** | 5.19 | 5.47 | 5.63 | | | | | | | | |
| ***1.50*** | ***20.00*** | 4.18 | 4.39 | 4.53 | | | | | | | | |




**SECTION - self weight**

| | | | | | | |
|---|---|---|---|---|---|---|
| Precast slab : | **2.62** | **kN/m²** | | | | |
| Joint : | **0.15** | **kN/m²** | --> Sum = | 2.77 | **kN/m²** | (slab + joint) |
| Topping : | **1.18** | **kN/m²** | --> Sum = | 3.95 | **kN/m²** | (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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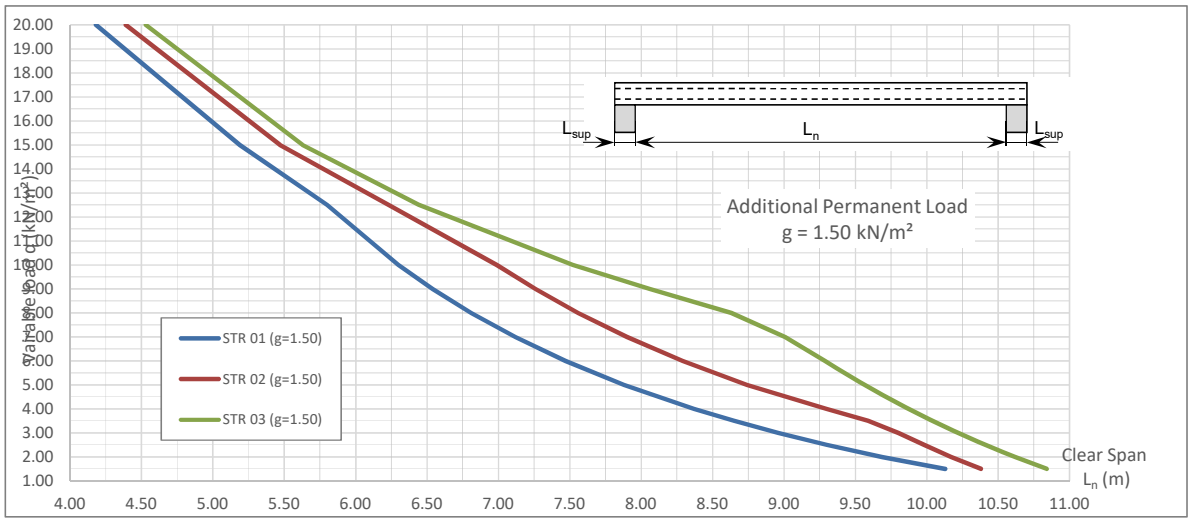


**MATERIALS**

**Concrete** Precast slab : **C50** Density = **2400** kg/m³
Joint/Topping : **C30** Density = **2400** kg/m³

**Prestressing steel**

Strand Ø9.53 **Y1860** $f_{pk}$ = **1860** N/mm² $f_{p0.1k}$ = **1674** N/mm²
Strand Ø12.7 **Y1860** $f_{pk}$ = **1860** N/mm² $f_{p0.1k}$ = **1674** N/mm²

Prestressing of top reinforcement **70%** • $f_{pk}$
Prestressing of bottom reinforcement **70%** • $f_{pk}$

Concrete cover on bottom reinforcement **30** mm Δc = **0** mm

**SECTION - self weight**

Precast slab : **2.62** **kN/m²**
Joint : **0.15** **kN/m²** --> Sum = 2.77 **kN/m²** (slab + joint)
Topping : **1.18** **kN/m²** --> Sum = 3.95 **kN/m²** (slab + joint + topping)

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