

— PREFAB & MODULAR BUILDING SYSTEMS

Prefab Construction Technology & Material Selection Catalogue

A specifier's guide for architects and modular-home designers — compare prefab technologies, select the right construction materials, and build to a guaranteed 30+ year service life.

HIGH-STRENGTH STEEL FRAME

CEMENT & MgO BOARDS

R10 INSULATION

01 – HOW TO USE THIS CATALOGUE

From comparison to specification, in nine steps.

This catalogue helps architects and prefab designers move from **evaluating construction methods** to **selecting verified materials** for a complete building envelope. Each section compares the options on the metrics that matter – durability, thermal performance, weight, speed and cost – and converges on a recommended Wedge wall system engineered for a guaranteed service life of more than 30 years.

03	Why Prefab – Prefab vs. Conventional Masonry	p.03
04	Prefab Construction Technologies	p.04
05	Material Selection Matrix – Boards & Insulation	p.05
06	The Wedge Wall System – Anatomy	p.06
07	Performance & Structural Comparison	p.07
08	Budget Tiers & Indicative Cost	p.08
09	Recommended Specification	p.09
10	Benefits, Delivery Models & Contact	p.10
11	Product Directory & Specification Sheets	p.11–16

THE RECOMMENDED BASE SYSTEM

High-Strength Steel Frame + Wedge Cement Boards + MgO Boards, with R10 insulation.

30+
YEAR GUARANTEE

03 — WHY PREFAB

Prefab vs. Conventional Masonry

A side-by-side evaluation of insulated prefab construction against traditional brick-and-block on the criteria designers weigh most.

ASPECT	CONVENTIONAL MASONRY	PREFAB / MODULAR
Construction Time	Several months to over a year on-site.	Weeks to a few months — under 1 month for the shell.
Cost	Higher — labour, materials, extended programme.	Lower — reduced labour and faster build.
Energy Efficiency	Needs added insulation for high efficiency.	Engineered with insulation built in.
Durability	50–75 yrs; external walls 230–350 mm thick.	Matched life; walls only 120–150 mm with Wedge panels.
Environmental Impact	Higher — materials and long programme.	Lower — controlled factory build, less waste.
Resale Value	Holds value well over time.	Rising, as prefab acceptance grows.
Maintenance Cost	Regular upkeep of vulnerable materials.	Much lower — modern, stable materials.
Heat / Cold Insulation	Poor; extreme-climate HVAC cost is very high.	Pre-insulated — near-zero heating/cooling cost.

<1 mo
Shell construction time vs. 8–12 months in masonry.

90 kg/m²
Wall weight vs. 400–500 kg/m² for masonry.

>90%
Materials reusable — 100% recyclable system.

04 – CONSTRUCTION METHODS

Prefab Construction Technologies

Five established prefab methods, each suited to different programmes and sites. For permanent residential and modular homes, Steel Frame (SFS) is the recommended structural route.

01 Panelised / SIP

Flat wall, floor and roof panels made in-factory. Wedge SIPs use a CCXPS core between two WedgeMP1000 boards – excellent insulation and structural integrity.

02 Modular (Volumetric)

Whole room modules built in a factory and assembled on site. Concurrent site prep cuts time; factory QC ensures precision. Scales single-family to multi-storey.

03 Steel Frame (SFS)

RECOMMENDED

Light-gauge / high-strength steel as the primary structure. Resistant to termites, fire and seismic events; high strength-to-weight; fully recyclable. The base of the Wedge system.

04 Tiny House on Wheels

Compact mobile homes on a trailer chassis. Relocatable, low-cost and minimalist – popular for affordable and vacation dwellings.

05 Hybrid Construction

Combines methods – e.g. modular for the core with panelised walls and roof – to optimise time, cost and versatility on complex projects.

SPECIFIER NOTE

For permanent homes requiring a **30+ year guaranteed life**, pair Steel Frame (SFS) structure with Wedge Cement Boards and MgO boards as the envelope. Panelised SIP elements may be used for roof and floor where rapid closure is needed.

05 – MATERIAL SELECTION

Material Selection Matrix

Approved Wedge board and insulation products, mapped to where they perform best in a prefab envelope.

MATERIAL	ROLE	KEY PROPERTY	BEST FOR
WedgeClad Cement Board UV-coated, through-colour	External cladding	Waterproof, UV & wind resistant	Weather skin
Perlite-Magnesia / MgO Board WedgeMP1000-grade	External & internal board	High strength, fire & moisture resistant	Walls, ceilings, backer
HDRW 100 Insulation Perlite-coated stone wool	Cavity insulation	Thermal + acoustic, non-combustible	Wall / roof / floor
OSB700 Board Oriented strand board	Frame sheathing	Stiff, moisture-resistant, stable	Steel-frame covering
High-Strength Steel Frame LGFS C-sections, Zn-Al	Primary structure	High strength-to-weight, seismic	Whole skeleton

SELECTION LOGIC

Specify a **cement board** outer skin for weather and UV, a **MgO board** for fire-rated internal and structural faces, and **stone-wool insulation** in the cavity — all carried on a high-strength steel frame.

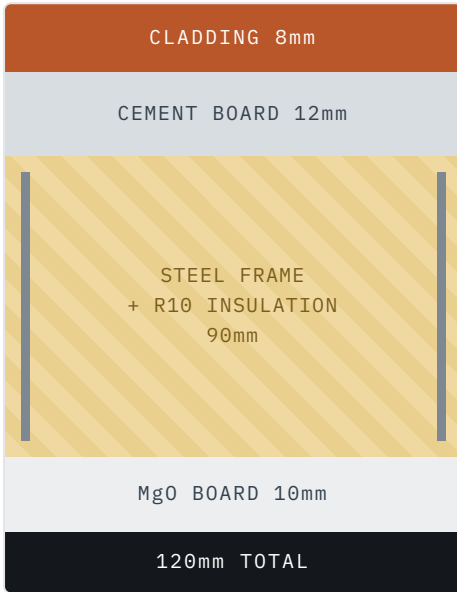
CERTIFICATION

Wedge boards are approved, factory-produced and carry CE certification to European standards — ready for code-compliant specification.

06 – SYSTEM ANATOMY

The Wedge Wall System

A high-strength steel frame clad in Wedge cement and MgO boards with an R10 insulated core – the complete external wall, outside to inside.



- 1 **Cladding – 8mm**
 Wedge UV-coated high-strength cement board.

- 2 **External board – 12mm**
 Waterproof Wedge perlite-magnesia (MgO) board.

- 3 **Frame cavity – 90mm**
 High-strength galvanized steel C-sections.

- 4 **Insulation – R10, 90mm**
 Wedge HD perlite stone wool, fills the cavity.

- 5 **Internal board – 10mm**
 Wedge MgO board, interior finish-ready.

120mm
Total wall thickness

R10
Insulation value

48–55 dB
Acoustic insulation

30+ yrs
Guaranteed life

07 — PERFORMANCE

Performance & Structural Comparison

Wedge steel-framed insulated walls vs. masonry, across the structural and physical criteria that govern code compliance and comfort.

CRITERIA	MASONRY WALL	WEDGE STEEL WALL
Overall Strength	Strong in compression	Strong frame performance
Flexibility / Ductility	Very low — brittle	High — steel + boards
Seismic Suitability	Poor	Excellent
Insulation	Poor	Excellent — built-in R10
Construction Time	8–12 months	< 1 month
Weight per m²	~400–500+ kg	~90–120 kg

PERFORMANCE CHARACTERISTICS

<p>R10</p> <p>Insulation value, ~0.03–0.04 W/m·K</p>	<p>Very High</p> <p>Fire resistance — non-combustible boards</p>	<p>48–55 dB</p> <p>Acoustic insulation rating</p>
<p>Excellent</p> <p>Seismic & lateral performance</p>	<p>Waterproof</p> <p>Moisture & mould resistant envelope</p>	<p>30+ yrs</p> <p>Guaranteed service life</p>

08 - COST

Budget Tiers & Indicative Cost

Three specification tiers for a 1,100 SQF prefab home. Material choices scale with budget; the steel-frame + board envelope is common to all.

<p>TIER 01</p> <p>Low Budget</p> <p>8.5–9.5</p> <p>Lakh INR · 1,100 SQF</p>	<p>TIER 02</p> <p>Affordable</p> <p>12.5–14.5</p> <p>Lakh INR · 1,100 SQF</p>	<p>TIER 03</p> <p>Luxury</p> <p>28.5–45.5</p> <p>Lakh INR · 1,100 SQF</p>
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CATEGORY	LOW BUDGET	AFFORDABLE	LUXURY
Frame	MS steel frame	Steel frame system	LGFS / steel-wood hybrid
Wall	Steel / cement board	MP1000 / UV cement board	MP1000 XPS composite
Roof	Steel roofing sheet	PIR sandwich / MP1000	MP1000 XPS composite
Flooring	Vinyl / ceramic tile	Vitrified / laminate	Granite / SPC / hardwood
Windows	Aluminium	UPVC	Double-glazed

₹850–1280 / SQF Affordable-luxury build rate — inclusive of a high-strength, maintenance-free envelope with a guaranteed life beyond 30 years and near-zero ongoing HVAC cost.

09 — THE RECOMMENDATION

Recommended Specification for Prefab Homes

For a durable, energy-efficient prefab house with a guaranteed life beyond 30 years, specify the Wedge base system below.

STRUCTURE

High-Strength Steel Frame

Galvanized LGFS skeleton — seismic, termite & fire resistant, high strength-to-weight, fully recyclable.

EXTERNAL SKIN

Wedge Cement Boards

UV-coated, waterproof, through-colour cladding — the weather and wind-load skin.

STRUCTURAL BOARD

MgO Boards

Perlite-magnesia boards for fire-rated, moisture-resistant internal & external faces, finish-ready.

CORE

R10 Insulation

HD perlite stone wool filling the 90mm cavity — thermal + acoustic, non-combustible.

THE GUARANTEE

A prefab house built to last — more than 30 years of guaranteed, maintenance-free service life.

30+
YEARS

120MM WALL

< 1 MONTH BUILD

SEISMIC EXCELLENT

100% RECYCLABLE

CE CERTIFIED

10 – BENEFITS & DELIVERY

Why specify Wedge

Green & sustainable

100% recyclable, low-waste factory build.

Cost effective

Lower direct, indirect & transport costs.

Rapid installation

Shell erected in under a month, no crane.

High strength & durable

Waterproof, maintenance-free envelope.

Seismic resistant

Ductile steel frame, excellent in quakes.

Reduced wastage

>90% of materials can be re-used.

DELIVERY & CONTRACT MODELS

EPC

Engineering, Procurement & Construction — full turnkey design to handover.

BRT

Build, Rent, Transfer — financed build, rental period, then ownership transfer.

BRM

Build, Rent, Maintain — build, rent and ongoing maintenance over the term.

SPECIFY WITH WEDGE

Build your prefab project to a 30-year standard.

sales@wedge-india.com

www.wedge-india.com



PART TWO

Product Directory & Specification Sheets

Specification data and product imagery for the full Wedge material range — from structural boards and steel framing to roofing, cladding, flooring, sanitary ware and electrical fittings. Drop your own product photographs into each image field.

BOARDS

STEEL FRAME

INSULATION

ROOFING

CLADDING

FLOORING & TILES

DOORS & WINDOWS

SANITARY & BATH

ELECTRICAL

12 – STRUCTURAL BOARDS & FRAME



SP-01 · PERLITE-MAGNESIA BOARD

Wedge MP1000 Board

COMPOSITION

High-density perlite aggregates · high-purity calcined magnesite · glass-ceramic fibers · XPS / perlite insulation core.

PROPERTIES

High impact & bending strength · water & moisture resistant · fire resistant · thermal + acoustic insulation · mould resistant.

APPLICATIONS

Wall boards & sandwich panels, steel-frame covering, partitions & ceilings, tile backer & flooring, roofing cover.



SP-02 · STEEL FRAMING SYSTEM (SFS)

High-Strength Steel Frame

SPECIFICATION

Galvanized (Zn-Al) light-gauge steel C-sections · 90mm studs, tracks & channels · factory-cut to precision.

BENEFITS

High strength-to-weight · termite & rot proof · non-combustible · seismic ductility · 100% recyclable.

~90-120 kg/m²

SEISMIC: EXCELLENT

30+ YR LIFE

13 – CLADDING & INSULATION



SP-03 · UV-COATED CEMENT BOARD

WedgeCEM / WedgeClad

COMPOSITION

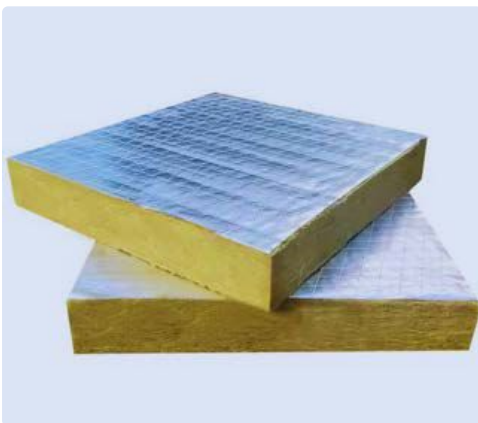
Portland cement reinforced with fiberglass / cellulose · through-colour pigments integrated full-thickness.

PROPERTIES

Waterproof · UV-proof · wind-load resistant · thermal insulation · pre-finished, low maintenance.

APPLICATIONS

Ventilated exterior cladding system, weather skin, external wall leak & climate protection.



SP-04 · PERLITE-COATED STONE WOOL

Wedge HDRW 100 Insulation

SPECIFICATION

High-density mineral / stone wool with perlite coating · aluminium-foil or E-glass cloth faced · R10, ~0.03–0.04 W/m·K.

PROPERTIES

Non-combustible · water-repellent · mould & mildew resistant · protects steel from corrosion under insulation.

APPLICATIONS

Wall, roof, partition & floor insulation for prefab houses — ideal for humid or remote, low-maintenance sites.

14 – SHEATHING & CEILINGS



SP-05 · ORIENTED STRAND BOARD

Wedge OSB700

SPECIFICATION

Cross-oriented wood strands in layers · water-resistant adhesive bond · slip-resistant textured face.

PROPERTIES

High stiffness & nail holding · small expansion coefficient · moisture resistant · dimensionally stable.

APPLICATIONS

Light steel-frame sheathing / covering board, structural panels, floor & roof decking.



SP-06 · MgO / GYPSUM CEILING

Ceiling & Partition Boards

SPECIFICATION

MgO board, POP & gypsum ceiling systems · finish-ready surface for paint or texture.

PROPERTIES

Fire & moisture resistant · lightweight · acoustic damping · supports coffered & suspended designs.

APPLICATIONS

Interior ceilings, drop ceilings, partitions and dry-lining throughout the prefab interior.

15 – ROOFING & EXTERNAL CLADDING

Roof & facade products



Steel Roofing Sheet

Colour-coated profiled steel · corrosion resistant · lightweight.



Asphalt Roof Shingles

Weatherproof layered finish · multiple colours · long life.



External Cladding Planks

HPL / vinyl / wood / metal · ventilated facade system.



WedgeClad Cement Board

Through-colour UV-coated fiber cement · waterproof skin.



Rain Water Gutter

uPVC / metal eaves drainage · fittings & downpipes.



Roof Sandwich Panel

PIR / MP1000 composite · insulated single-pass roofing.

16 – FLOORING, TILES, DOORS & WINDOWS

Finishes & openings



SPC Floor Tiles

Stone-plastic composite · 100% waterproof · click-lock install.



Wall & Floor Tiles

Vitrified / porcelain / ceramic · multiple finishes.



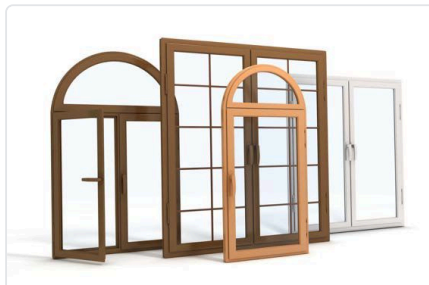
Laminate / Hardwood

Warm finish flooring for living & bedroom zones.



Doors

Pre-hung steel / wood / flush doors · factory finished.



Windows

UPVC / aluminium / double-glazed · pre-glazed units.



Modular Kitchen

Cabinets, counters & fittings · factory-built modules.

Wedge



THE WEDGE PREFAB STANDARD

Build to last. Build with Wedge.

High-strength steel frame, Wedge cement and MgO boards, and an R10 insulated core — one engineered envelope, delivered in weeks and guaranteed beyond 30 years.

HIGH-STRENGTH STEEL FRAME

CEMENT & MgO BOARDS

R10 INSULATION

CE CERTIFIED

30+

YEAR GUARANTEED LIFE

GET IN TOUCH

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