PRESTRESSED HOLLOW-CORE SLABS

Fast, High-Quality Floor Systems

Launching Q4 2025
MARKETING MESSAGE
"50-65% Faster, 30-37% Lighter. 14–22% cheaper Total Structure Cost–WEB Precast Delivers Structural Economy."

PRODUCT RANGE

WEB MARINESHIELD™

Coastal Premium - Epoxy-coated strands for saline and coastal environments

Product	Thickness	Self-Weight
	15 cm	2.8-3.1KN/m²
MS-20	20 cm	2.8-3.1KN/m²
MS-25 MS-15	25 cm	4.9-5.5KN/m²

WEB TERRACORE™

Highland Value - Optimized for highland and inland applications

Product	Thickness	Self-Weight
MS-15	15 cm	2.8-3.1KN/m²
MS-20	20 cm	2.8-3.1KN/m²
MS-25	25 cm	4.9-5.5KN/m²

Prestressed HC Slabs vs Cast-in-Situ Solid Slabs

Faster installation: hundreds of m² per day with immediate load capacity.
Minimal site labor: no formwork carpenters or extensive on-site concrete works.
Consistent factory quality: prestressing provides higher strength and crack control.
Lighter structural weight: ~35–40% less dead load, reducing beams/Columns foundations.
Longer spans achievable: thanks to prestressed steel strands
Better surface finish: smooth, polished, often ready for tiles/carpets.
Lower wastage and greener: no timber formwork, less noise/-dust, reduced CO_2 footprint.
Predictable and lower total project cost: time savings and reduced structural needs.

TECHNICAL SPECIFICATIONS

Thicknesses:	150, 200, 250 mm
Width:	1.2m (modular)
Length:	Customizable (up to 14m)
Load Capacity:	1–10 kN/m²
Concrete Grade:	C35, C40, C45, C50 (selected per span/load)
Density:	2,400 kg/m³ (normal-weight)
Prestressing Strands:	5–10 high-tensile wires per slab, fpk = 1,860 Mpa
Fire Resistance:	2 hours minimum (REI 120)
Self-Weight:	300–550 kg/m² depending on thickness
Finish:	Polished top, smooth underside
Standards:	KEBS & EN/BS international compliance

CLEAR-SPAN GUIDE

HC Thickness	Untopped Span	With 50mm Topping
150 mm	6.0–7.2 m	6.5–7.6 m
200 mm	7.6–9.0 m	8.1–9.5 m
250 mm	9.2–11.2 m	9.7–11.8 m

PERFORMANCE COMPARISON

Hollow-Core vs Traditional Slabs

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TARGET APPLICATIONS
Ideal Uses for Our Slabs
RESIDENTIAL VILLAS & APARTMENT BLOCKS
.COMMERCIAL BUILDINGS & OFFICES
SCHOOLS & INSTITUTIONS
WAREHOUSES & INDUSTRIAL

[Insert Building Application Image Here]
"50-65% Faster, 30-37% Lighter. 14–22% cheaper Total Structure Cost – WEB Precast Delivers Structural Economy."

Technical Specification – Prestressed Precast Hollow Core Slabs

Product Range: 15cm, 20cm, 25cm hollow core slabs
Manufacturer: WEB Precast Solutions Ltd. (Kilifi, Kenya)
Standard Width: 1.20 m
Length: Customizable (up to transport and handling limits)
Core Geometry: 7 continuous longitudinal voids (~37% void ratio)
Concrete Strength Classes: C35, C40, C45, C50 (selected per span/-load)
Prestressing Strands: 5–10 high-tensile wires per slab, fpk = 1,860 MPa

1. Geometry & Dimensions

Property	15 cm Slab	20 cm Slab	25 cm Slab
Nominal Thickness (h)	150 mm	200 mm	250 mm
Standard Width (b)	1,200 mm	1,200 mm	1,200 mm
Length (L)	Up to 12–16 m	Up to 14–18 m	Up to 16–20 m
Voids	7 continuous, elliptical	7 continuous, elliptical	7 continuous, elliptical
Void Ratio	~37%	~37%	~37%
Net Cross-Section Area	≈ 0.095 m²	≈ 0.127 m²	≈ 0.159 m²

2. Material Properties

Concrete (per EN 206 or equivalent):
- Available strength classes: C35/45, C40/50, C45/55, C50/60
- Characteristic cylinder strengths fck = 35, 40, 45, 50 MPa
- Density: 2,400 kg/m³ (normal-weight)

Prestressing Strands:
- 7-wire low-relaxation strands; fpk = 1,860 MPa
- Strand diameter: 9.3–12.7 mm
- Initial prestress: 70–75% fpk (≈1,300–1,400 MPa)

3. Structural Performance (Indicative)

Parameter	15 cm	20 cm	25 cm
Typical Span (Residential)	5–6 m	7–8 m	9–10 m
Typical Span (Heavy Load)	4.5–5 m	6.5–7 m	8.5–9 m
Self-Weight (kN/m²)	~2.7	~3.6	~4.5
Fire Resistance	REI 90 (1.5 h)	REI 120 (2 h)	REI 180 (3 h)

4. Concrete Grade Selection Guide

Use Case	Live Load (kN/m²)	Span (m)	Recommended Grade	Notes
Residential / Offices	2.0–3.0	≤6 (15cm)/ ≤8 (20cm)	C35 or C40	Standard indoor exposure
Commercial / Parking	3.0–5.0	6–9	C40 or C45	Higher shear & vibration
Industrial / Long Span	5.0–7.5	8–10 (25cm)	C45 or C50	Max stiffness & durability
Coastal Exposure	Varies	Any	C40–C50	MarineShield™ epoxy strand option

5. Prestressing Details

- Number of strands: 5–10 per slab depending on span/load
- Symmetric layout in lower third; pretensioned & bonded
- Losses considered: elastic shortening, relaxation, shrinkage, creep

6. Production & Quality Control

- Extrusion on 120 m steel beds; accelerated steam curing (24h)
- Tolerances (EN 1168): h ±3 mm; b ±5 mm; L ±10 mm; camber ≤ L/500
- Routine tests: concrete cubes, strand certs, sample load tests, dimensional check

7. Applications

- Residential Villas & Townhouses
- Commercial Buildings & Offices
- Schools & Institutions
- Apartment Blocks
- Warehouses, Hospitals, Hotels

8. Structural Performance – With and Without Topping

This section compares indicative allowable spans for hollow core slabs (15, 20, 25 cm) with no topping and with composite topping layers of 40 mm, 50 mm, and 60 mm thickness. Topping acts compositely when shear transfer and reinforcement are properly detailed.

Assumptions

- **Concrete density:** 24 kN/m³; topping self-weight = 0.96 kN/m² (40 mm), 1.20 kN/m² (50 mm), 1.44 kN/m² (60 mm).
- **Live load categories checked:** 2, 3, 5 kN/m².
- **Span increases are indicative:** +10% (40 mm), +14% (50 mm), +18% (60 mm) relative to 'no topping'.
- Composite action requires roughened top surface, shear key grouting, and reinforcement mesh.

No Topping

Slab Thickness	LL 2 kN/m²	LL 3 kN/m²	LL 5 kN/m²
15 cm	6.00 m	5.20 m	4.50 m
20 cm	8.00 m	7.00 m	6.20 m
25 cm	10.00 m	9.00 m	8.00 m

Baseline spans; lightest self-weight.

40 mm Topping

Slab Thickness	LL 2 kN/m²	LL 3 kN/m²	LL 5 kN/m²
15 cm	6.60 m	5.72 m	4.95 m
20 cm	8.80 m	7.70 m	6.82 m
25 cm	11.00 m	9.90 m	8.80 m

Approx. +10% span benefit; includes +0.96 kN/m² self-weight.

50 mm Topping

Slab Thickness	LL 2 kN/m²	LL 3 kN/m²	LL 5 kN/m²
15 cm	6.84 m	5.93 m	5.13 m
20 cm	9.12 m	7.98 m	7.07 m
25 cm	11.40 m	10.26 m	9.12 m

Approx. +14% span benefit; includes +1.20 kN/m² self-weight.

50 mm Topping

Slab Thickness	LL 2 kN/m²	LL 3 kN/m²	LL 5 kN/m²
15 cm	7.08 m	6.14 m	5.31 m
20 cm	9.44 m	8.26 m	7.32 m
25 cm	11.80 m	10.62 m	9.44 m

Approx. +18% span benefit; includes +1.44 kN/m² self-weight.

Notes

- Topping improves diaphragm action, vibration response, serviceability (deflection/crack control), and fire ratings.
- For seismic diaphragms, provide continuous reinforcement and edge collectors per local code.
- Values are indicative only; final design must be checked against project-specific loads and codes.

WEB™
HOUSEING

CONTACT US

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