



# Construction Material Products from Jindal Steel & Power Limited



# JSPL Construction Materials



- ❑ Light Gauge Steel Structures LGS
- ❑ Schnell Buildings
- ❑ Jindal SPEEDFLOOR Suspended Concrete Flooring System
- ❑ Jindal Global Road Stabiliser A highly effective soil Stabiliser
- ❑ Jindal Precast Bricks and Pavers manufactured in a controlled environment on Countries largest automated Brick making plant.



# Light Gauge Steel Structures



# Light Gauge Steel Structures

- ❑ Light weight cold formed steel sections for speedy low rise building construction
- ❑ 70 mm to 300 mm thickness sections produced by automated roll forming lines
- ❑ Gauge thickness from 0.7-2.0 mm
- ❑ Manufactured by Jindal Steel & Power Limited at Pujipatra, Chhattisgarh

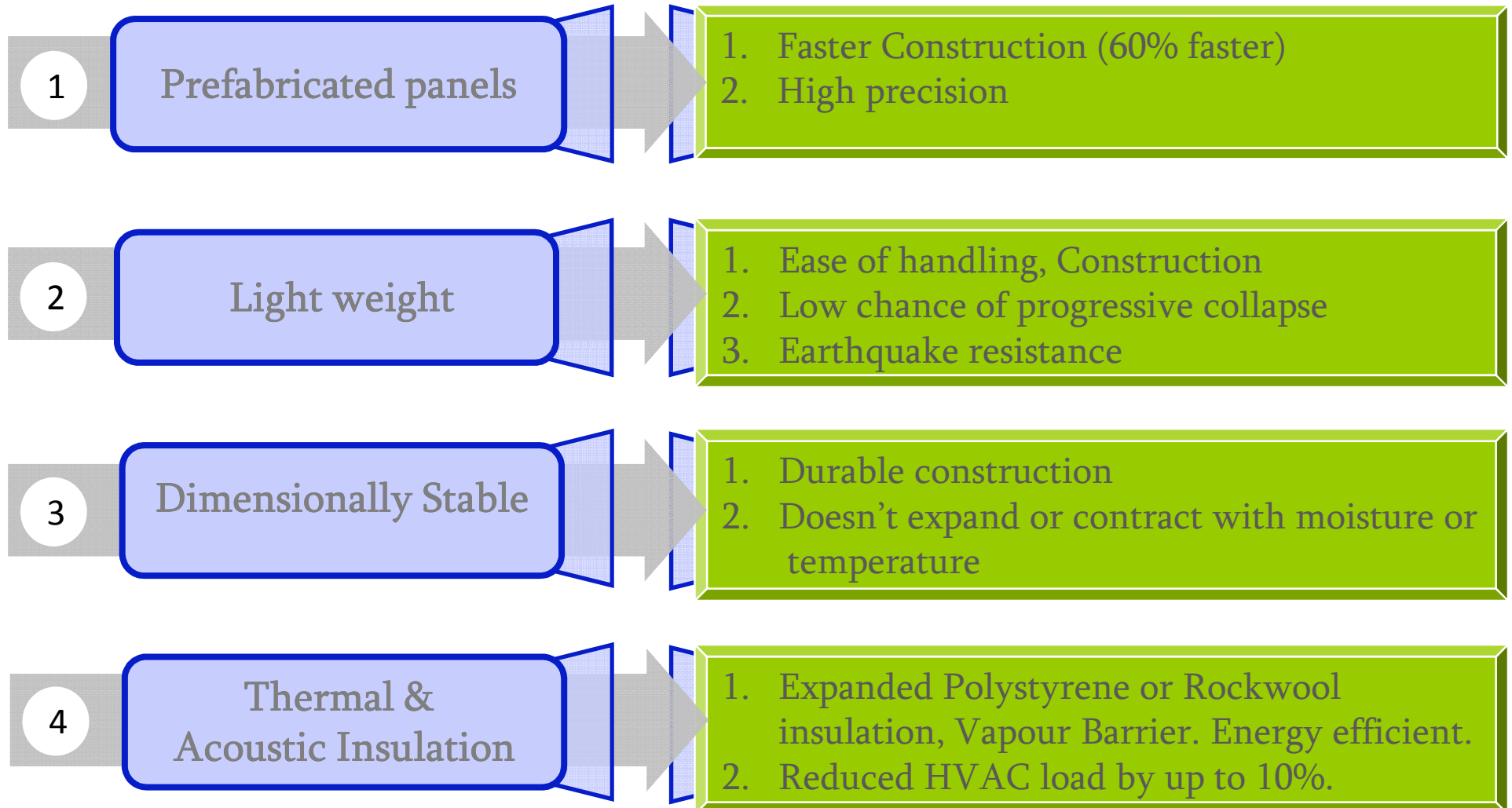


# LGS - Potential Applications

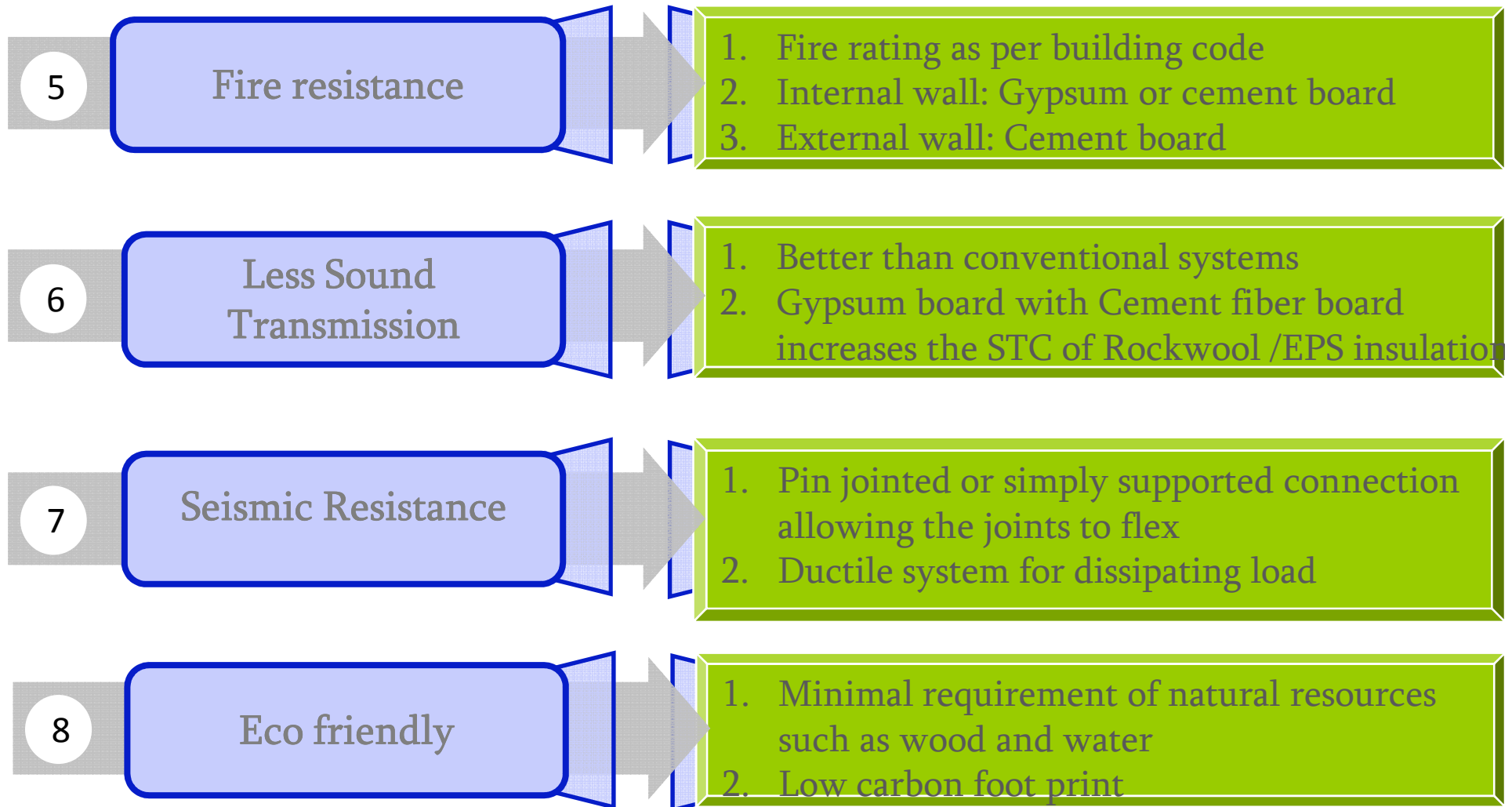
- Low Cost Houses
- Industrial townships and colonies
- Residential buildings
- Bus & Truck Terminals
- Project Office
- Restaurants
- Shopping Malls
- Commercial Buildings
- Staff Quarters/Hostel
- Hospitals & Schools



# LGS - Features



# LGS - Features



# Key Specifications

## EXTERNAL WALL

- Guniting - 1.5mmx50 mesh above 25mm EPS
- Cement Fiber board 10mm thick
- PPGL/PPGI sheets

## INTERNAL WALL

- 9 mm Cement Fiber Board
- 12.5 mm Gypsum Board
- 12.5 mm Gypsum board above 6mm CB
- Guniting -1.5mmx50 mesh above 25mm EPS
- Tiles Above Guniting

## FINISHING

- Sand Cement Plaster /Guniting
- Gypsum Based Plasters
- Gypsum Boards
- Cement Boards
- Dry Stone/Panels Cladding
- Texture Paints
- Laminations

- 70mm thick RCC above 0.7mm GI decking sheet
- Cement Fiber board of 18mm+10mm thickness

- 70mm thick RCC above 0.7mm GI decking sheet
- 0.45mm thick PPGI/PPGL Roof sheeting

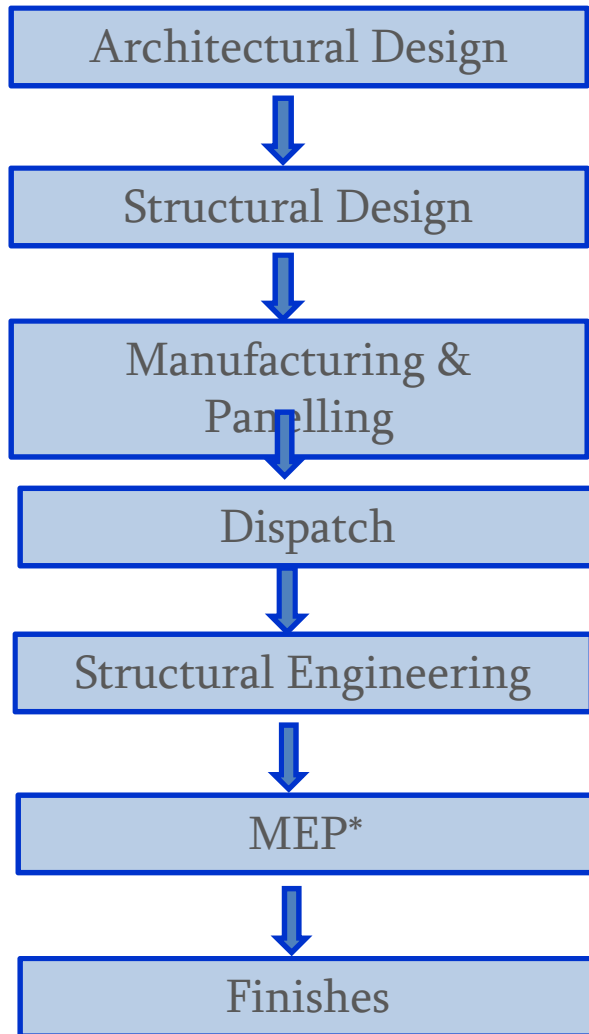
## FLOORING

## ROOFING

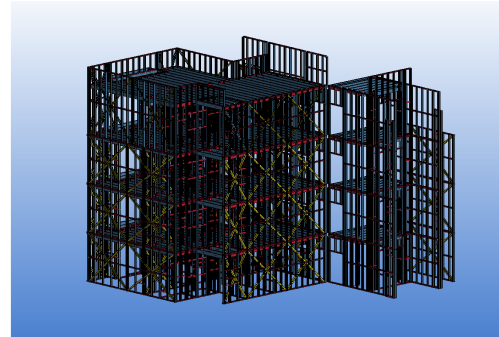
All Architectural Features like Coving, Boxes, Cantilever, Projections, Infill walls, Wall mounted cabinets, wash basins will be provided



# LGS building construction process



\*Mechanical Electrical Plumbing



# Manufacturing /Paneling & Dispatch



# LGS Erection\_Process



LGS Panel being erected



Installation of LGS panel



LGS Panel being erected



LGS Panel being erected

# Erection – Different Stages



# G+3 Buildings at Model Town, Raigarh, CH



# Staircase Area



# Designs Vetted by IIT Chennai



Room No. STR-403, Structural Engineering Laboratory  
Department of Civil Engineering  
Indian Institute of Technology – Madras  
Chennai 600 036. Tamil Nadu. INDIA  
Tel: 044 – 2257 4292; Fax: 044 – 2257 5286  
E-mail: aruls@iitm.ac.in

Dr. S.Arul Jayachandran  
Associate Professor

02/05/ 2012

To  
Mr.S V Rao, Executive Director,  
Structural Steel Division, Jindal Steel & Power Limited  
Raigarh – 496001 (C.G.  
T +91 7762 227001 M +91 8827477014 ;svrao@jspl.com

**Certificate of structural adequacy of the Standardized (G Type) G+3 residential flats using LGS at Punjipatra, Raigarh, CG by M/s JB Infra Pvt Ltd**

The task of proof checking the design of Standardized (G Type) G+3 residential flats using LGS at Punjipatra, Raigarh was referred to IITM.

The following documents were submitted to IITM- (i) the soil investigation report (ii) architectural drawings of the G+3 flats (iii) connection drawings (UBJ-SD-026 to UBJ-SD-026) and (iv) the detailed load and design calculation by Dr. Chunxu Jiang.

IIT Madras carried independent evaluation of loads and design of the LGS G+3 systems as per Indian Code IS:801(1975) and the British code BS:5950 – PS for design and the IS:875 and IS:1893 codes for loads. All the connection details were checked. Later a visit was made by IITM to the site at Punjipatra for an onsite evaluation of the construction. Based on the independent analysis and design carried out by IITM on the (G Type) G+3 residential flats using LGS at Punjipatra, Raigarh, and also based on the site visit, it is certified that the designs submitted by M/s Jindal Steel & Power Limited is structurally adequate and the G+3 LGS flat system is safe as far as the strength of stiffness requirements.

With warm regards

(S.Arul Jayachandran

Dr. S. ARUL JAYACHANDRAN  
Associate Professor  
Department of Civil Engineering  
Indian Institute of Technology Madras  
Chennai - 600 036, INDIA

# Other LGS Projects



Horse Stable and Member lounge  
Hyderabad. Three storey:18000Sft:



Hostel & Barrack for GMR Chamba  
Three storey:16000Sft:



Girls Hostel, OPJIT Pujipatra  
Extension of one floor :15500Sft:



Office Block, OPJCC Pujipatra  
Two storey:2500Sft:





# Projects



Site office for Brick plant, Raigarh  
1500Sft:



Guest house at Raipur  
Extension of one floor:4000 Sft



Technical Block at Raipur  
Extension of one floor 4500Sft:



# Projects



Residential Block for Staff, Parsada  
G+3 storied buildings 2,50,000Sft



Workers Dormitory at Parsada  
G+3 storied:33000Sft:

# Finishing Work (G-TYPE ,G+3)



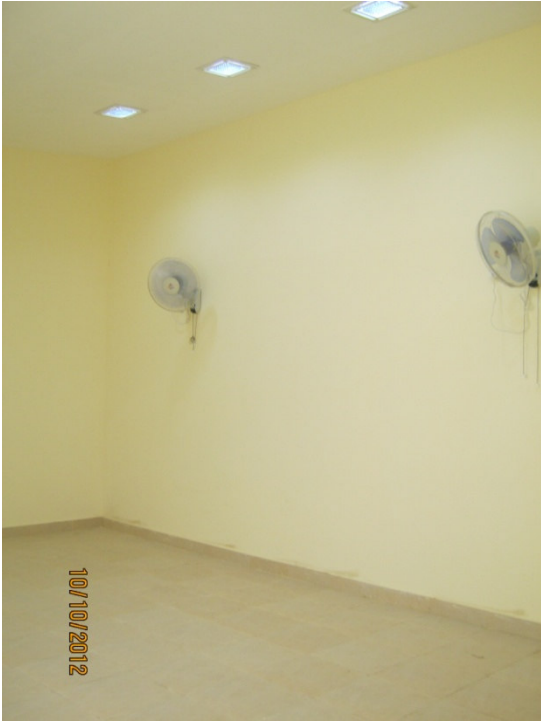
Kitchen



Bed Room  
&  
Balcony Door



# Project Office



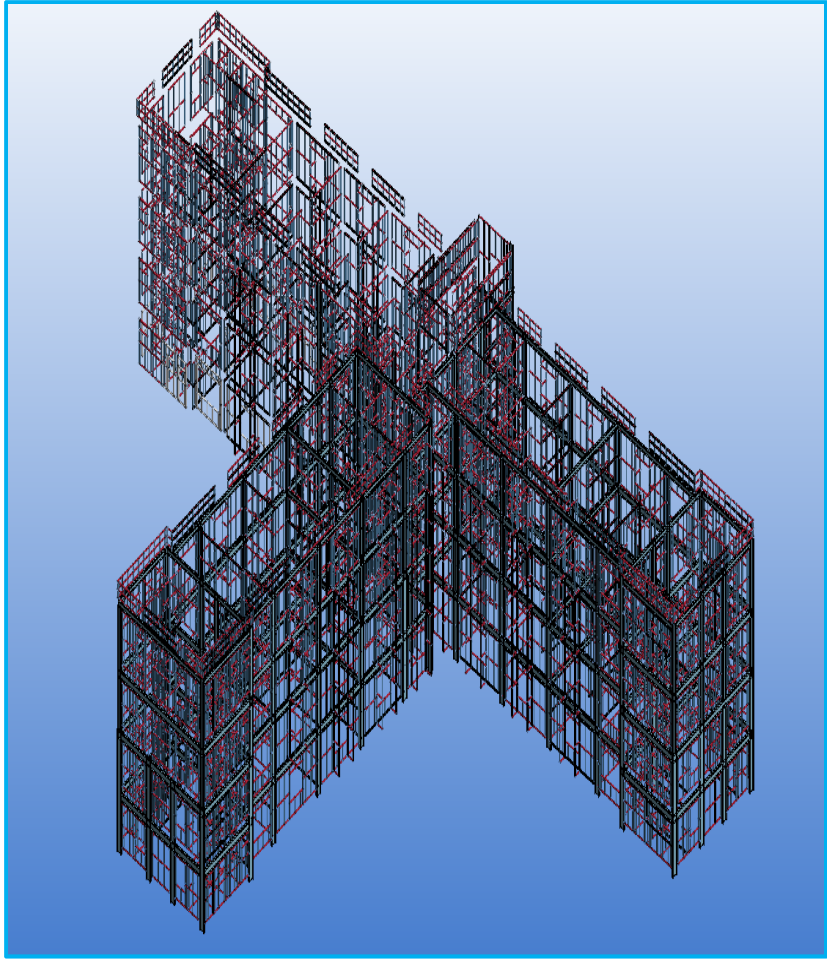
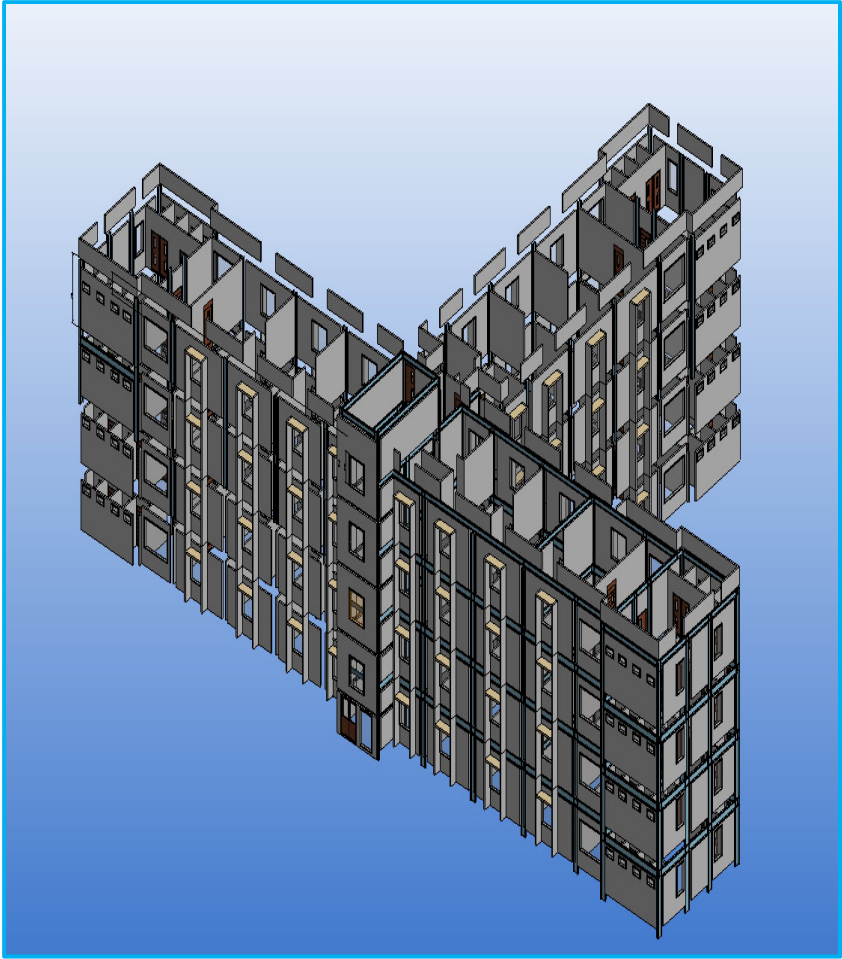
Interior Finish





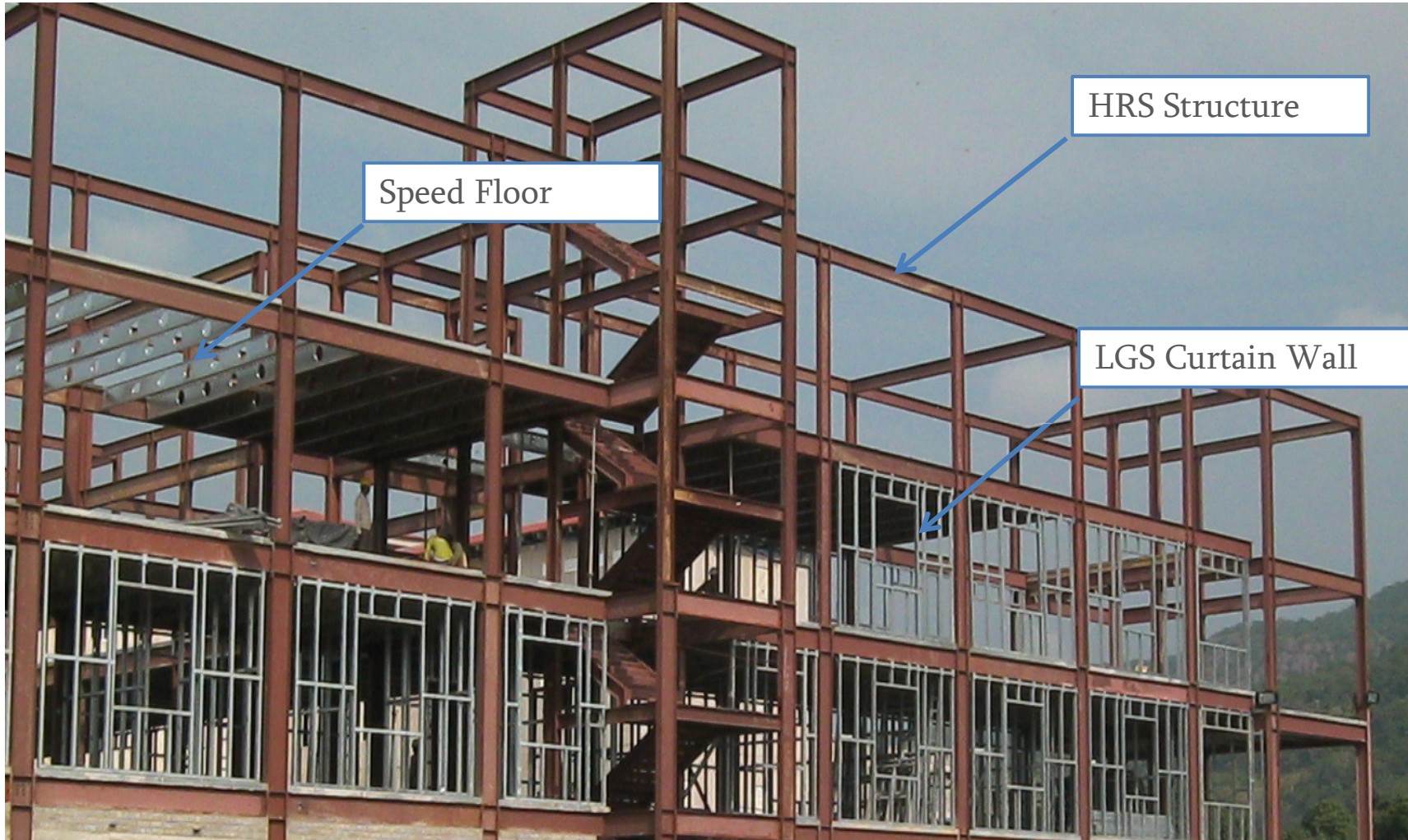
Interior Finish

# Dormitory Curtain Walls



Perspective & Framing view

# Dormitory building under construction



## Composite Construction with HRS, LGS and Speedfloor

# Dormitory building under construction



Interior view of under construction building



# Guest House, Raipur: Single Floor Extension



Area: 4000 sft

# Guest House, Raipur: Single Floor Extension



# Guest House, Raipur: Corridor Area



# Students Hostel, Raigarh





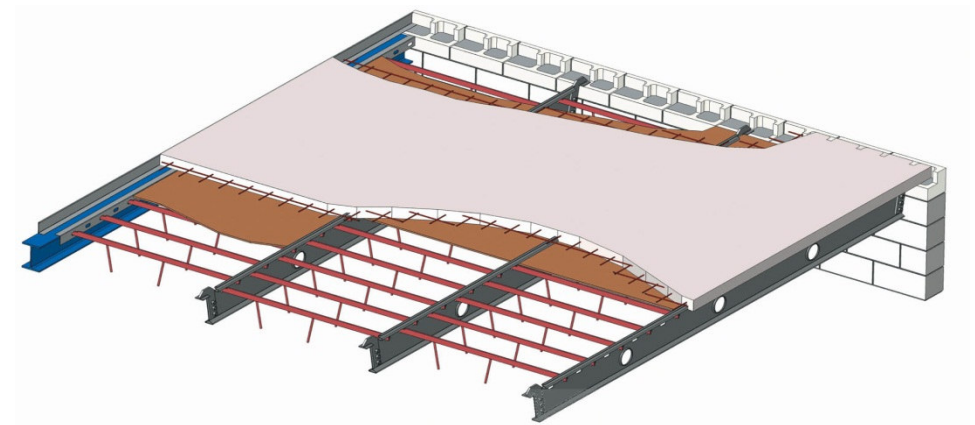
*JINDAL SPEEDFLOOR*



# *SPEEDFLOOR* System



- ❑ Is a unique and innovative suspended concrete flooring system.
- ❑ The system is “ Composite Roll-formed steel joist with an in-situ concrete topping”.
- ❑ It is Material efficient and cost effective concrete flooring.



## *SPEEDFLOOR* Joist



- ❑ At the heart of the system is a roll-formed, galvanised (Z275) high tensile (350MPa) steel joist 3mm thick.
- ❑ The joist is manufactured by roll-former in a single integrated operation.
- ❑ The joists are punched, pressed, pre-cambered and cut to length at a fast production rate.



## *SPEEDFLOOR* System



Average Production Speed	: 100 Mtr / Hour
Nominal Coil Width	: 400 mm to 600 mm
Gauge	: 3 mm
Steel Grade	: G350 Mpa
Machine Capacity	: 8000 MT / Year

or (1 Million Sq. Mtr / Year Floor Area)



## *SPEEDFLOOR* Potential End Uses



- General individual Houses
- Multi-storey residential blocks
- Single and multi-storey retail developments
- Mezzanine floors
- Car parks and storage buildings
- Multi-storey office complexes etc.

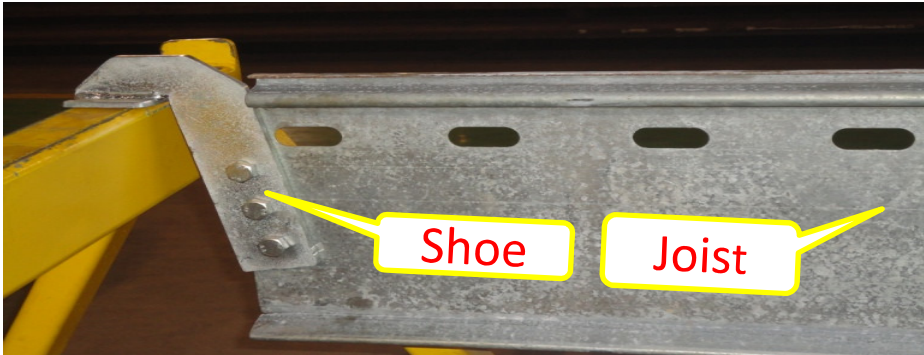
## *SPEEDFLOOR* Applications



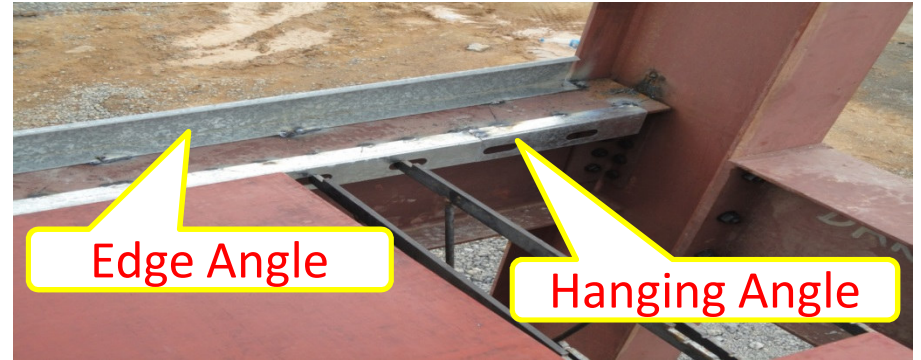
The Speed floor composite flooring system is suitable for use in all types of construction including :

- Steel frames structures
- RCC frame buildings
- Poured in-situ or precast concrete frames
- Light gauge steel frames
- Conventional Structural brick wall constructions etc

# SPEEDFLOOR components



**JOIST (Series 200, 250, 300, 350 and 400 mm)**



**Hanging Angle L40 X 75 X 1.8 mm,  
Edge Angle L40 X 90 X 1.6 mm**

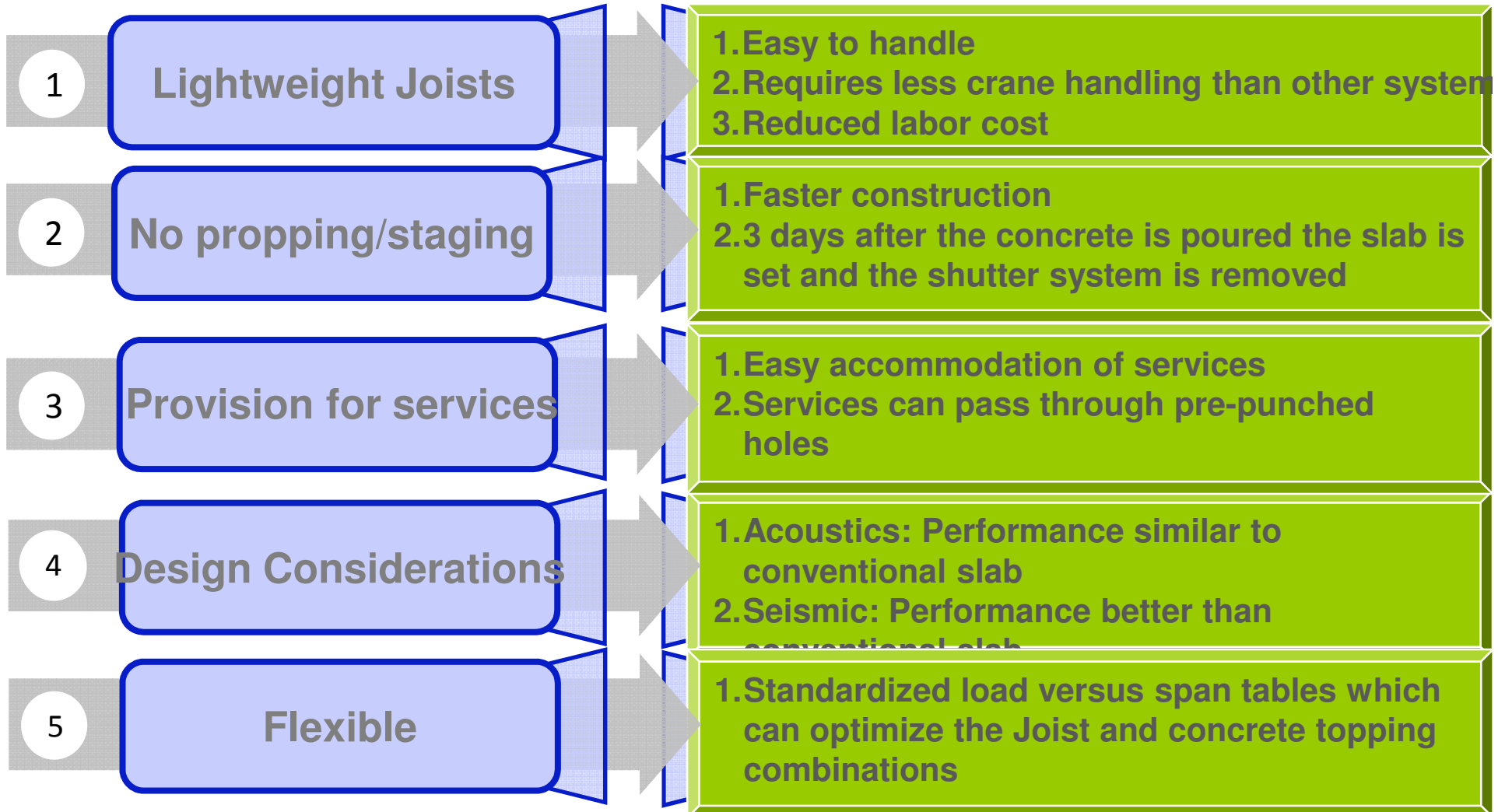


**Plywood 1.2 Meter X 2.4 Meter X 12 mm**



**Lock Bar 630 mm , 930 mm & 1230 mm**

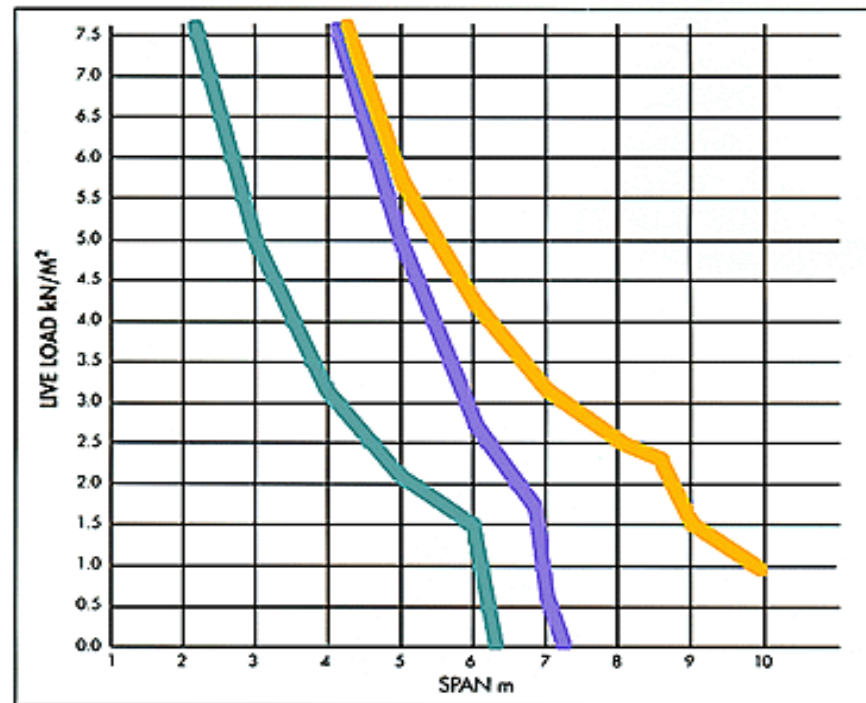
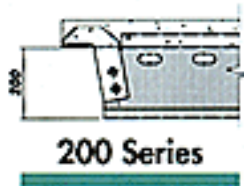
# SPEEDFLOOR features



# Load span designs

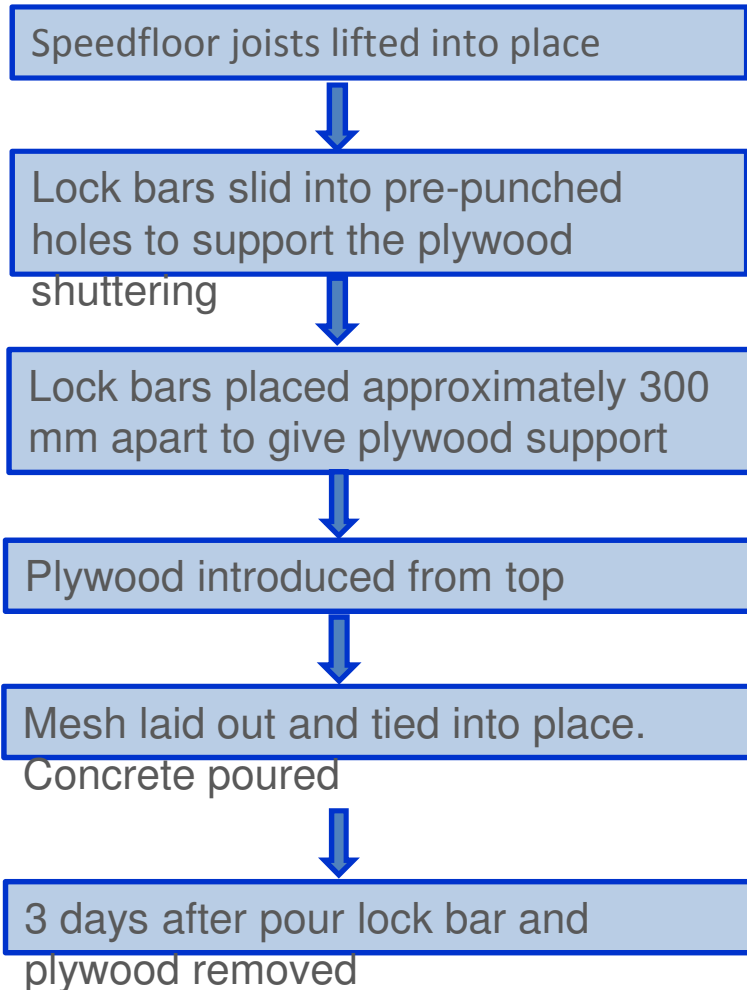


Load vs span tables are available that will optimize the Joist and concrete topping combinations.



Load span graph – 75mm topping

# SPEEDFLOOR installation process



# *SPEEDFLOOR* Manufacturing



Speedfloor manufacturing facility at Punjipatra, JSPL Raigarh

# *SPEEDFLOOR* Joist Stocking & Bundling





## *SPEEDFLOOR* dispatch

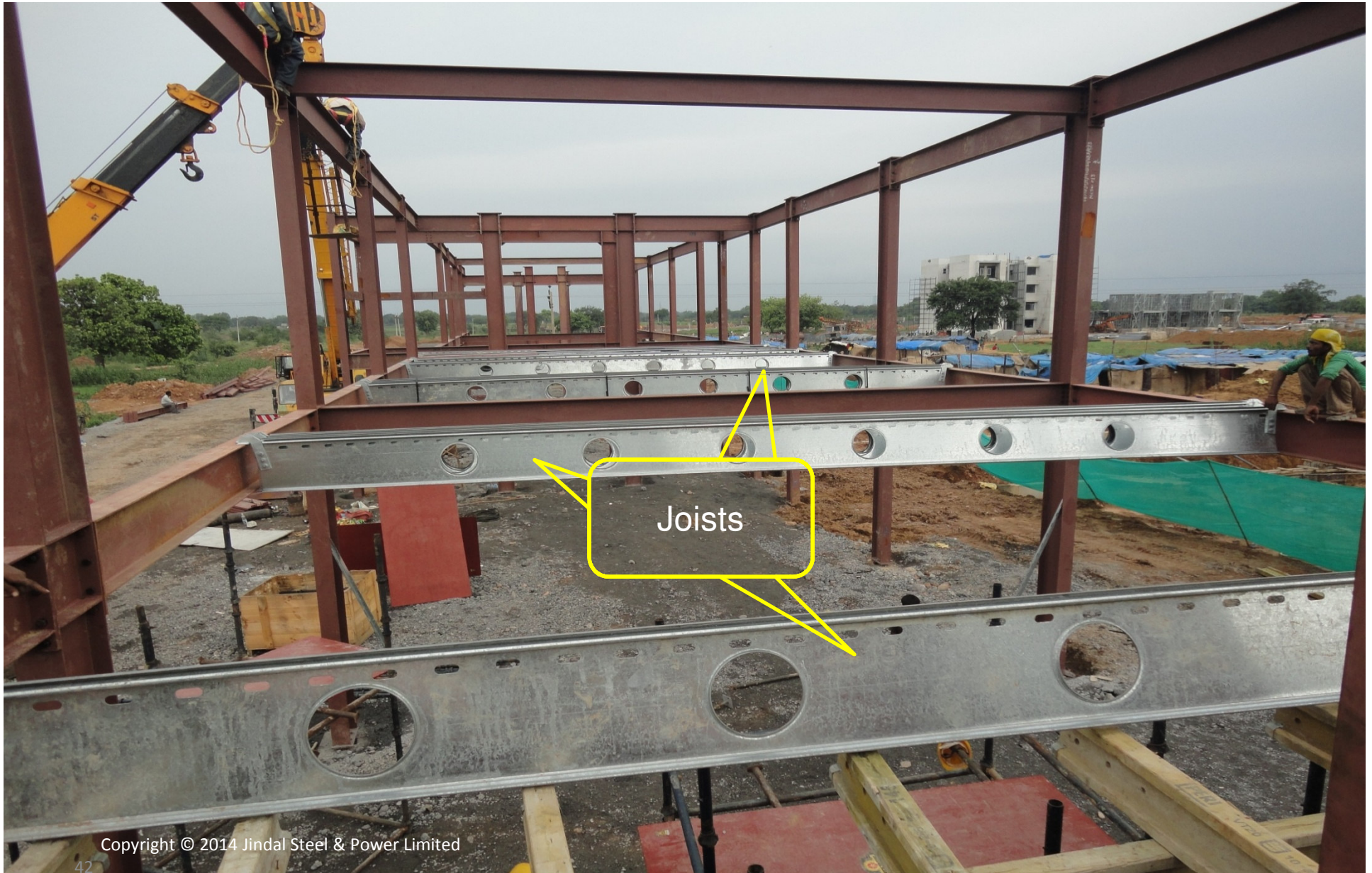


The shoes are simply bolted to the joists and ready to ship.

Joists can be palletized, containerised or loaded and transported directly to job site.



# *SPEEDFLOOR* Joists Placement



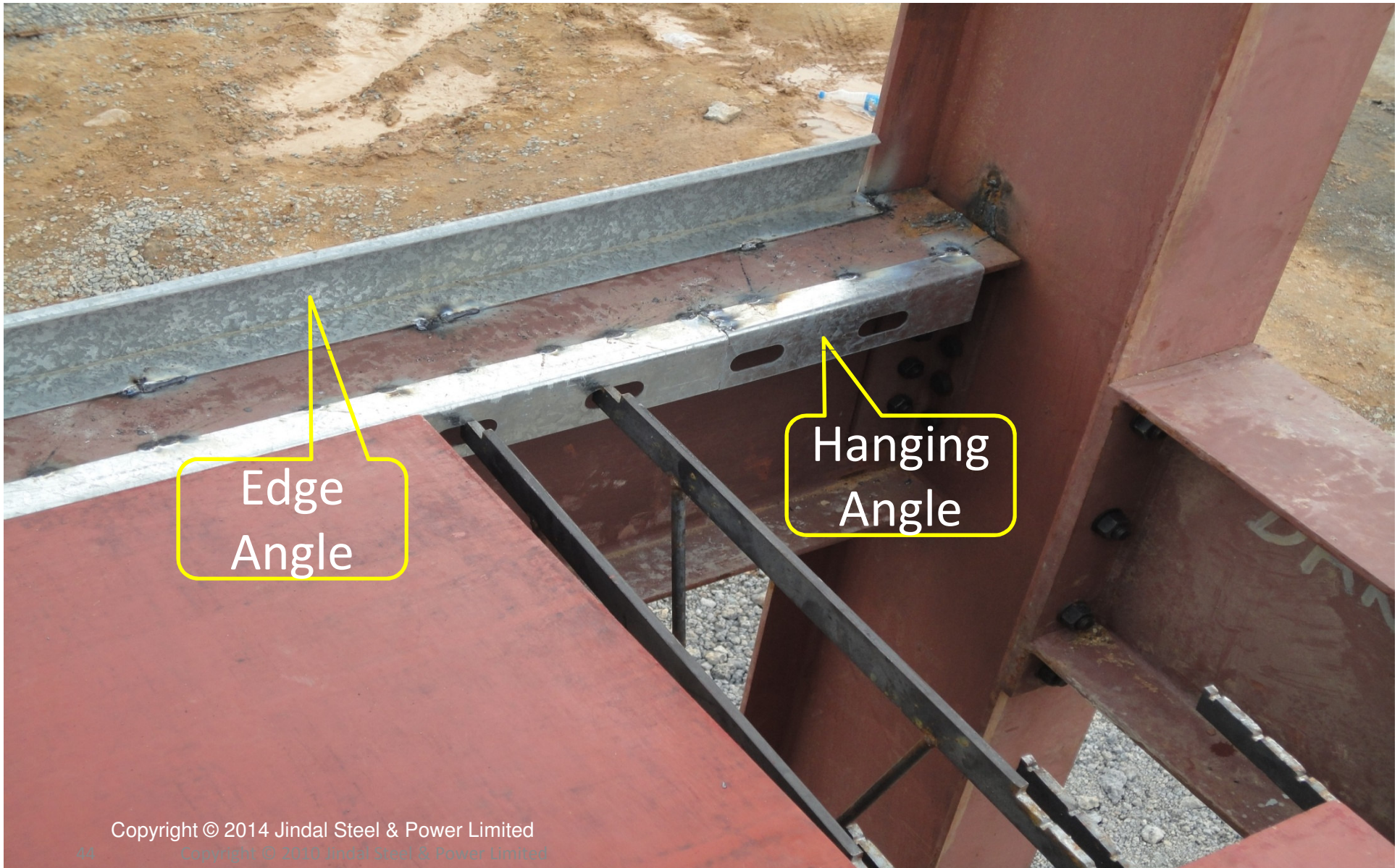
# *SPEEDFLOOR* Shoes & Lock-bars



Shoes

Lock bars

# *SPEEDFLOOR* Edge & Hanging Angle



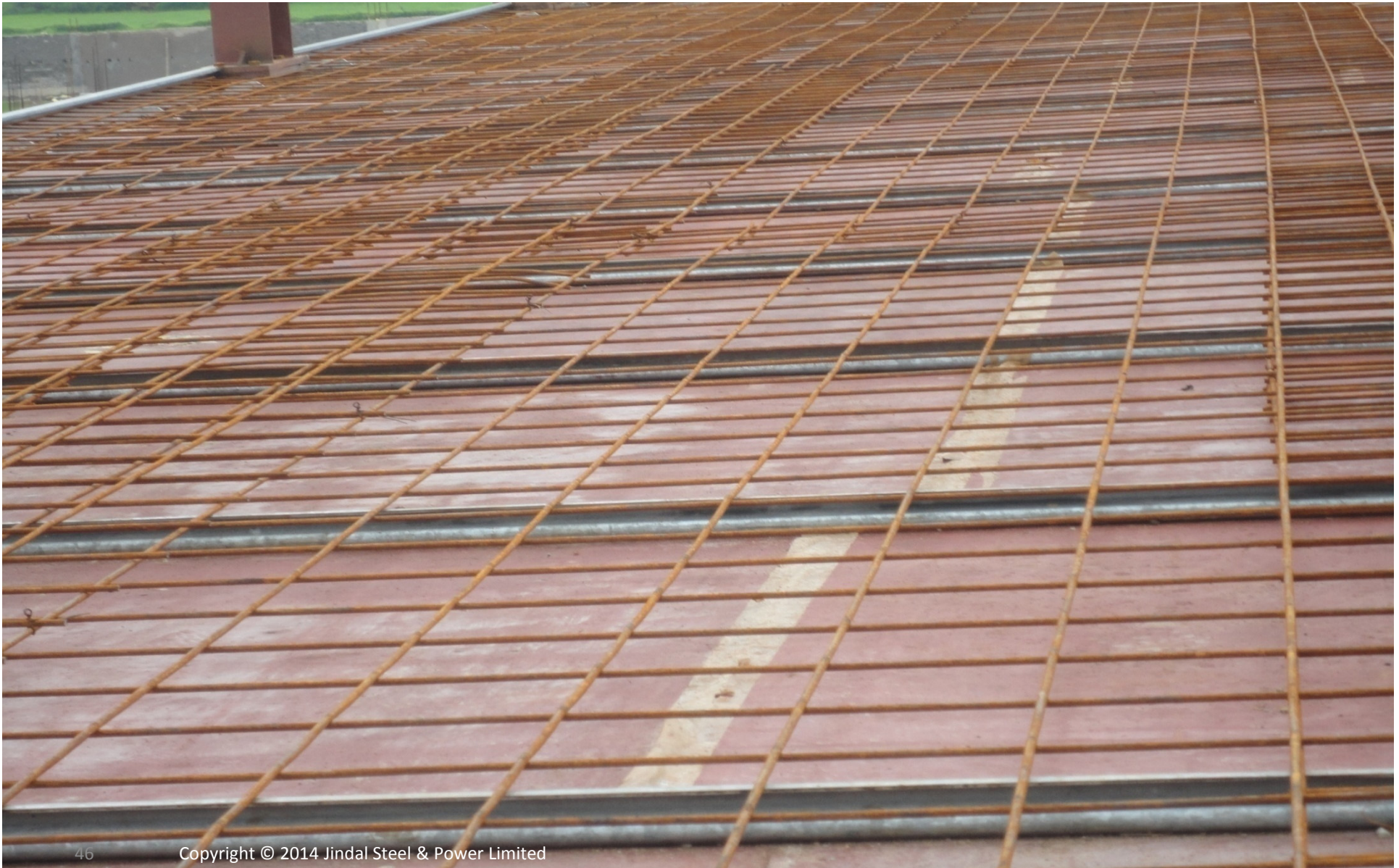
Edge  
Angle

Hanging  
Angle

# *SPEEDFLOOR* Plywood Shutter Placement



# Welded Reinforcement Mesh Placement



# *SPEEDFLOOR* Concrete Slab Casting

**JINDAL** ✓  
STEEL & POWER

**SPEEDFLOOR**

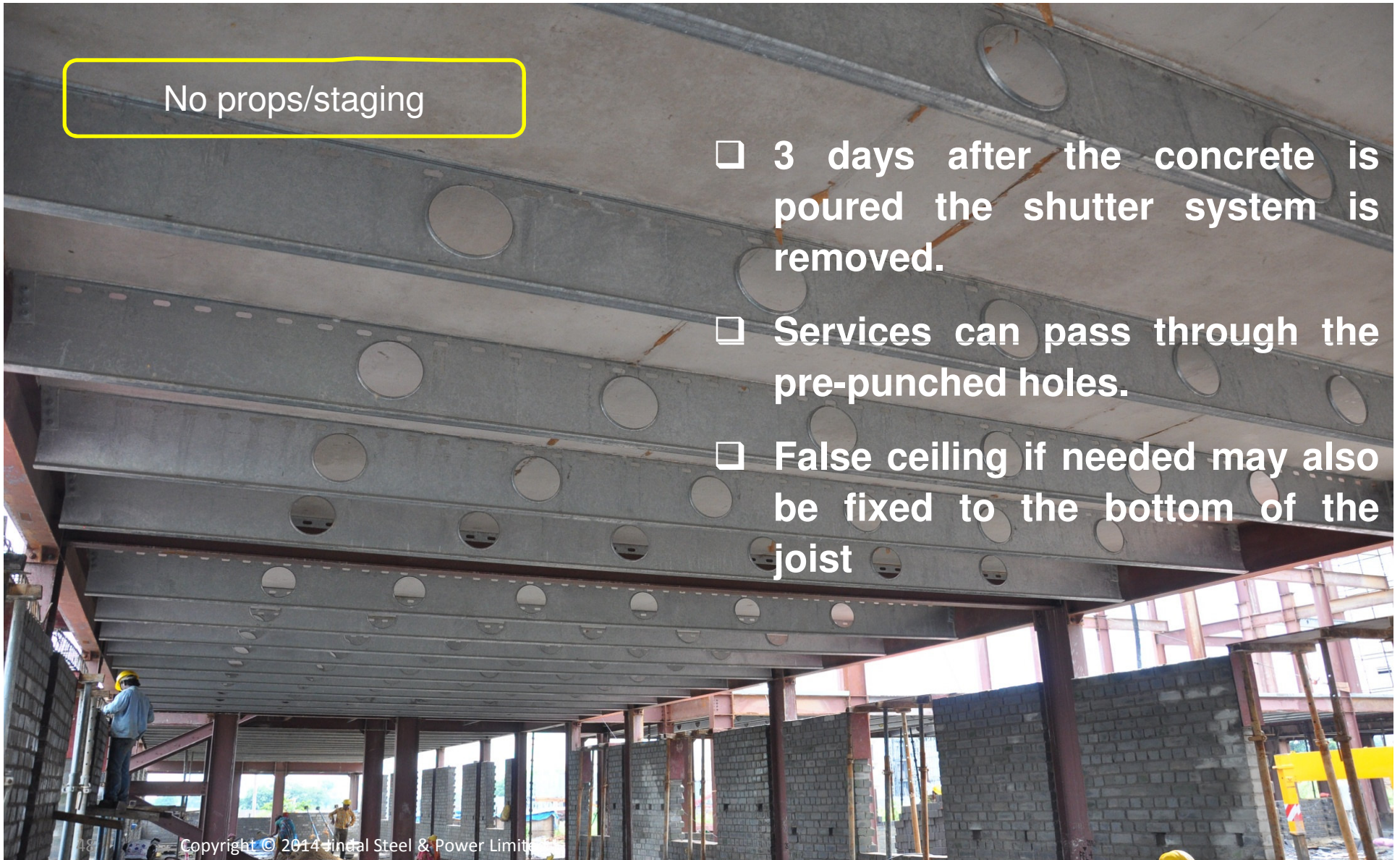


# *SPEEDFLOOR* Finished Slab



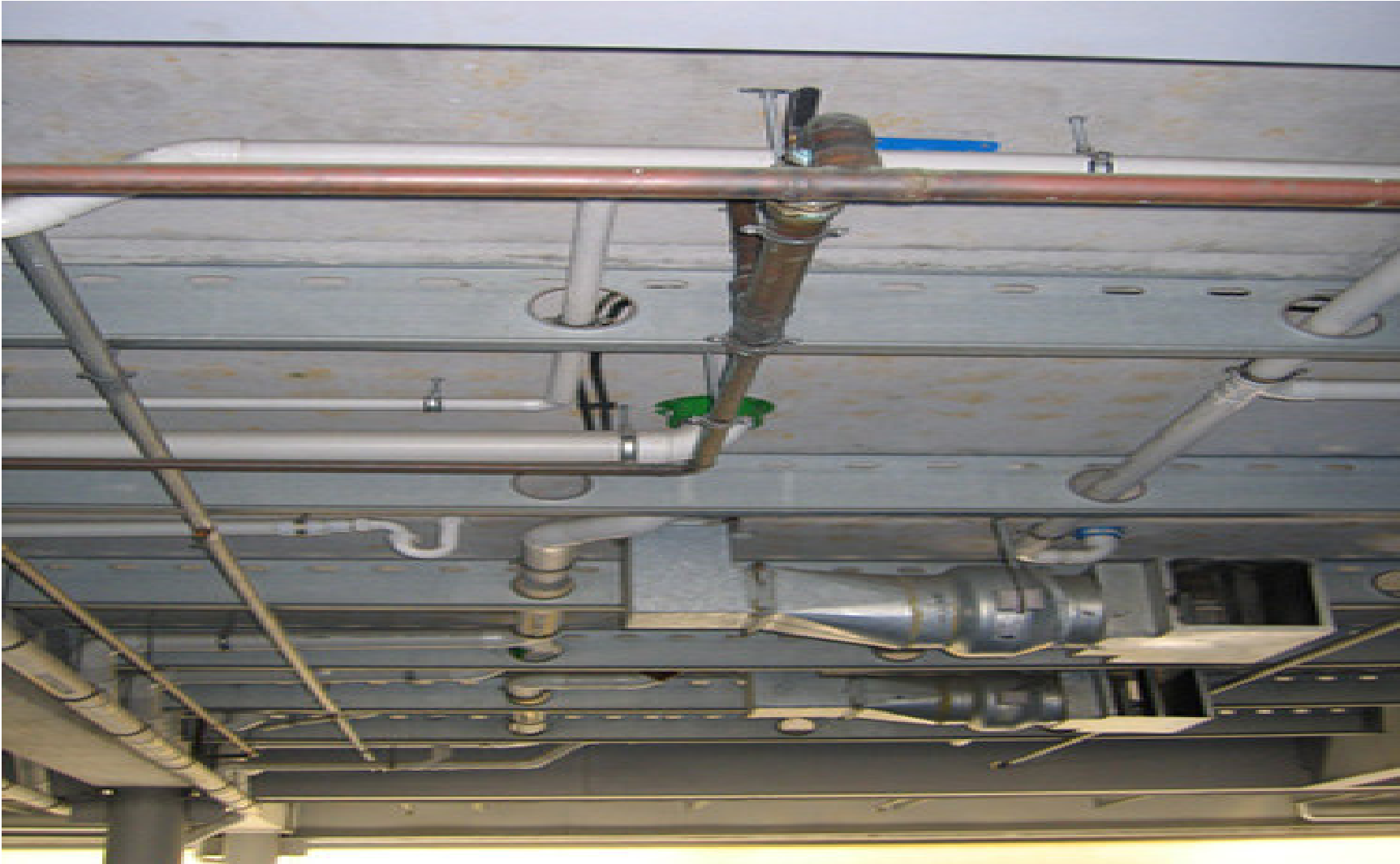
No props/staging

- 3 days after the concrete is poured the shutter system is removed.
- Services can pass through the pre-punched holes.
- False ceiling if needed may also be fixed to the bottom of the joist





# *SPEEDFLOOR* System in Services



## JSPL Projects with *SPEEDFLOOR*



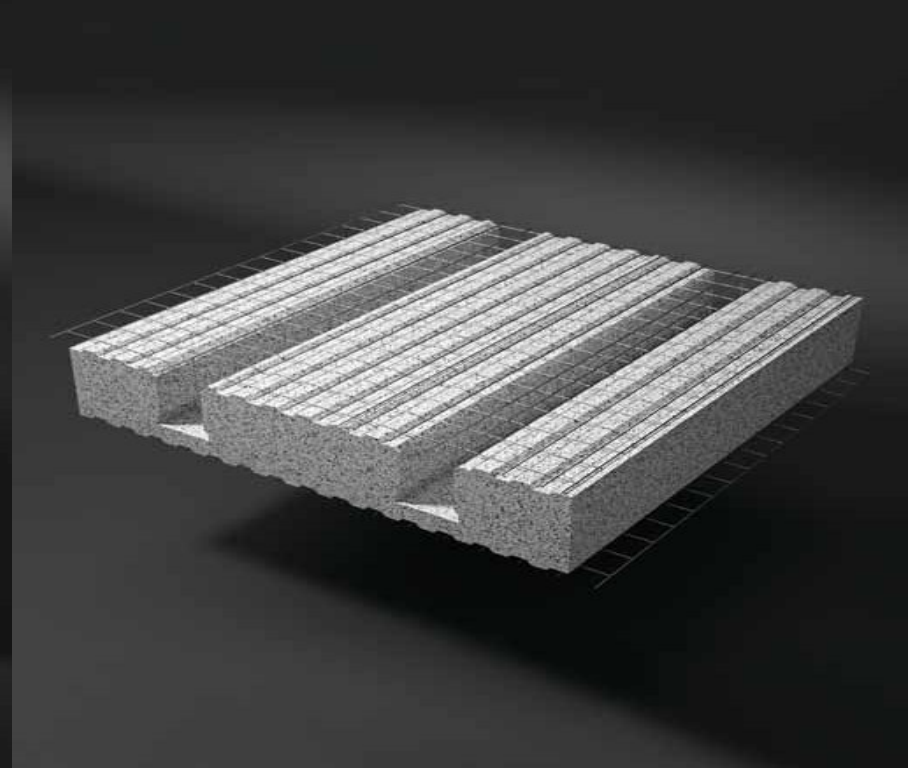
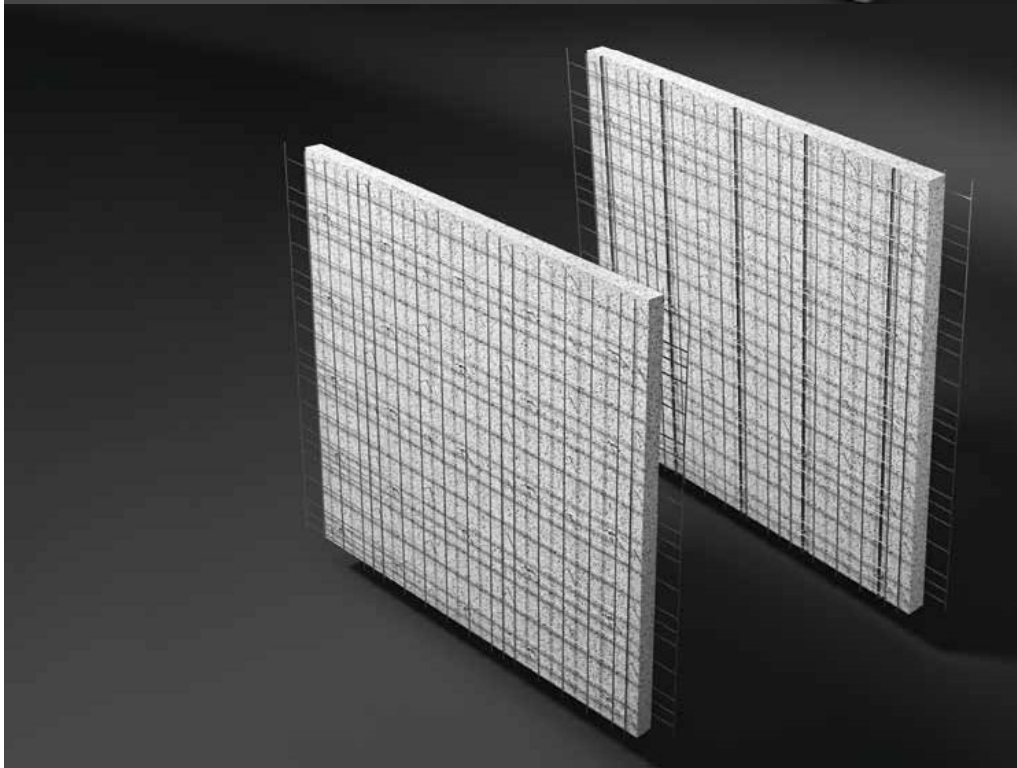
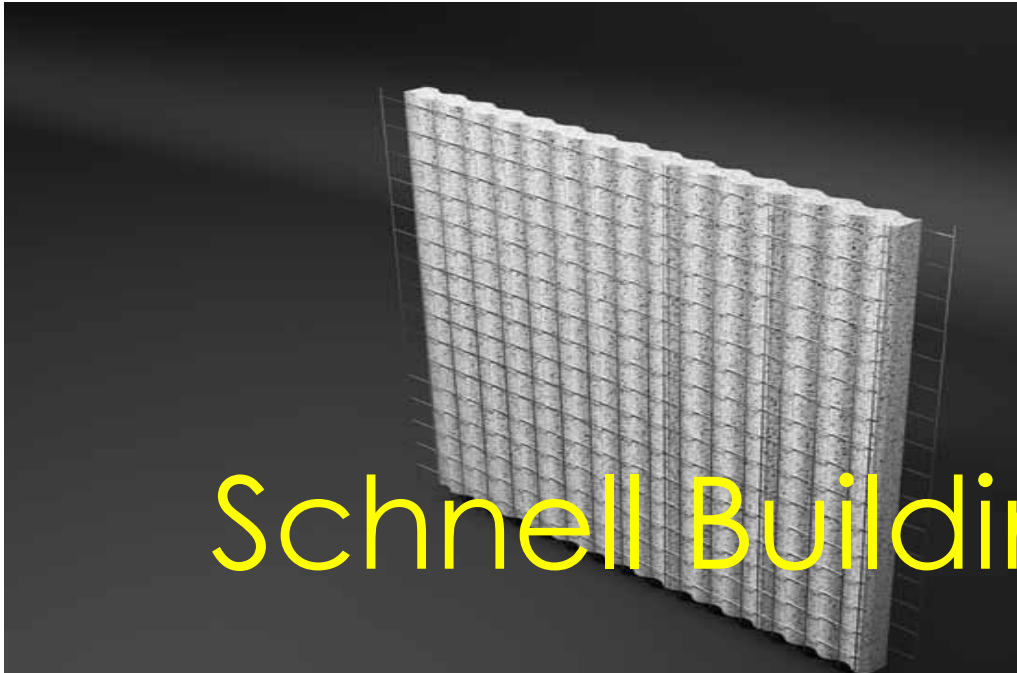
Projects Under Construction	Area (Sq Mts)	Status	Location
Parsada Dormitory (G+3)	4800	Under Progress	Raigarh (C.G)
JPL- Urja Nagar-G Type	267	Completed	JPL-Tamnar
JPL- Urja Nagar-D Type	801.4	Completed	JPL-Tamnar
Nalwa Lunch Room (RCC)	211.4	Completed	NSPL, Raigarh
OPJIT Boys Hostel (G+2)	1155	Completed	OPJIT-Engg. College
G+11 Housing (4 Blocks)	34100	In progress	Angul- Odisha
OPJCC College (G+1)	1873.4	In progress	Patratu-Jharkhand
DDD-type (G+3)	294.36	Completed	Angul- Odisha
EEE-Type (G+3)	286	Completed	Angul- Odisha
	<b>43789</b>		

## *SPEEDFLOOR* Projects underway



<b>Clients</b>	<b>location</b>
Global Health Pvt ltd, Medanta- The Medicity,	Gurgaon
Automotive Show Room	Cochin
PGCL, Manesar	Manesar ,Haryana
G.D Goenka University	Sohna, Haryana
Sree City,	Chennai

# Schnell Buildings

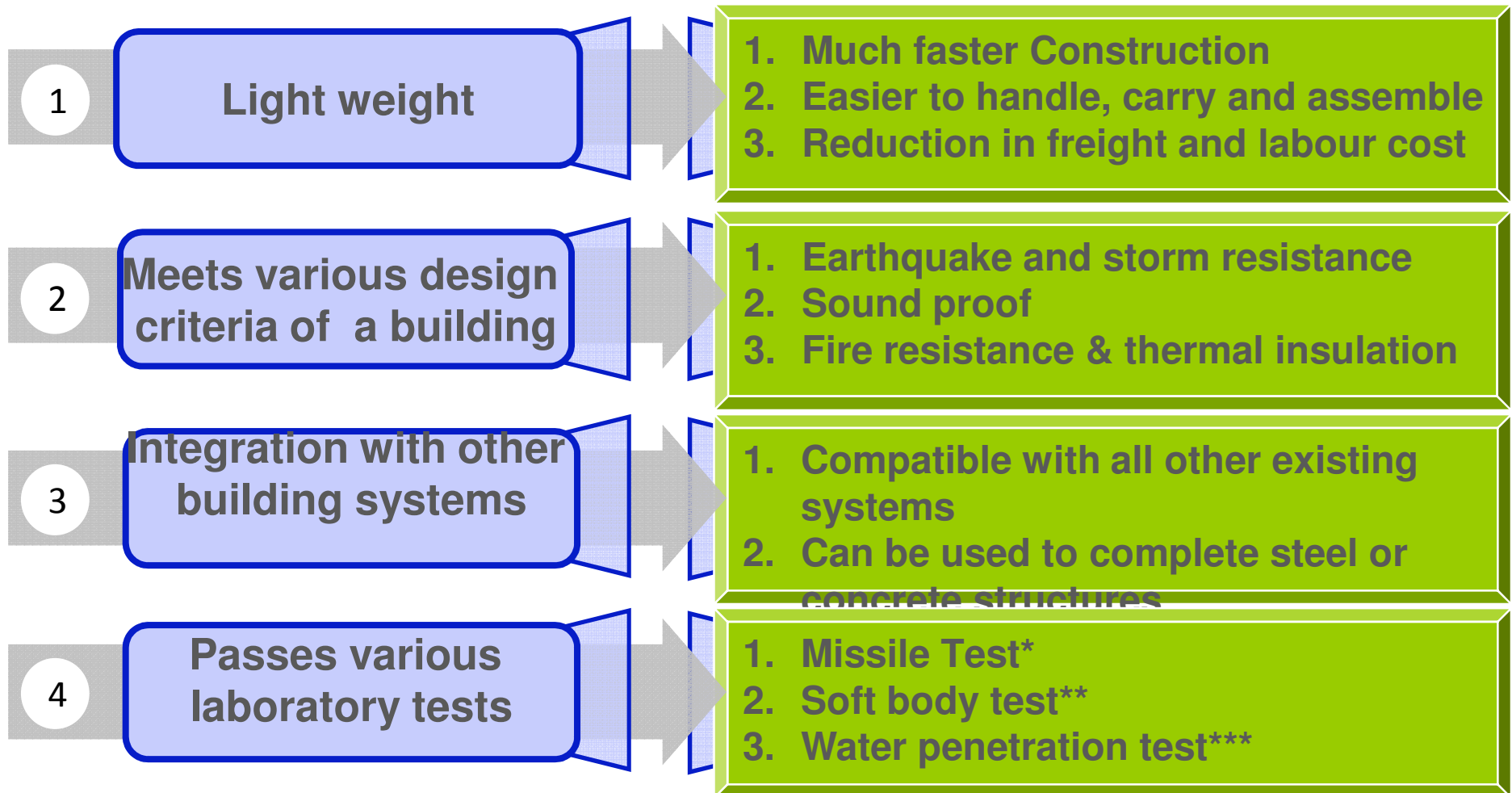


# Schnell Homes

- System for construction of buildings up to 4 storeys i.e. G+3 using reinforced concrete load bearing wall and roof panels
- Panels consist of undulated polystyrene covered both sides by a zinc coated square mesh, which in turn are connected by 33 connectors per m<sup>2</sup> realising a 3 dimensional statically indeterminate reinforcement steel
- The panels are assembled on site and in situ poured concrete (double panel, floors, stairs) and shot-creted concrete (single panel) to realise the different elements of the system:
  - Vertical structural walls;
  - Horizontal structural elements;
  - Cladding element.

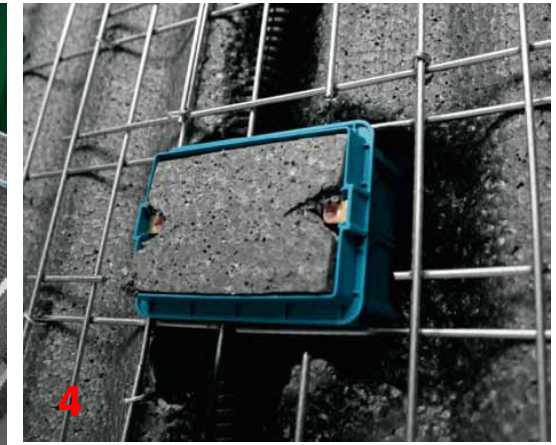
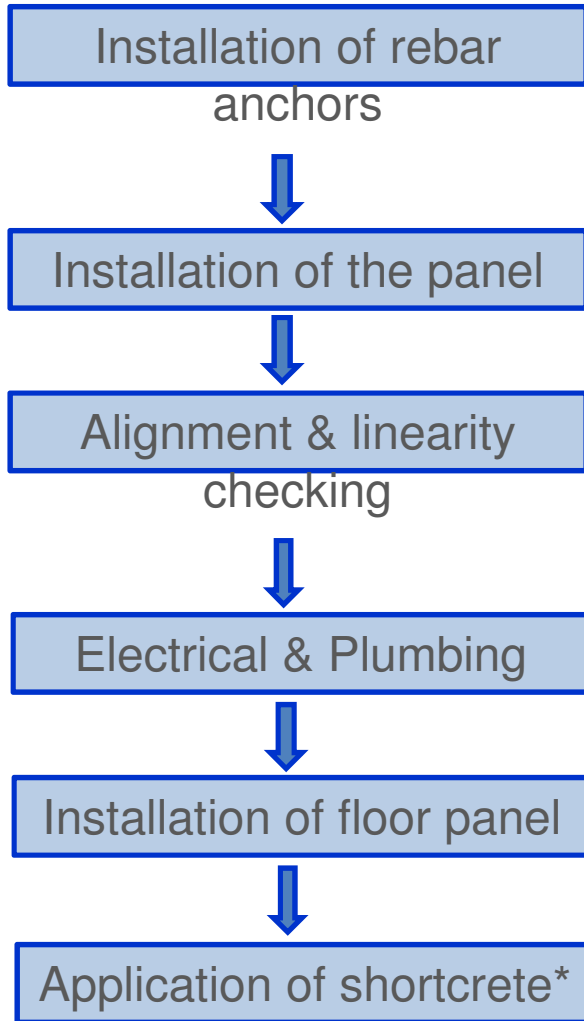


# Schnell Homes - Features



\*Missile Test: Can resist 122 km/hr missile; \*\*Soft body test: No cracks after soft pile shock of 50 kg with impacts of 900 J and 1200 J; \*\*\*Water penetration test: No penetration at water pressure of 500 kpa from 1 meter distance

# Schnell Installation Process



*\*Shotcreting is structural plastering. For giving adequate strength to the panels, 35mm thick Shotcreting is done on the panels surface using pumps at a pressure of 2kg/sq cm*

# RCC + Schnell building under construction, JSPL



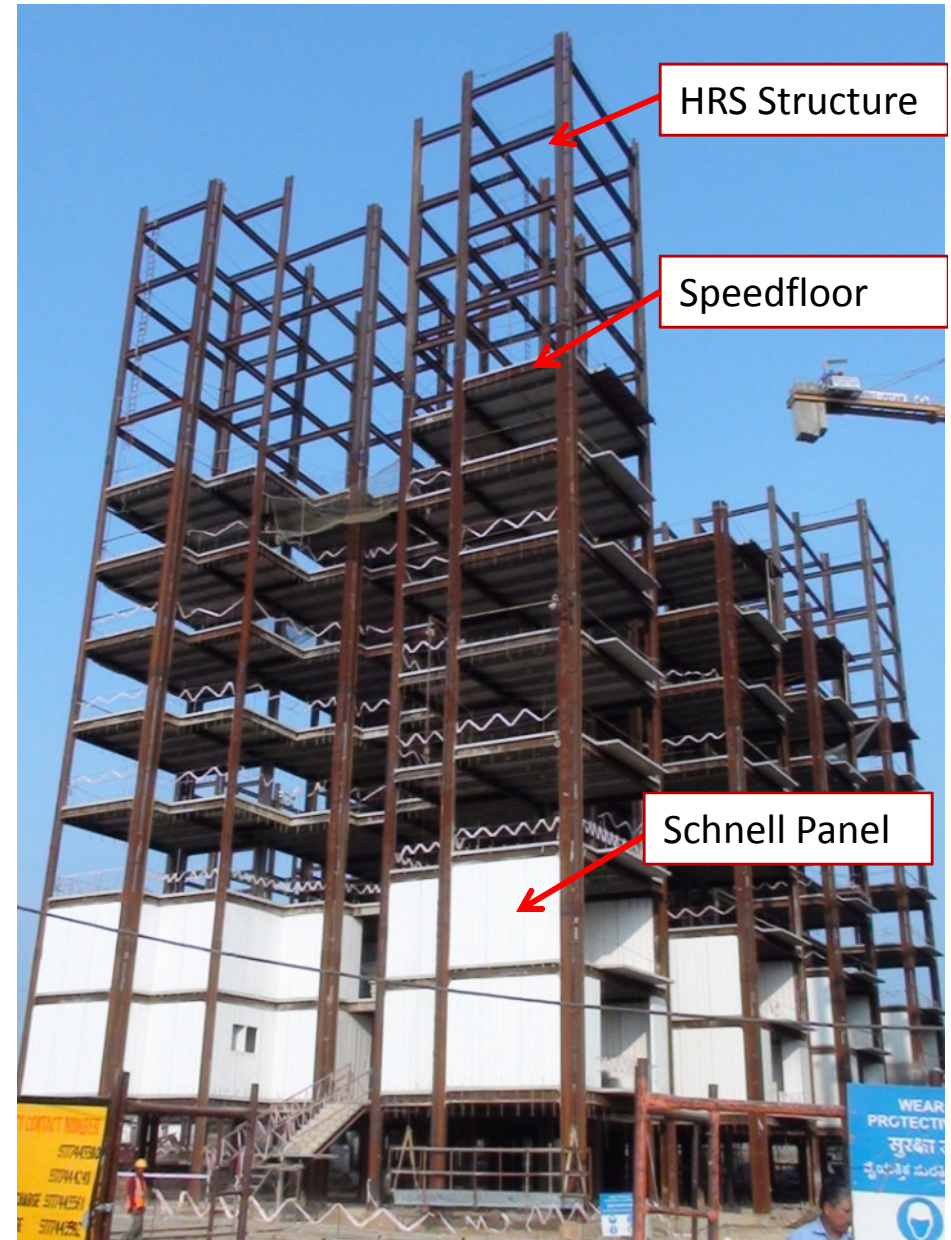


# Residential Schnell Building, JSPL Angul



# G+11 Towers Project, JSPL Angul

- Combination of Hot Rolled Sections, Speedfloor and Schnell Technology
- Hot Rolled Structure erected up to 11<sup>th</sup> floor
- Schnell panelling as walling system on all floors
- Speed floor system for all intermediate slabs.



# G+11 Towers Project, JSPL Angul



Schnell panel erection & electrical conduit fixing

Schnell panel erection at the corridor





# Jindal Global Road Stabiliser

JGRS for roads that are Hard to beat

# JGRS Laying Procedure

## Equipments:

Recycler mixing



Motor Grader



Roller



Back hoe Loader



# Project Photographs



**Road Embankment before Stabilization**

# Placing of JGRS



# Placing of JGRS





# Placing and opening of JGRS bags



# Spreading of JGRS



# Spreading & Mixing of JGRS



**Spreading of JGRS**



**Recycler mixing JGRS with soil**

# Mixing & compacting of JGRS



**Recycler mixing JGRS with soil**



**Compacting the surface with a Vibratory ro**

# Final cut & smooth rolling



**Performing a final cut using a Grader**



**Smooth rolling done on final surface**

# Finished JGRS Surface and Bitumen layer



**Finished surface of base layer built with JGRS Barbil**



**Bitumen layer on base layer built with JGRS Barbil**

# JGRS Treated Road Projects



*BC and seal Coat over the Stabilized base layer at Angul*

# JGRS Treated Road Projects



*BC and seal Coat over the Stabilized base layer at Barbil*





# Jindal Precast Products

# Jindal Brick Making Plant

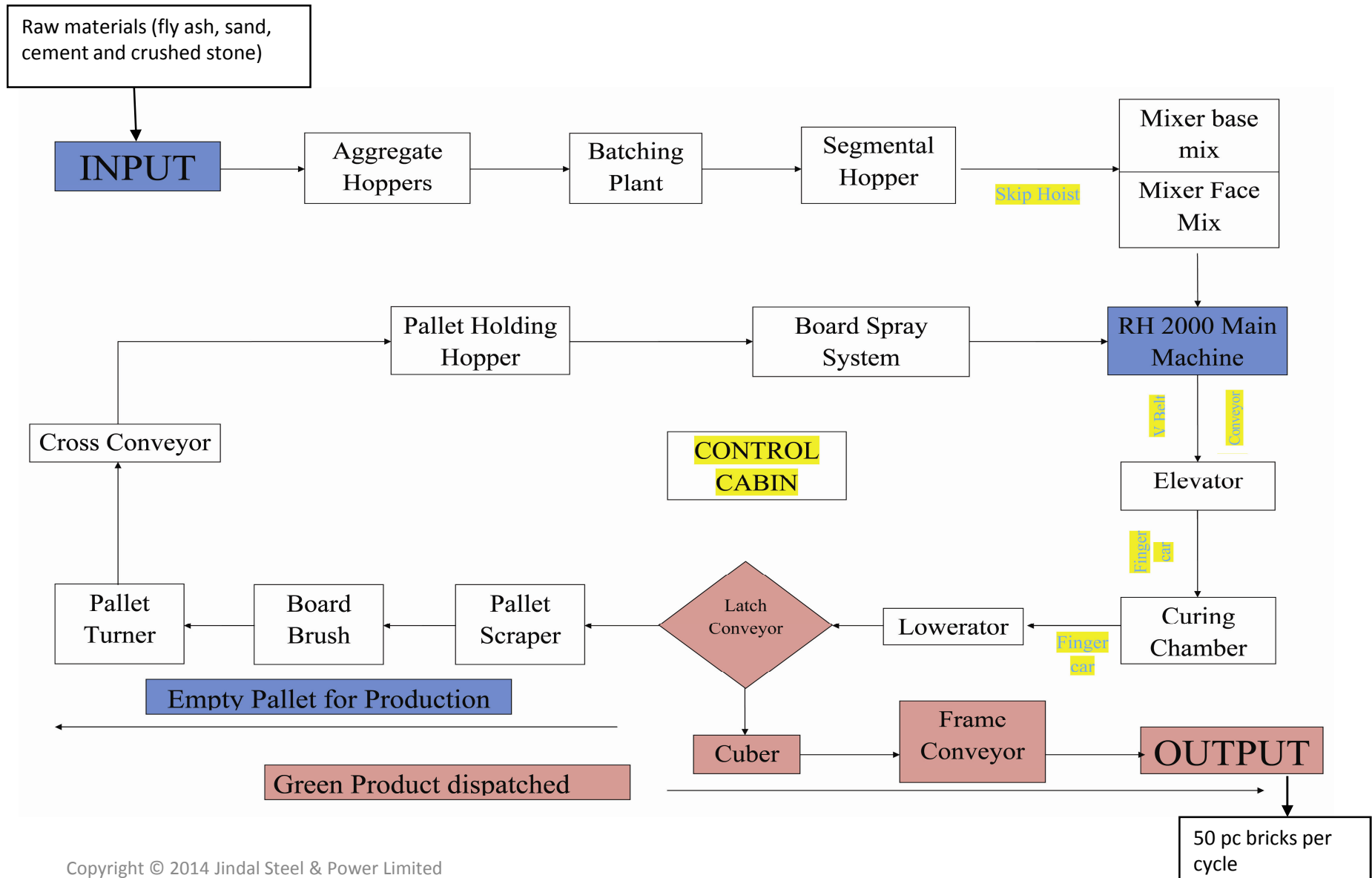


□ The plant has been designed to ensure maximum utilization of Ash collected from power plant. Apart from standard plants, Plant technology acquired from Germany, brick plant has designed conveying system to transport ash from Power plant silo to batching plant Silo to avoid the Environmental pollution issues, transportation problems and maximum utilization of top & bottom ash.

□ Jindal brick making plant can produce different products by changing the mould. In this plant Fly ash bricks, Kerb stones, Pavers and Retaining wall can be manufactured. The plant can achieve maximum production of about 1.8 lac bricks per day.

□ Curing of Bricks: The curing chamber facility has a capacity equal to 24 hr production. The curing air circulation system provides for even temperature and humidity throughout the chamber top to bottom and front to back. Curing occurs at room tempt. After 24 hr curing the products can be used at construction field.

# Process Flow of Jindal Brick Making Plant

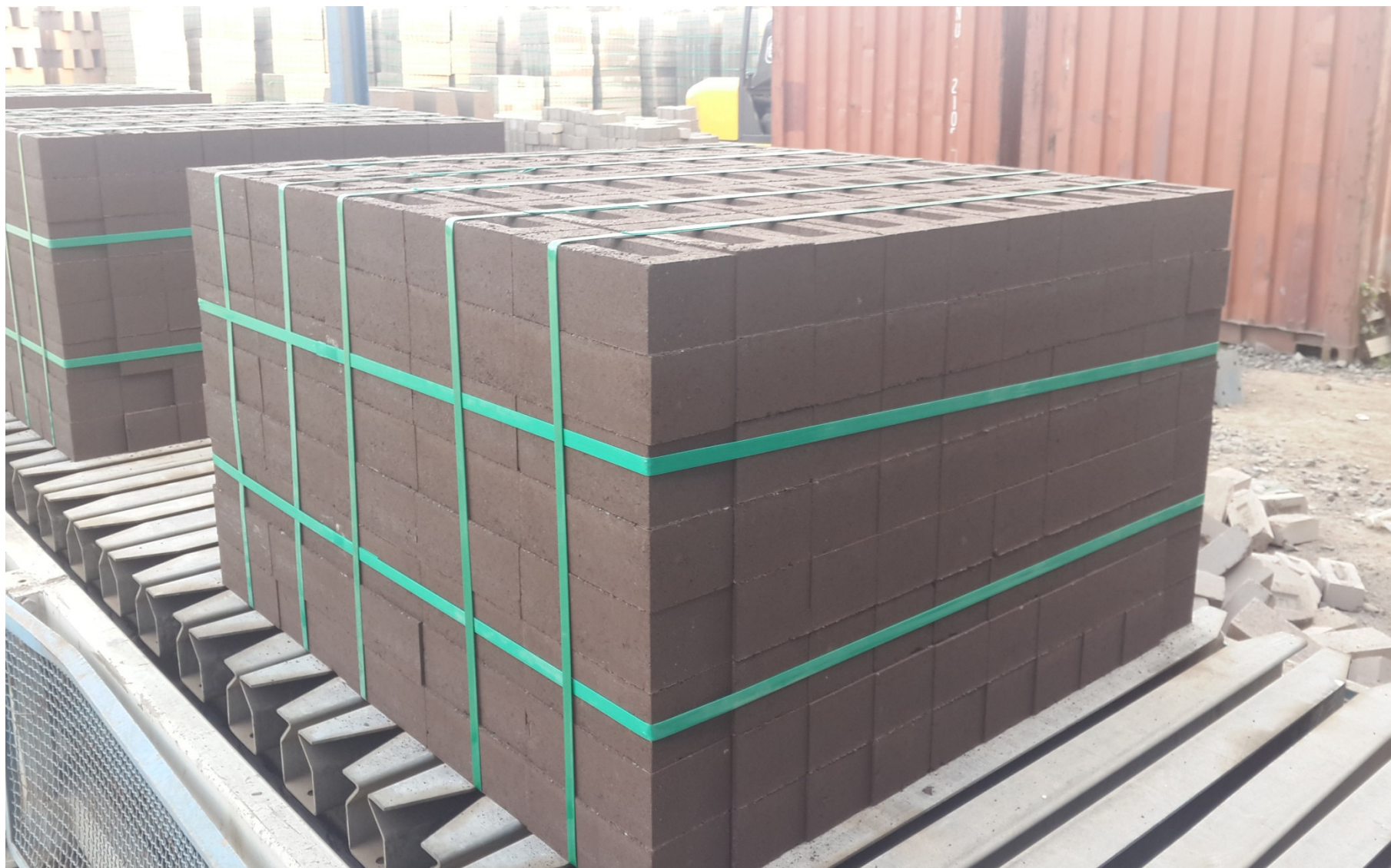


# Finished Product Specification

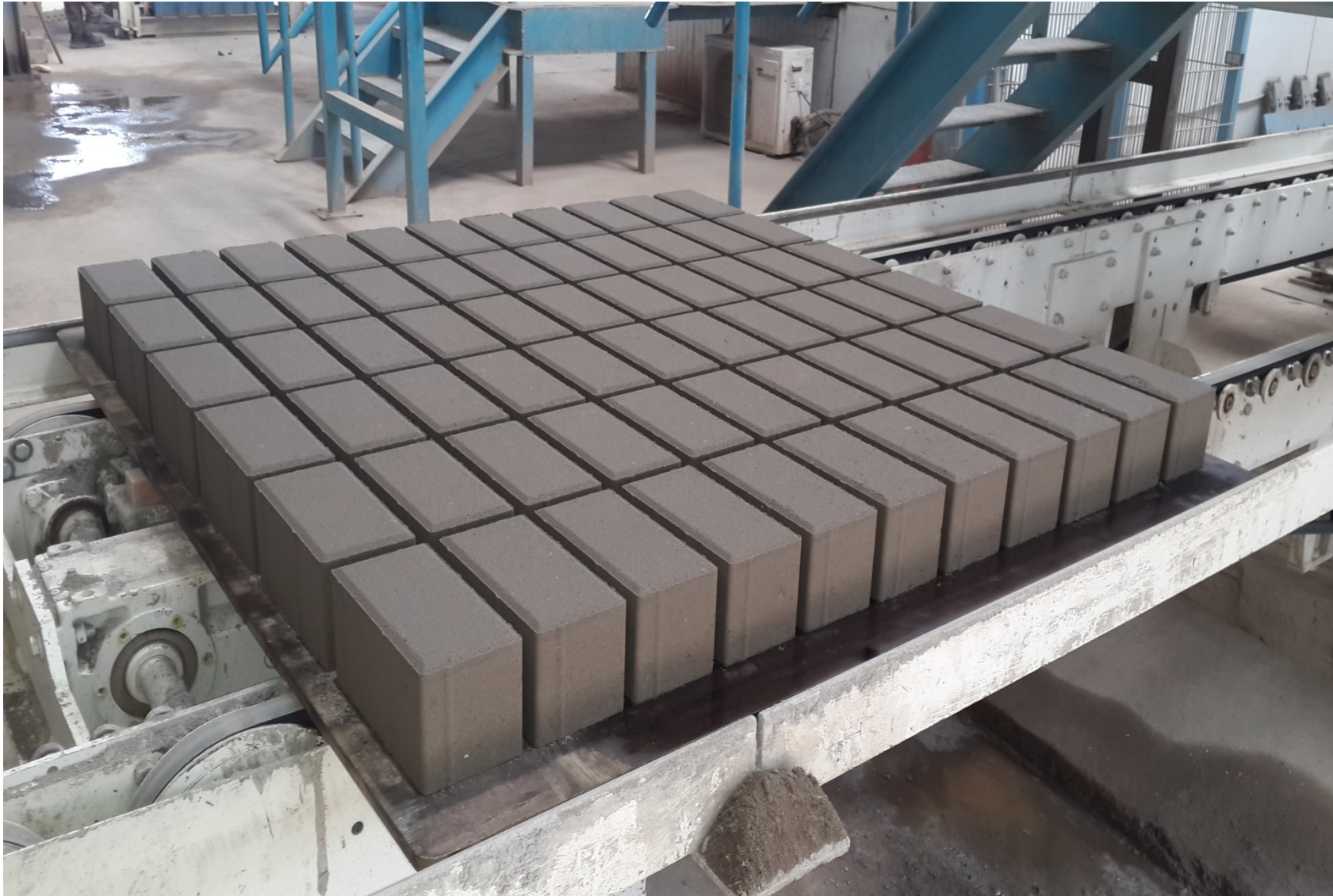


Sl. no	Name of the product	Size (mm)	Weight (kg)
1	Fly Ash bricks	230x110x75	3.2
2	Rectangle pavers	200x 100x100	4.6
3	Uni Pavers	225x110x100	6
4	Kerb Stones	600x200x350	86
5	Retaining wall	584.2x457.2x203.2	32

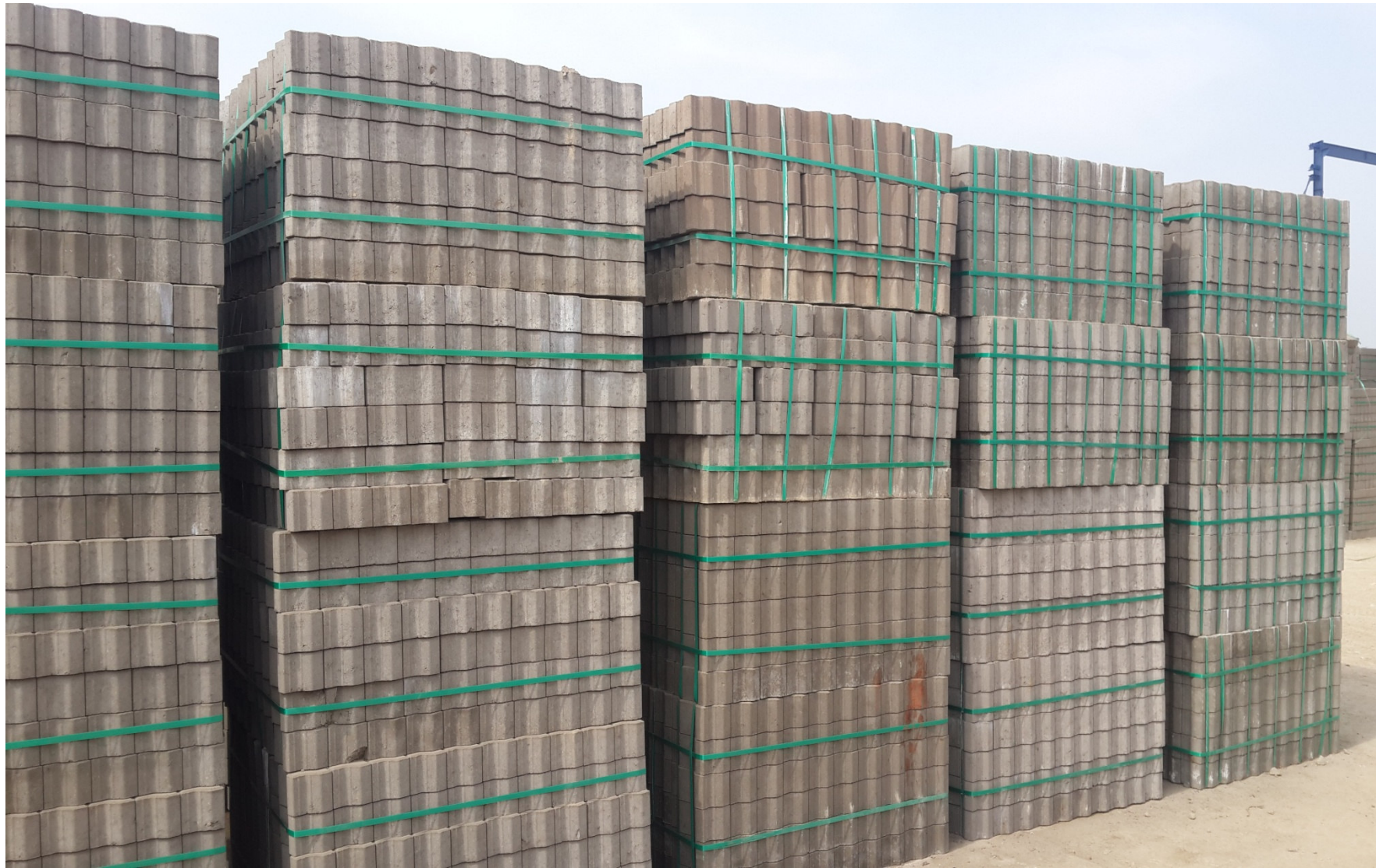
# Fly Ash Brick



# Rectangular Paver



# Uni Paver



# Kerb Stone

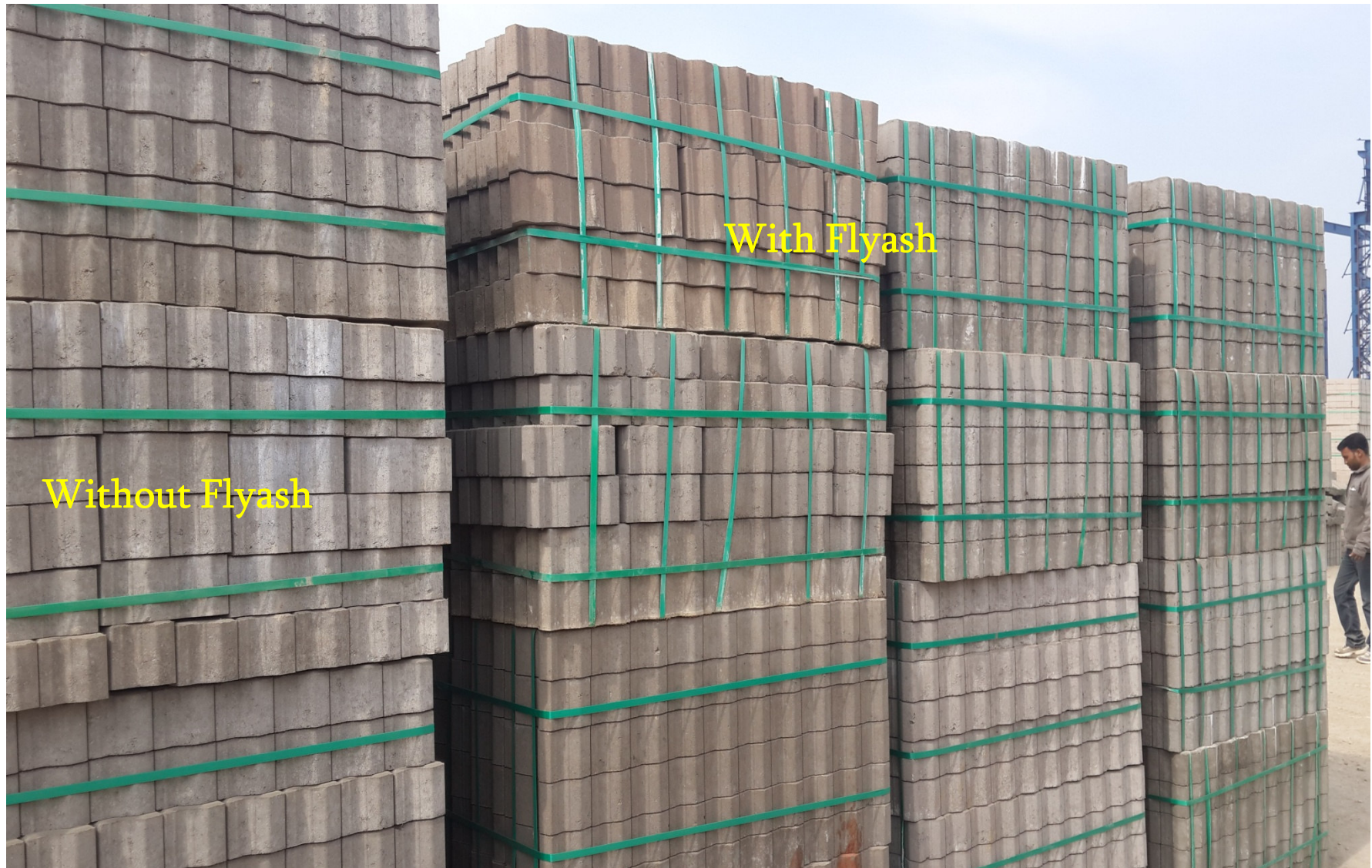




# Bricks Fly Ash ~ Slag



# Uni Pavers



# Kerb Stone



Without Flyash

With Flyash

# Raw Material Bins



# Curing chamber



# Finished Product on Conveyer



# Product Shifting



# Truck mounted Cranes & Forklifts





# Product Transportation



Thank You !

