

شركة مصنع اوراك  
**ORAK Factory Co.**  
لإنتاج للأجزاء الخرسانية الجاهزة





# CONTENTS

---

04 | INTRODUCTION

05 | VISION AND MISSION

06 | ORGANIZATION CHART

07 | PRODUCTS AND SERVICES

- Partion Wall
- External Wall
- Boundary Wall
- Hollow Core Slab

37 | TEST AND QUALITY CONTROL

43 | SAFETY POLICY

44 | PROJECTS

58 | COMPANY ACTIVITIES



# INTRODUCTION

---

By the grace of god, our company started to produce precast floor panels in our first fully automated factory in Riyadh at 2014 under the strategic plan for the company to build a number of factories for the production of concrete prefabricated building components (floors - walls - stairs) to meet the growing demand for housing in the kingdom as well as to reduce costs and speed of delivery while maintaining quality and durability. ORAK precast company provides you with the reinforced concrete prefabricated floor manufactured by world-class automated factory in Riyadh that can be transported and installed anywhere. The company's engineering office and from your original building designs defines your needs of precast floor panels.

General Manager

D.ENG: Mohammad ALSohime



# VISION AND MISSION

---

## VISION

---



To Achieve leadership in the construction industry, precast concrete products and advanced engineering solutions.

## MISSION

---

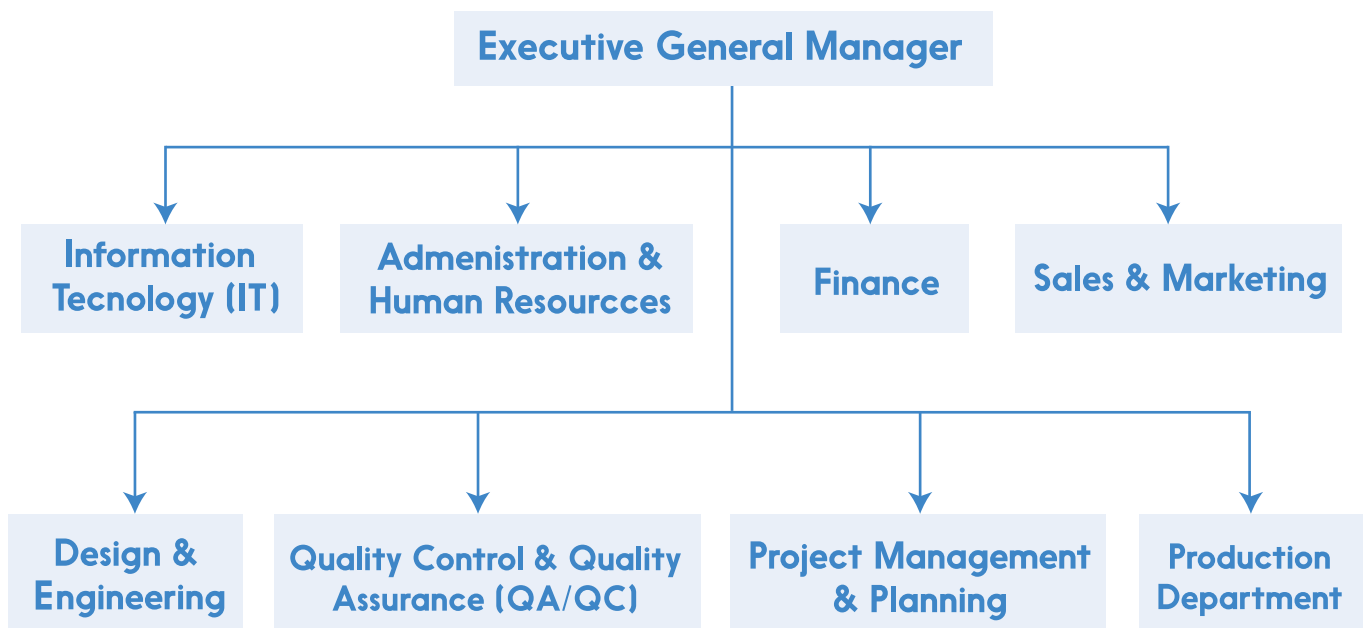


Technologies transfer and development of manufactured precast parts in collaboration with our partners Coote Engineering from UK & a culture of precast concrete for housing in the kingdom.



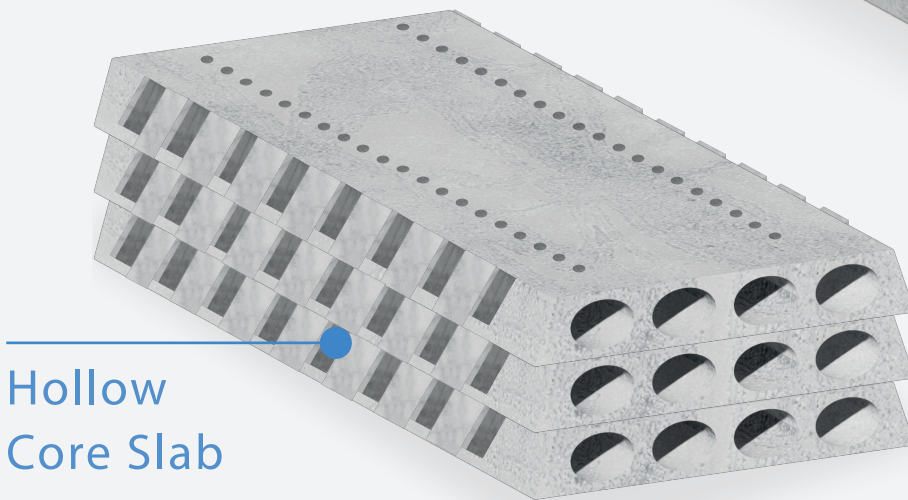
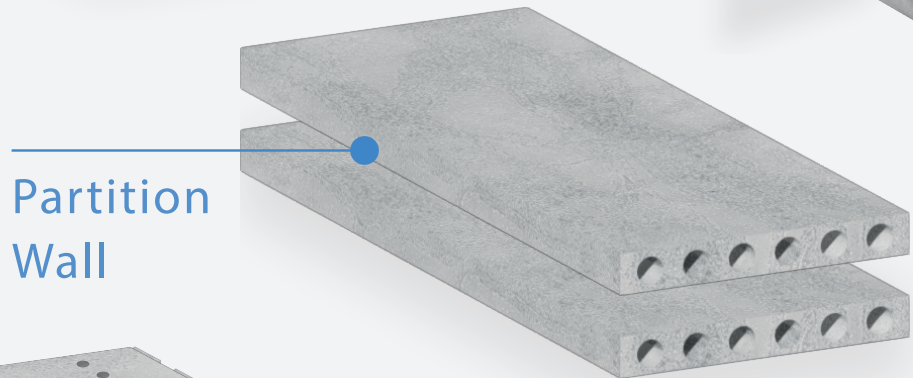
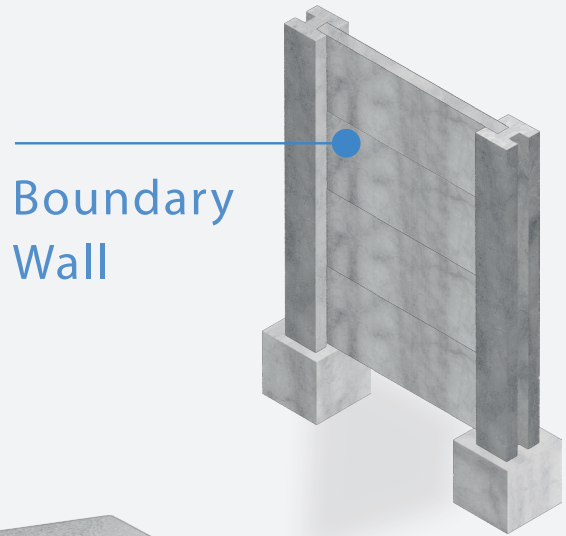
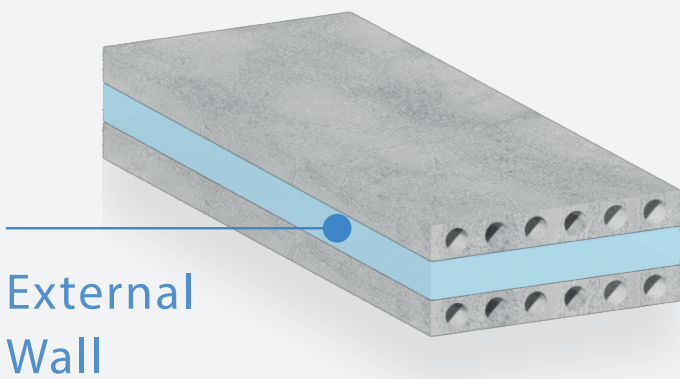
# ORGANIZATION CHART

---



# PRODUCTS AND SERVICES

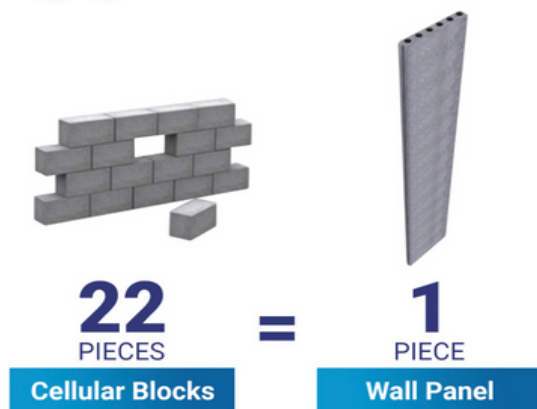
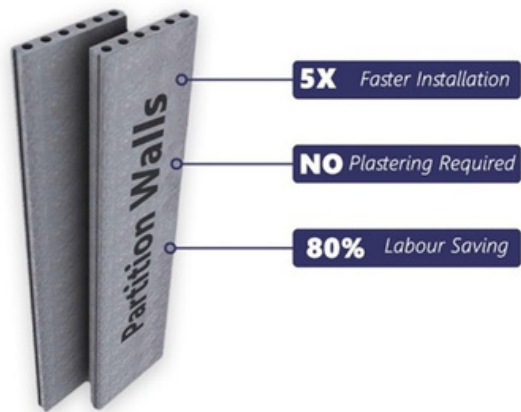
---





## LIGHT WEIGHT CONCRETE PARTITION WALL

The ORAK Hollow core non loading bearing wall is a compact, highly automated production line that is based on a stationary extruder and is designed to produce of max 4.5 m long 7.5 cm - 9 cm - 10 cm - 15 cm thick Hollow core, non-load-bearing wall elements. The elements are usually made of lightweight aggregate concrete and are used in all kind of housing applications; for example, internal walls that require good moisture and sound insulation in bathrooms, kitchens, bedrooms, offices, hotels, etc., and even the inner leafs of outer wall are typical applications for the ORAK walls. In addition, they have also been used as factory walls, boundary walls, and fences, even made of colored concrete with corrugated surfaces can be found. The ORAK line is a unique, state of the art production system for manufacturing of lightweight, hollow core, panels.



### DIMENSIONS

- 1000 mm to 4500 mm long.
- 6 cm - 7.5 cm - 9 cm - 10 cm - 15 cm thick.
- 600 mm wide as standard.
- Have 5 - 8 hollows depending on the thickness with 4 cm - 6 cm - 9.4 cm diameter.

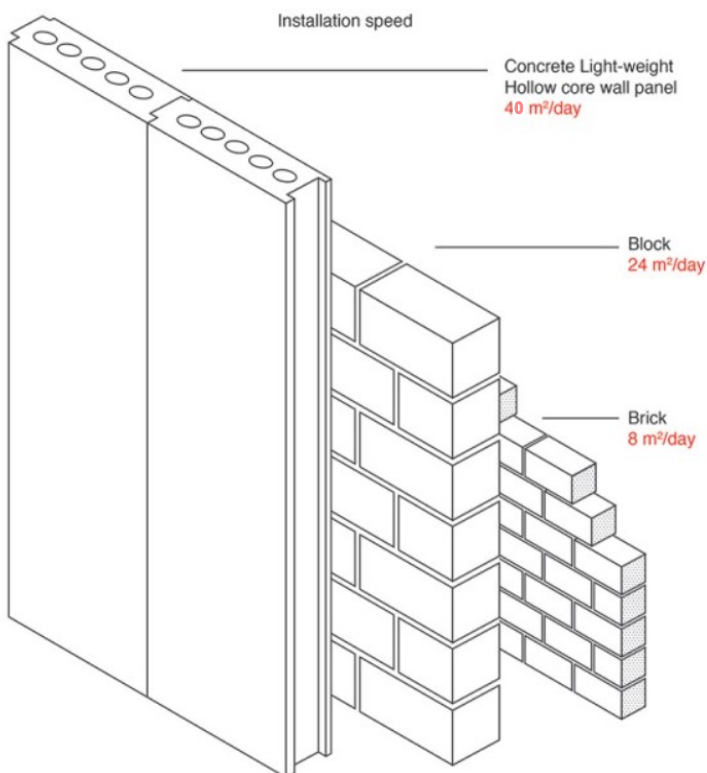
### BENEFITS

- No Plastering Required.
- Time saving/Fast installation.
- Labour Saving.
- Economical Reduce cost of construction.
- Design Flexibility.

## FAST INSTALLATION

### Installation Rate

40 m<sup>2</sup>/day per group of 3 people



## SOUND TRANSMISSION



Partition walls (9 cm)

46 dB



Regular Block (20 cm)

44 dB



## Technical Specifications

Test Specifications	Wall Panel 100 mm
Weight (kg/m <sup>2</sup> )	90
Fire Rating (hours)	2
Sound Insulation (dB)	46
Compressive Strength Cube Test	25
(N/mm <sup>2</sup> ) Compressive Strength Section	15
(N/mm <sup>2</sup> ) Thermal Resistance (m <sup>2</sup> k/W)	0.4

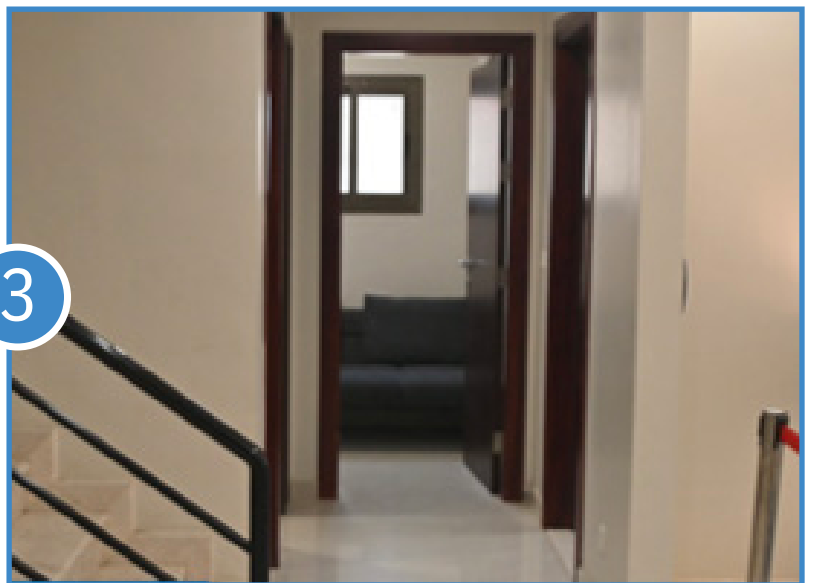
## INSTALLATION PHASE



Wall Installation

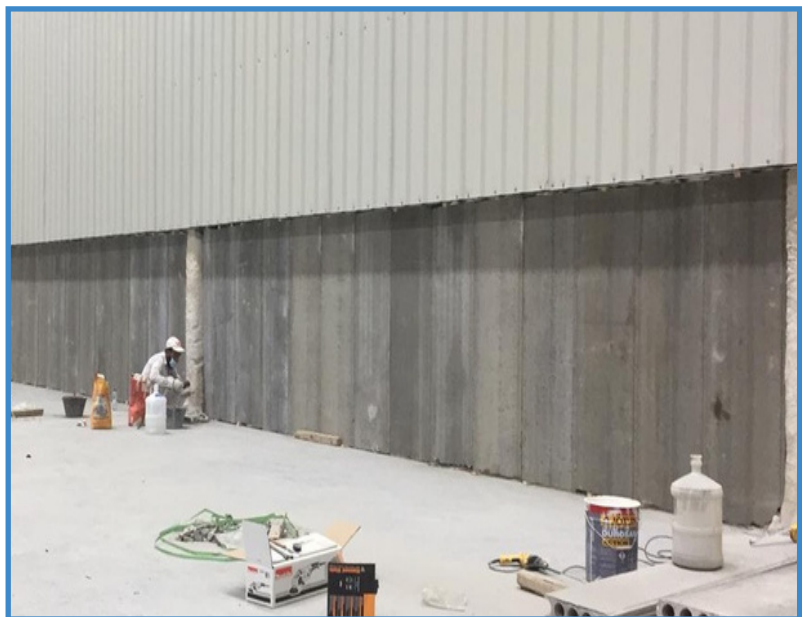


Before

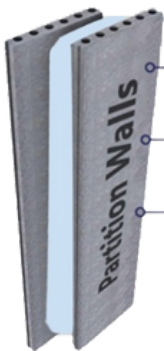


After

# PRODUCT GALLERY



# EXTERNAL INSULATED WALL 20 CM THICKNESS (7.5 CM + 5 CM Insulation + 7.5 CM)



**5X** *Faster Installation*

**NO** *Plastering Required*

**80%** *Labour Saving*



## Technical Specifications

Test Specifications	Double Wall 20 cm
Weight (kg/m <sup>2</sup> )	170
Fire Rating (hours)	2
Compressive Strength Cube Test	25
(N/mm <sup>2</sup> ) Sound Insulation (dB)	+100
* U-Value	0.27

# PREVIOUS PROJECTS

# EXTERNAL INSULATED WALL



# PREVIOUS PROJECTS

# EXTERNAL INSULATED WALL





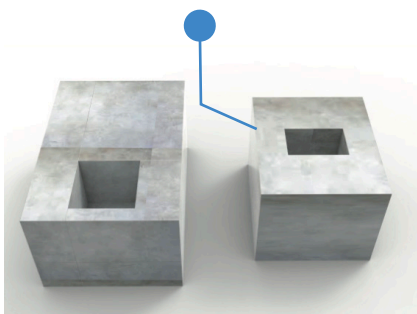
## PRECAST FENCE SYSTEM BOUNDARY WALL 5 CM AND 10 CM THICKNESS



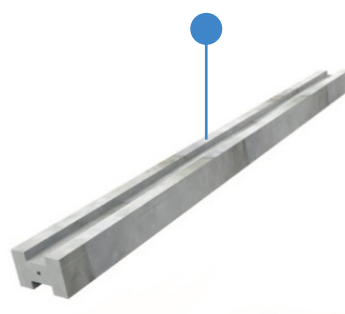
Boundary walls are commonly used in Saudi Arabia as its a part of its cultural in order to provide privacy to buildings, villas, palaces, office, factories and farms within a plot. ORAK Precast Involvement in numerous precast boundary wall projects allows for our experianced team to design , manufacture and install elemnts of the highest quality that are tailor made to each individual project's requirements.

The factory produces Pre-stressed concrete fence system 'Precast' Including:

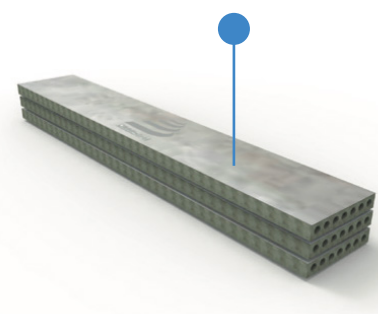
Footing



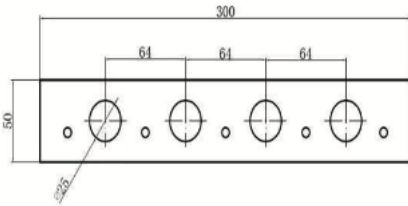
Columns



Wall panels

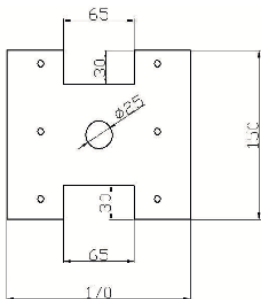


## Wall Panels for 5 cm Thickness



Weight of individual panel 26 Kg/LM 5Ø5 Strands, High stressed steel H.S.S with Tension 600-500 Kgs.

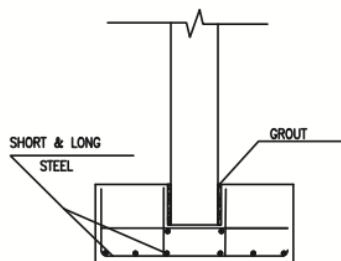
## Columns



6Ø5 Strands, High stressed steel H.S.S Weight of Column 48 Kg/LM < Normal Column with Tension 600-500 Kgs.

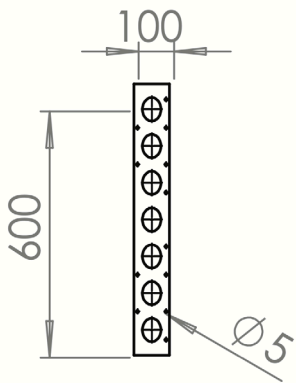


## RCC Footing



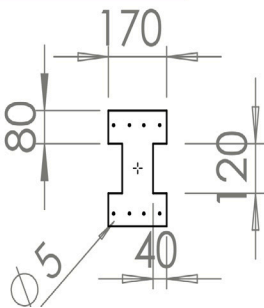
Depends on Footing Design.

## Wall Panels for 10 cm Thickness



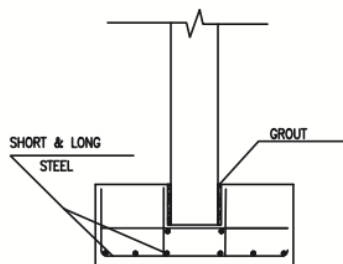
Weight of individual panel 90 KG/M 12Ø5 Strands, High stressed steel H.S.S with Tension 500-600 Kgs.

## Columns

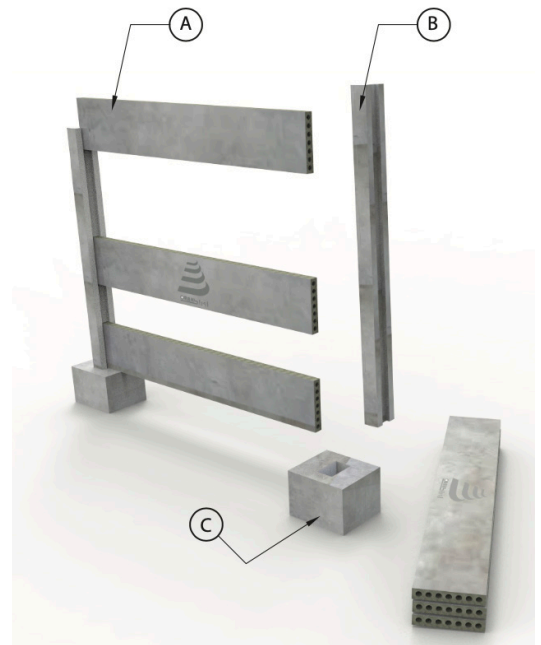


8Ø5 Strands, High stressed steel H.S.S Weight of Column 95 KG/M < Normal Column with Tension 500-600 Kgs.

## RCC Footing



Depends on Footing Design.



## Boundary wall Vs Traditional Brick Wall (Advantages)

PROPERTIES	RCC BOUNDARY WALL	TRADITIONAL BRICK WALL	ADVANTAGES
Construction Time (100 LM Wall)	<ul style="list-style-type: none"> <li>Constructed just withing 2-3 days.</li> </ul>	<ul style="list-style-type: none"> <li>Takes 7 days to construct &amp; 7 more days for curing.</li> </ul>	<ul style="list-style-type: none"> <li>RCC Walls saves precious.</li> <li>Construction Time.</li> </ul>
Long Lasting	<ul style="list-style-type: none"> <li>High Durability as RCC Panels are made from superior quality of concrete and steel material.</li> </ul>	<ul style="list-style-type: none"> <li>Weak in nature as it depends on the quality of thickness, quality of sands, span of curing, The art of workmanship.</li> </ul>	<ul style="list-style-type: none"> <li>RCC Walls require almost no maintenance.</li> <li>No Cracks due to quality of production.</li> <li>High strength more than normal.</li> </ul>
Pricing	<ul style="list-style-type: none"> <li>Cheaper as it requires a small group of workers to install.</li> <li>Cheaper as it is mainly capital intensive.</li> </ul>	<ul style="list-style-type: none"> <li>Cost more as it depends mainly on lot of work force to build.</li> <li>Cost more as it is mainly labor intensive.</li> </ul>	<ul style="list-style-type: none"> <li>Saves money for the long Term.</li> </ul>

## ORAK Pre-stressed Boundary Wall Benefits

Precast Prestressed concrete can most easily be defined as pre-compressed concrete. This means that compressive stress is applied into a concrete element before it begins its working life and is positioned to be in areas where tensile stress will develop under working load.



Time Saving &  
Fast Installtion



Sustainability &  
Minimal maintenance



Economical Fast &  
Installtion Reduced  
cost of Consturction



Design  
Felxibility



## PREVIOUS PROJECTS BOUNDARY WALL 5 CM THICKNESS





## PREVIOUS MOH PROJECT BOUNDARY WALL 10 CM THICKNESS





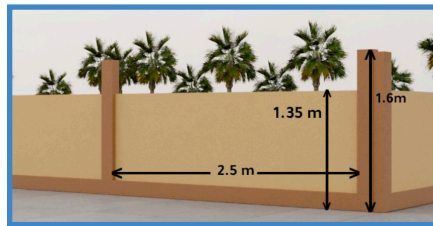
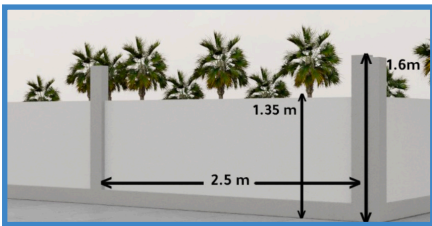


# FENCING MODELS

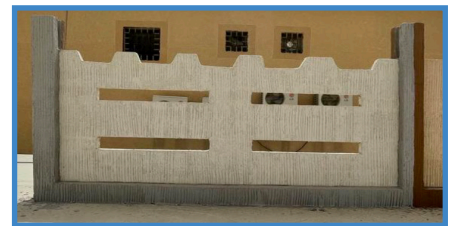
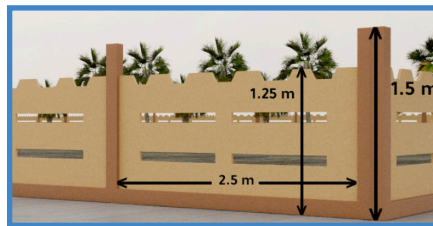
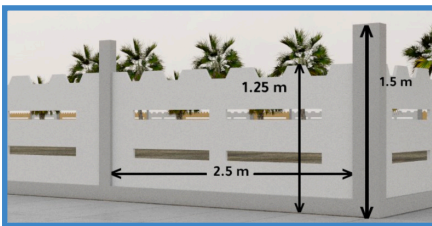
## MATERIALS USED

- Precast concrete panels reinforced with (5 mm Prestress wire).
- Precast concrete column reinforced with (5 mm Prestress wire).
- Profile paint.

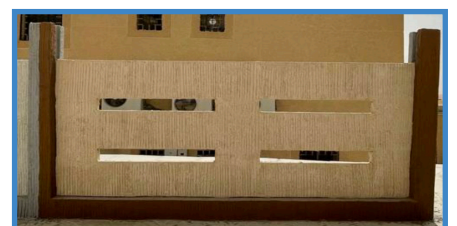
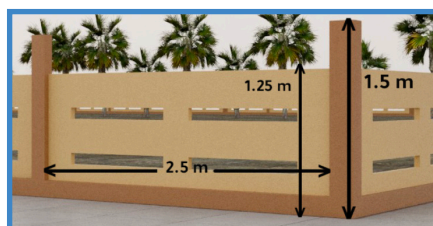
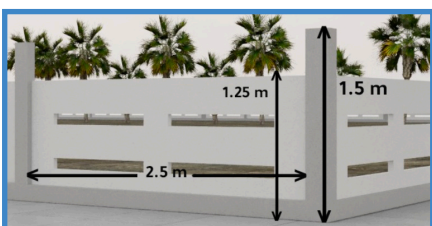
## MODEL 1



## MODEL 2



## MODEL 3



## HOLLOW CORE SLAB

---



The hollow core slab system is a replacement of conventional house flooring it has the advantage of reduced weight up to 40%, ease of construction and having better strength and quality.

## BEARING

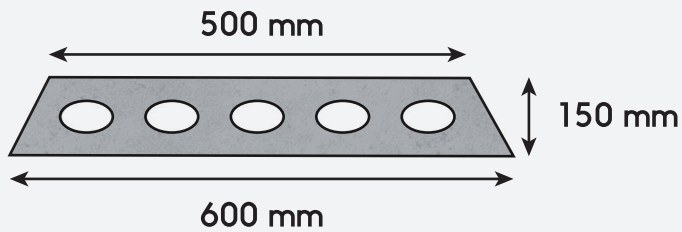
---

Under normal conditions the hollow core slabs will need a minimum bearing not less than 50 mm.

Bearing well, under normal conditions, always be designed as 50 mm - 100 mm in order to allow for tolerances in the main load bearing structure.

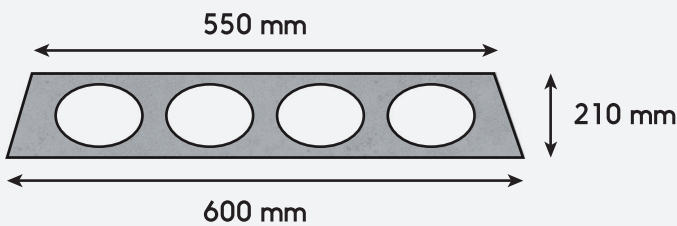


## Slab Properties -150 mm



- Self weight of slabs is approximately 2.5 kN/m<sup>2</sup>.
- After erection a layer of screed will be casted on site with thickness 50 - 100mm.

## Slab Properties -210 mm



- Self-weight of slabs is approximately 2.9 kN/m<sup>2</sup>.
- After erection a layer of screed will be casted on site with thickness 50 - 100 mm.



Topping		Loading Options		Maximum Permissible Span (m) - Tension Steel: 5FØ12															
Thickness (mm)	Steel	Live Load (kN/m²)	Walls	Hollowcore Compression Steel															
				—				3FØ8				3FØ10				3FØ12			
				Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All
0	-	2.5	No	7.2	6.6	6.3	6.3	7.3	6.6	6.3	6.3	7.3	6.6	6.3	6.3	7.4	6.6	6.3	6.3
			Yes	5.6	5.7	4.8	4.8	5.7	5.7	4.9	4.9	5.8	5.7	4.9	4.9	5.8	5.7	4.9	4.9
		5	No	6	5.6	5.5	5.5	6.1	5.6	5.5	5.5	6.1	5.6	5.5	5.5	6.2	5.6	5.5	5.5
			Yes	4.9	4.8	4.4	4.4	5	4.8	4.4	4.4	5	4.8	4.4	4.4	5	4.8	4.5	4.5
50	-	2.5	No	7.5	7.6	7.1	7.1	7.8	7.6	7.1	7.1	8	7.6	7.1	7.1	>8	7.6	7.1	7.1
			Yes	6.2	6.8	5.8	5.8	6.4	6.9	5.8	5.8	6.6	6.9	5.8	5.8	6.8	6.9	5.8	5.8
		5	No	6.4	6.5	6.3	6.3	6.7	6.5	6.3	6.3	6.8	6.5	6.3	6.3	7	6.5	6.3	6.3
			Yes	5.4	5.8	5.3	5.3	5.7	5.8	5.3	5.3	5.8	5.8	5.3	5.3	5.9	5.8	5.3	5.3
	3FØ8	2.5	No	7.6	7.6	7.1	7.1	7.8	7.6	7.1	7.1	8	7.6	7.1	7.1	>8	7.6	7.1	7.1
			Yes	6.2	6.8	5.9	5.9	6.5	6.9	5.9	5.9	6.6	6.9	5.9	5.9	6.8	6.9	5.9	5.9
		5	No	6.5	6.5	6.3	6.3	6.7	6.5	6.3	6.3	6.8	6.5	6.3	6.3	7	6.5	6.3	6.3
			Yes	5.5	5.8	5.3	5.3	5.7	5.8	5.3	5.3	5.8	5.8	5.3	5.3	6	5.8	5.3	5.3
	3FØ10	2.5	No	7.6	7.6	7.1	7.1	7.8	7.6	7.1	7.1	8	7.6	7.1	7.1	>8	7.6	7.1	7.1
			Yes	6.2	6.8	5.9	5.9	6.5	6.9	5.9	5.9	6.6	6.9	5.9	5.9	6.8	6.9	5.9	5.9
		5	No	6.5	6.5	6.3	6.3	6.7	6.5	6.3	6.3	6.8	6.5	6.3	6.3	7	6.5	6.3	6.3
			Yes	5.5	5.8	5.4	5.4	5.7	5.8	5.4	5.4	5.8	5.8	5.4	5.4	6	5.8	5.4	5.4
	3FØ12	2.5	No	7.6	7.6	7.2	7.2	7.9	7.6	7.2	7.2	8	7.6	7.2	7.2	>8	7.6	7.2	7.2
			Yes	6.2	6.8	5.9	5.9	6.5	6.9	5.9	5.9	6.6	6.9	5.9	5.9	6.8	6.9	5.9	5.9
		5	No	6.5	6.5	6.4	6.4	6.7	6.5	6.4	6.4	6.8	6.5	6.4	6.4	7	6.5	6.4	6.4
			Yes	5.5	5.8	5.4	5.4	5.7	5.8	5.4	5.4	5.8	5.8	5.4	5.4	6	5.8	5.4	5.4
70	-	2.5	No	7.7	8	7.4	7.4	8	8	7.4	7.4	>8	8	7.4	7.4	>8	8	7.4	7.4
			Yes	6.3	7.3	6.2	6.2	6.7	7.3	6.2	6.2	6.9	7.3	6.2	6.2	7.1	7.3	6.2	6.2
		5	No	6.6	6.9	6.7	6.6	6.9	6.9	6.7	6.7	7.1	6.9	6.7	6.7	7.3	6.9	6.7	6.7
			Yes	5.6	6.2	5.7	5.6	5.9	6.2	5.7	5.7	6.1	6.2	5.7	5.7	6.3	6.2	5.7	5.7
	3FØ8	2.5	No	7.7	8	7.5	7.5	8	8	7.5	7.5	>8	8	7.5	7.5	>8	8	7.5	7.5
			Yes	6.4	7.3	6.3	6.3	6.7	7.3	6.3	6.3	6.9	7.3	6.3	6.3	7.1	7.3	6.3	6.3
		5	No	6.6	6.9	6.7	6.6	6.9	6.9	6.7	6.7	7.1	6.9	6.7	6.7	7.3	6.9	6.7	6.7
			Yes	5.6	6.2	5.7	5.6	5.9	6.2	5.7	5.7	6.1	6.2	5.7	5.7	6.3	6.2	5.7	5.7
	3FØ10	2.5	No	7.7	8	7.5	7.5	8	8	7.5	7.5	>8	8	7.5	7.5	>8	8	7.5	7.5
			Yes	6.4	7.3	6.3	6.3	6.7	7.3	6.3	6.3	6.9	7.3	6.3	6.3	7.1	7.3	6.3	6.3
		5	No	6.6	6.9	6.7	6.6	6.9	6.9	6.7	6.7	7.1	6.9	6.7	6.7	7.3	6.9	6.7	6.7
			Yes	5.7	6.2	5.7	5.7	5.9	6.2	5.7	5.7	6.1	6.2	5.7	5.7	6.3	6.2	5.7	5.7
	3FØ12	2.5	No	7.7	8	7.5	7.5	8	8	7.5	7.5	>8	8	7.5	7.5	>8	8	7.5	7.5
			Yes	6.4	7.3	6.3	6.3	6.7	7.3	6.3	6.3	6.9	7.3	6.3	6.3	7.1	7.3	6.3	6.3
		5	No	6.7	6.9	6.7	6.7	6.9	6.9	6.7	6.7	7.1	6.9	6.7	6.7	7.3	6.9	6.7	6.7
			Yes	5.7	6.2	5.8	5.7	5.9	6.2	5.8	5.8	6.1	6.2	5.8	5.8	6.3	6.2	5.8	5.8

Topping		Loading Options		Maximum Permissible Span (m) - Tension Steel: 5FØ14															
Thickness (mm)	Steel	Live Load (kN/m <sup>2</sup> )	Walls	Hollowcore Compression Steel															
				--				3FØ8				3FØ10				3FØ12			
				Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All
0	-	2.5	No	>8	6.7	6.3	6.3	>8	6.7	6.4	6.4	>8	6.7	6.4	6.4	>8	6.7	6.4	6.4
			Yes	6.7	6.1	4.9	4.9	6.8	6.1	5	5	6.8	6.1	5	5	6.8	6.1	5	5
		5	No	7	5.7	5.5	5.5	7	5.7	5.6	5.6	7	5.7	5.6	5.6	7	5.7	5.6	5.6
			Yes	5.8	5	4.5	4.5	5.9	5	4.5	4.5	5.9	5	4.5	4.5	5.9	5	4.5	4.5
50	-	2.5	No	>8	7.7	7.2	7.2	>8	7.7	7.2	7.2	>8	7.7	7.2	7.2	>8	7.7	7.2	7.2
			Yes	7.3	7.2	5.9	5.9	7.6	7.2	5.9	5.9	7.7	7.2	5.9	5.9	7.8	7.2	5.9	5.9
		5	No	7.5	6.5	6	6	7.7	6.5	6	6	7.8	6.5	6	6	7.9	6.5	6	6
			Yes	6.4	5.5	4.6	4.6	6.6	5.5	4.6	4.6	6.7	5.5	4.6	4.6	6.9	5.5	4.6	4.6
	3FØ8	2.5	No	>8	>8	7.1	7.1	>8	>8	7.1	7.1	>8	>8	7.1	7.1	>8	>8	7.1	7.1
			Yes	7.3	>8	5.3	5.3	7.6	>8	5.3	5.3	7.7	>8	5.3	5.3	7.8	>8	5.4	5.4
		5	No	7.5	6.5	6.1	6.1	7.7	6.5	6.1	6.1	7.8	6.5	6.1	6.1	7.9	6.5	6.1	6.1
			Yes	6.4	5.5	4.7	4.7	6.6	5.5	4.7	4.7	6.7	5.5	4.7	4.7	6.9	5.5	4.7	4.7
	3FØ10	2.5	No	>8	>8	7.1	7.1	>8	>8	7.1	7.1	>8	>8	7.2	7.2	>8	>8	7.2	7.2
			Yes	7.3	>8	5.4	5.4	7.6	>8	5.4	5.4	7.7	>8	5.4	5.4	7.8	>8	5.4	5.4
		5	No	7.5	6.5	6.1	6.1	7.7	6.5	6.1	6.1	7.8	6.5	6.1	6.1	7.9	6.5	6.1	6.1
			Yes	6.4	5.5	4.7	4.7	6.7	5.5	4.7	4.7	6.7	5.5	4.7	4.7	6.9	5.5	4.7	4.7
	3FØ12	2.5	No	>8	>8	7.2	7.2	>8	>8	7.2	7.2	>8	>8	7.2	7.2	>8	>8	7.2	7.2
			Yes	7.4	>8	5.4	5.4	7.6	>8	5.4	5.4	7.7	>8	5.4	5.4	7.8	>8	5.4	5.4
		5	No	7.5	6.5	6.1	6.1	7.7	6.5	6.1	6.1	7.8	6.5	6.1	6.1	7.9	6.5	6.1	6.1
			Yes	6.5	5.5	4.7	4.7	6.6	5.5	4.7	4.7	6.7	5.5	4.7	4.7	6.9	5.5	4.7	4.7
70	-	2.5	No	>8	>8	7.6	7.6	>8	>8	7.6	7.6	>8	>8	7.6	7.6	>8	>8	7.6	7.6
			Yes	7.5	>8	5.9	5.9	7.8	>8	5.9	5.9	8	>8	5.9	5.9	>8	>8	5.9	5.9
		5	No	7.6	7.1	6.5	6.5	7.9	7.1	6.5	6.5	8	7.1	6.5	6.5	>8	7.1	6.5	6.5
			Yes	6.6	6.2	5.1	5.1	6.9	6.3	5.1	5.1	7	6.3	5.1	5.1	7.2	6.3	5.1	5.1
	3FØ8	2.5	No	>8	>8	7.7	7.7	>8	>8	7.7	7.7	>8	>8	7.7	7.7	>8	>8	7.7	7.7
			Yes	7.6	>8	5.9	5.9	7.8	>8	5.9	5.9	8	>8	6	6	>8	>8	6	6
		5	No	7.7	7.1	6.5	6.5	7.9	7.1	6.5	6.5	>8	7.1	6.5	6.5	>8	7.1	6.5	6.5
			Yes	6.7	6.3	5.2	5.2	6.9	6.3	5.2	5.2	7	6.3	5.2	5.2	7.2	6.3	5.2	5.2
	3FØ10	2.5	No	>8	>8	7.7	7.7	>8	>8	7.7	7.7	>8	>8	7.7	7.7	>8	>8	7.7	7.7
			Yes	7.6	>8	6	6	7.8	>8	6	6	8	>8	6	6	>8	>8	6	6
		5	No	7.7	7.1	6.6	6.6	7.9	7.1	6.6	6.6	8	7.1	6.6	6.6	>8	7.1	6.8	6.8
			Yes	6.7	6.3	5.2	5.2	6.9	6.3	5.2	5.2	7	6.3	5.2	5.2	7.2	6.4	5.8	5.8
	3FØ12	2.5	No	>8	>8	7.6	7.6	>8	>8	7.6	7.6	>8	>8	7.6	7.6	>8	>8	7.6	7.6
			Yes	7.6	7.7	6.4	6.4	7.8	7.7	6.4	6.4	8	7.7	6.4	6.4	>8	7.7	6.4	6.4
		5	No	7.7	7.1	6.8	6.8	7.9	7.1	6.8	6.8	8	7.1	6.8	6.8	>8	7.1	6.8	6.8
			Yes	6.7	6.4	5.8	5.8	6.9	6.4	5.9	5.9	7	6.4	5.9	5.9	7.2	6.4	5.9	5.9

Topping		Loading Options		Maximum Permissible Span (m) - Tension Steel: 5FØ16															
Thickness (mm)	Steel	Live Load (kN/m <sup>2</sup> )	Walls	Hollowcore Compression Steel															
				—				3FØ8				3FØ10				3FØ12			
				Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All	Mu	ΔS	ΔL	All
0	-	2.5	No	>8.	6.9	6.4	6.4	>8.	6.9	6.4	6.4	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5
			Yes	7.8	6.4	5	5	7.8	6.5	5.1	5.1	7.8	6.5	5.1	5.1	7.9	6.5	5.1	5.1
		5	No	7.9	5.9	5.6	5.6	7.9	5.9	5.6	5.6	7.9	5.9	5.7	5.7	7.9	5.9	5.7	5.7
			Yes	6.8	5.2	4.6	4.6	6.8	5.2	4.6	4.6	6.8	5.2	4.6	4.6	6.8	5.2	4.6	4.6
50	-	2.5	No	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3
			Yes	>8.	7.7	6	6	>8.	7.7	6	6	>8.	7.7	6	6	>8.	7.7	6	6
		5	No	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5
			Yes	7.4	6.2	5.5	5.5	7.6	6.2	5.5	5.5	7.7	6.2	5.5	5.5	7.8	6.2	5.5	5.5
	3FØ8	2.5	No	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3
			Yes	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1
		5	No	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5
			Yes	7.4	6.2	5.5	5.5	7.6	6.2	5.5	5.5	7.7	6.2	5.5	5.5	7.8	6.2	5.5	5.5
	3FØ10	2.5	No	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3
			Yes	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1
		5	No	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5
			Yes	7.4	6.2	5.6	5.6	7.6	6.2	5.6	5.6	7.7	6.2	5.6	5.6	7.8	6.2	5.6	5.6
	3FØ12	2.5	No	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3	>8.	8	7.3	7.3
			Yes	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1	>8.	7.7	6.1	6.1
		5	No	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5	>8.	6.9	6.5	6.5
			Yes	7.4	6.2	5.6	5.6	7.6	6.2	5.6	5.6	7.7	6.2	5.6	5.6	7.8	6.2	5.6	5.6
70	-	2.5	No	>8.	>8.	7.6	7.6	>8.	>8.	7.6	7.6	>8.	>8.	7.6	7.6	>8.	>8.	7.6	7.6
			Yes	>8.	>8.	6.4	6.4	>8.	>8.	6.4	6.4	>8.	>8.	6.4	6.4	>8.	>8.	6.4	6.4
		5	No	>8.	7.2	6.8	6.8	>8.	7.2	6.8	6.8	>8.	7.2	6.8	6.8	>8.	7.2	6.8	6.8
			Yes	7.7	6.6	5.9	5.9	7.9	6.6	5.9	5.9	8	6.6	5.9	5.9	>8.	6.6	5.9	5.9
	3FØ8	2.5	No	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7
			Yes	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5
		5	No	>8.	7.2	6.9	6.9	>8.	7.2	6.9	6.9	>8.	7.3	6.9	6.9	>8.	7.3	6.9	6.9
			Yes	7.7	6.6	5.9	5.9	7.9	6.6	5.9	5.9	8	6.6	5.9	5.9	>8.	6.6	5.9	5.9
	3FØ10	2.5	No	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7
			Yes	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5
		5	No	>8.	7.2	6.9	6.9	>8.	7.2	6.9	6.9	>8.	7.3	6.9	6.9	>8.	7.3	6.9	6.9
			Yes	7.7	6.6	5.9	5.9	7.9	6.6	5.9	5.9	8	6.6	5.9	5.9	>8.	6.6	5.9	5.9
	3FØ12	2.5	No	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7	>8.	>8.	7.7	7.7
			Yes	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5	>8.	>8.	6.5	6.5
		5	No	>8.	7.2	6.9	6.9	>8.	7.3	6.9	6.9	>8.	7.3	6.9	6.9	>8.	7.3	6.9	6.9
			Yes	7.7	6.6	6	6	7.9	6.6	6	6	8	6.6	6	6	>8.	6.6	6	6

## INSTALLATION

---

Once the hollow core slabs are well erected using 20-50 tons crane, the electrical conduit and plumbing can be taken through the hollow cores as well as through longitudinal and transverse joints.

The conduits are thus out of sight and safe from damage. If screed provided on top of the slabs, the conduits are normally run in the screed and holes are drilled through the slab for installation of the electrical boxes. If false ceiling is provided, it is most common that the very conduit is placed between the soffit of the slabs and the false ceiling.







## SCREEDING

---

The hollow core slab are need to non structural topping is specified a simple 50 –100 mm leveling screed is necessary or structural topping for heavy load see previous tables1 and 2.



## CANTILEVER SLABS

---

Hollow core slab can be cantilevered until 1.2 m depending on the slabs thickness, and other cases.

The cantilevered slabs can be used for making balconies, bay windows, extensions and other decorative structures.



## SOUND & INSULATION

---

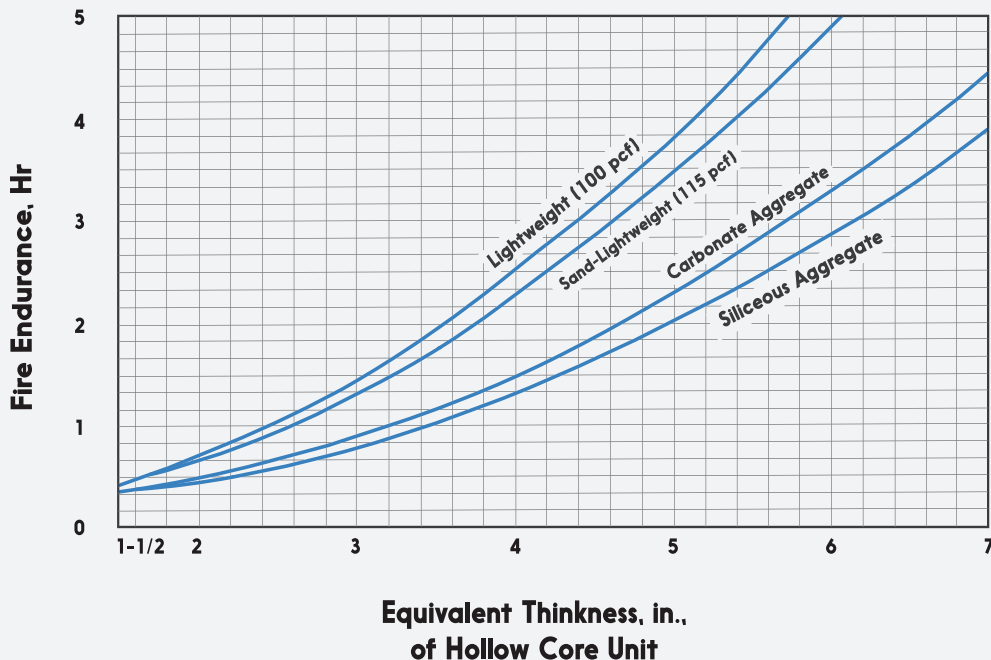
The benefits of concrete for reducing sound transfer have been realized and used in house construction for years. The use of concrete floor slabs between levels has proven to cut noise transfer by over 50%.

## FIRE RATE

One of the attributes of hollow core slab construction is excellent fire resistance. More than 30 standard fire tests (ASTM E119) have been conducted on hollow core floor assemblies.

The standard fire test method, ASTM E119, limits the average temperature rise of the unexposed surface, i.e., the surface of floor or roof not exposed to fire, to 250 °F (120 °C) during a fire test. This criterion is often called the heat transmission end point.

For solid concrete slabs, the temperature rise of the unexposed surfaces depends mainly on the slab thickness and aggregate type. Figure 6.2 shows the relationship between slab thickness and fire endurance as determined by the heat transmission end point criterion.



**FIGURE 6.2**

Fire endurance (heat transmission) of hollow core units.

## Equivalent Thickness

The information in Figure 6.2 is applicable to hollow core slabs by entering the graph with the “equivalent thickness” of the unit instead of the thickness.

Equivalent thickness can be calculated by dividing the net area of the cross section of a hollow core unit by the width of the unit.

The equivalent thickness for our hollow core is 4.8 inch equal 2 hours and after adding 50 mm (screed) at 6 inch more than 3 hours.

## Advantages of reinforced flooring against prestressed flooring

---

Precast

---

No Precamber – Ideal For Finishing Trades.

---

600 mm Wide Lighter Unit Requires Smaller Crane.

---

Shear Keys at both sides of the slab.

---

Slabs are produced at the required length.

---

## Important Information

### DO

- Grout shear keys before floor is loaded and before joints fill with debris.
- Ensure grout has reached required strength before loading of floor.
- Use C35/10 concrete when grouting.
- Sufficiently wet shear keys before placing grout.
- Prop spans exceeding 3.0 m at mid span before grouting.
- Prop all floors loaded with blocks.
- Prop all cantilevered slabs at extreme free edge.
- Allow one cubic meter of grout for every 75 sq. meters of flooring.
- Read attached information regarding your particular job.

### DO NOT

- Do not exceed loadings as indicated on your customer drawings
- Do not leave floor ungrouted.
- Do not grout with anything other than specified mix.
- Do not leave out any specified steel.
- Do not load floor before grout has cured.
- Do not load unpropped floors when span exceeds 3.0 meters.
- Do not remove props before loading removed.
- Do not use impact tools when fixing to or creating openings in slabs.
- Do not plaster direct until floor above has been completed.

# TEST AND QUALITY CONTROL

---

ORAK Factory is built up at the state of the art of technology by Coote Engineering Company from UK to produce reinforced hollow-core slab at European standards which have been tested and approved by specialized lab in UK.



## CERTIFIED TESTS FOR LIGHT WEIGHT PARTITION WALL

---

- Weight Hanging Test
- Thermal resistivity Test
- Double wall 20 cm Thermal test
- Compressive strength Test 7 days
- Compressive strength Test 28 days
- Sound Transmission



## CERTIFICATIONS

---

- SASO Certification
- ISO 9001:2015

## Certified Tests for Hollow Core Slab Systems



The company has conducted the required product tests with the SASO accredited specialized company AL HOUTI, Our Company has got the quality of the product certificate.



## Tests of the product with Prince Salman University



The company in collaboration with the Faculty of Engineering at the University of Prince Salman at Al-Kharj is conducting tests of the product according to ISO specifications with the participation of students and professors from the Faculty of Engineering.





## ISO 9001:2015 CERTIFICATE

## Daily Control



Lab technicians perform daily control tests of the concrete components and mix to meet the international standard quality control procedures in our own laboratory in the factory.





**Method of Constructio Submittal form**

Submittal Ref: AKR-OEC-BH01-CMS-PMT-001 Rev No: 0 Date: 11/09/2023

Program Title: Developmental Housing Program

Project Title: Habs El Fadila - At-baha region- 272 units

The Employer: National Housing Company (NIC)

Third party: DAR AL RIYADH

Consultant: Al Ommar engineering consultant

Contractor: Asala Al Khaleq real estate

**Guidance notes:**  
The submission should only include documents which are deemed compliant with the SQR, Applicable Codes and have been reviewed and coordinated between the Contractor and Designer (and Engineer if applicable) and should include any authorized variations/changes as instructed.

**Review Discipline**  
Architectural  Structural/Civil  Mech/Plumb  Elec.  Others (specify)

**Document Details**  
Notes: DAR AL RIYADH review will recommend either Objection or No Objection to each item. Non-Objected shall be issued to the NIC with the recommendation to approve. Objected shall be returned to the Contractor with an Objection report.

**Proposed by:**  
The Contractor: [Signature] Sign/Stamp: [Stamp]  
The Consultant (Designer & The Engineer): [Signature] Sign/Stamp: [Stamp]

**DAR AL RIYADH Review**

Ser No:	Document Title/Description:	Drawing Reference:	Rev No:	Remarks
	Proposed Method Of Construction		0	

**Reviewed for compliance by:**  
Notes: The Engineer\* shall review and approve when the Supervision Consultant differs from the Designer only. DAR AL RIYADH shall only issue recommendations based upon 'No Objection' to the Client. Any 'Objections' shall be returned to the Contractor with a review report for action and may be copied to the NIC when necessary.

THE ENGINEER*	Review Date:	Rejected	Approved	Signed:
	12-Sep-23 Ayman Diab	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	[Signature]

DAR AL RIYADH	Recommendations to NIC Date:	Objection	No Objection	Signed:
	17-09-2023 M.T. BASHA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	[Signature]

NIC	Review Date:	Objection	No Objection	Signed:
	No Objection Osama A.N	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	[Signature]

Factory approval for Habs Elfadila Project, part of the Developmental Housing Program providing 272 units.

**Document Submittal form**

Submittal Ref: AKR-OEC-BH01-CMS-PMT-001 Rev No: 01 Date: 1/10/2023

Program Title: Developmental Housing Program

Project Title: Habs El Fadila - At-baha region- 272 units

The Employer: National Housing Company (NIC)

Third party: DAR AL RIYADH

Consultant: Al Ommar Engineering Consultant

Contractor: Asala Al Khaleq real estate

**Guidance notes:**  
The submission should only include documents which are deemed compliant with the SQR, Applicable Codes and have been reviewed and coordinated between the Contractor and Designer (and Engineer if applicable) and should include any authorized variations/changes as instructed.

**Review Discipline**  
Architectural  Structural/Civil  Mech/Plumb  Elec.  Others (specify)

**Document Details**  
Notes: DAR AL RIYADH review will recommend either Objection or No Objection to each item. Non-Objected shall be issued to the NIC with the recommendation to approve. Objected shall be returned to the Contractor with an Objection report.

**Proposed by:**  
The Contractor: [Signature] Sign/Stamp: [Stamp]  
The Consultant (Designer & The Engineer): [Signature] Sign/Stamp: [Stamp]

**DAR AL RIYADH Review**

Ser No:	Document Title/Description:	Drawing Reference:	Rev No:	Remarks
	Proposed Method of Construction			

**Reviewed for compliance by:**  
Notes: The Engineer\* shall review and approve when the Supervision Consultant differs from the Designer only. DAR AL RIYADH shall only issue recommendations based upon 'No Objection' to the Client. Any 'Objections' shall be returned to the Contractor with a review report for action and may be copied to the NIC when necessary.

THE ENGINEER*	Review Date:	Rejected	Approved	Signed:
	01-10-2023 Ayman Diab	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	[Signature]

DAR AL RIYADH	Recommendations to NIC Date:	Objection	No Objection	Signed:
	05-10-2023 M.T. BASHA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	[Signature]

NIC	Review Date:	Objection	No Objection	Signed:
	No Objection Osama A.N	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	[Signature]

Factory approval for Habs Elfadila Project, part of the Developmental Housing Program providing 272 units.

## الدليل الإرشادي الشامل

مقاولين متحالفين مع تقنية البناء، مزودي تقنية البناء

### مصانع تقنية البناء المعتمدة فنياً

الطاقة الإنتاجية	المدينة	البريد الإلكتروني	رقم التواصل	نوع التقنية المستخدمة	اسم المصنع
880	جدة	info@sakam.com	9200 08605	الخرسانة المعزولة مسبقة الصب (IPS)	Modern Sakam Industrial Co.
1000	الرياض	2012ahs@gmail.com	054 945 5553	الوحدات خرسانية خفيفة	ACFA
260	الرياض	moti@eradaunited.com	053 050 5555	الهيكل الخفيف المضغوط الورني (CCS)	Powerwall Arabia
2000	أبها	alishar@alishar.com	012 665 3433	الخرسانة المعزولة مسبقة الصب (IPS)	Alli Shar Contracting Corp.
1100	الرياض	emad.saleh@alfanar.com	9200 06111	الخرسانة المعزولة مسبقة الصب (IPS)	ORAK Factory Co.
800	الرياض	info@lccsiporex.com	011 498 1800	الخرسانة الخفيفة الورني (CCS)	Alfanar
200	المدينة المنورة	mad_factory@sajco.com.sa	011 478 7005	الخرسانة المعزولة مسبقة الصب (IPS)	Lightweight Construction Co. Ltd. - SIPOREX
2400	الذراع	info@bina.com.sa	013 812 5555	الخرسانة المعزولة مسبقة الصب (IPS)	Shihb Al-Jazira Contracting Co.
1980	الرياض	info@al-tahaluf.com	92 000 1769	الخرسانة المعزولة مسبقة الصب (IPS)	Bina Advance Concrete Products Factory
600	الذراع	jf-sales@jazeera-group.com	013 808 7243	الخرسانة المعزولة مسبقة الصب (IPS)	RDB- Elseif
1500	الرياض	sales@rancozamil.com	011 491 0590	الخرسانة المعزولة مسبقة الصب (IPS)	Jazeera Precast
1000	الدمام	info@kifahprecast.com	013 839 7222	الخرسانة المعزولة مسبقة الصب (IPS)	RABIAN-NASSAR & ZAMIL CONCRETE INDUSTRIES CO. LTD.
1000	الدمام	s.alafaliq@plasthuarabia.com	013 812 1862	وحدات الخرسانة المعزولة (CCS)	AIKifah Holding (Alkifah Precast)
2920	جدة	lucamirhomes@gmail.com	055 508 8735	الهيكل الخفيف المضغوط الورني (CCS)	PLASTBAU ARABIA COMPANY LTD.
1000	الرياض	info@alwatanunits.com	12 416 1080	الخرسانة المعزولة مسبقة الصب (IPS)	Luca miro homes (Mahmood Saeed Company)
4800	الرياض	eyad@alrashidabetong.com	055 521 3167	الخرسانة المعزولة مسبقة الصب (IPS)	Al Watan Units
2000	الدمام	info@alwatanunits.com	011 416 1080	الخرسانة المعزولة مسبقة الصب (IPS)	Al Rashid Abetong Co Ltd.
					جدران الوطن

APPROVALS

## The Factory Adopt Housing Construction Technique

شركة أورك البوست  
مس. جوارع 1933 الرياض  
هاتف: 4500028 - فاكس:  
info@orak.com.sa

**طلب اعتماد مواد**

مشروع إسكان الرياض (1) على القطعتين (2A-2B) التابع لوزارة الإسكان

الإشراف: شركة تعميم للإستشارات الهندسية  
المقاول: شركة أورك البوست للتقنيات  
إعداد رقم (6)  
تاريخ التقييم: 2016/10/19  
تاريخ الاعتماد: 2016/10/19

المحتويين	المسألة / شركة تعميم للإستشارات الهندسية
نأمل من سعادتكم التكرم بإعتماد أسقف البولوكور بسماكة (21cm) وسماكة (16cm) حسب البروشور المرفق (مرفق نسخة)	
وصف البند	1- أسقف هولوكور بسماكة 21 cm
	2- أسقف هولوكور بسماكة 16 cm
المرفقات	الشركة المقدمة (المورد) شركة مصنع أورك لإنتاج العناصر الإنشائية الجاهزة مرفق بروشور يوضح مواصفات المنتج ونتائج الاختبارات المعتمدة.

توقيع المقاول: .....

الملاحظات:

يطلب من المقاول: ...

توقيع المهندس: .....

شركة تعميم للإستشارات الهندسية  
بريد: 238884 الرياض / 11321  
هاتف: 4786422 - فاكس: 4786499  
Email: taneer@pm.com.sa

## Approval of The Hollow core Housing Buildings

# SAFETY POLICY

## SAFETY FIRST

The ultimate goal of the organization is to eliminate the accidents and provide a safe and healthy working environment that will trigger a physical and mental well-being which will lead to productivity.

The department has prepared to a comprehensive safety program entailing the safety employee program and guidelines for safety for production thru erection activities.

Safety orientation is conducted for every employee before they will be deployed to their work assignment. Safety meeting is also initiated to monitor the process operation in fulfillment to the company safety management system.



# PROJECTS



## ACTUAL PROJECTS

- Telal Al-ghroub projects 167 (7-story building)
- Alfursan Villas at al Kharj
- Al-Ammaria Villas
- Dyrab
- wehdat alwatn
- Al-Fanar project
- Al-Eskan project
- Western Airport
- Azyan Namar
- Private housing villa in Riyadh
- Private housing villa in Al Kharj
- Hotel In Al Kharj

# TELAL AL-GHROUB PROJECTS



## ALFURSAN VILLAS PROJECT AT ALKHRJ







# ALAMMARIA VILLAS PROJECT AT RIYADH



# AL-FANAR PROJECT



# AL-ESKAN PROJECT





# WESTERN AIRPORT AL ESKAN PROJECT



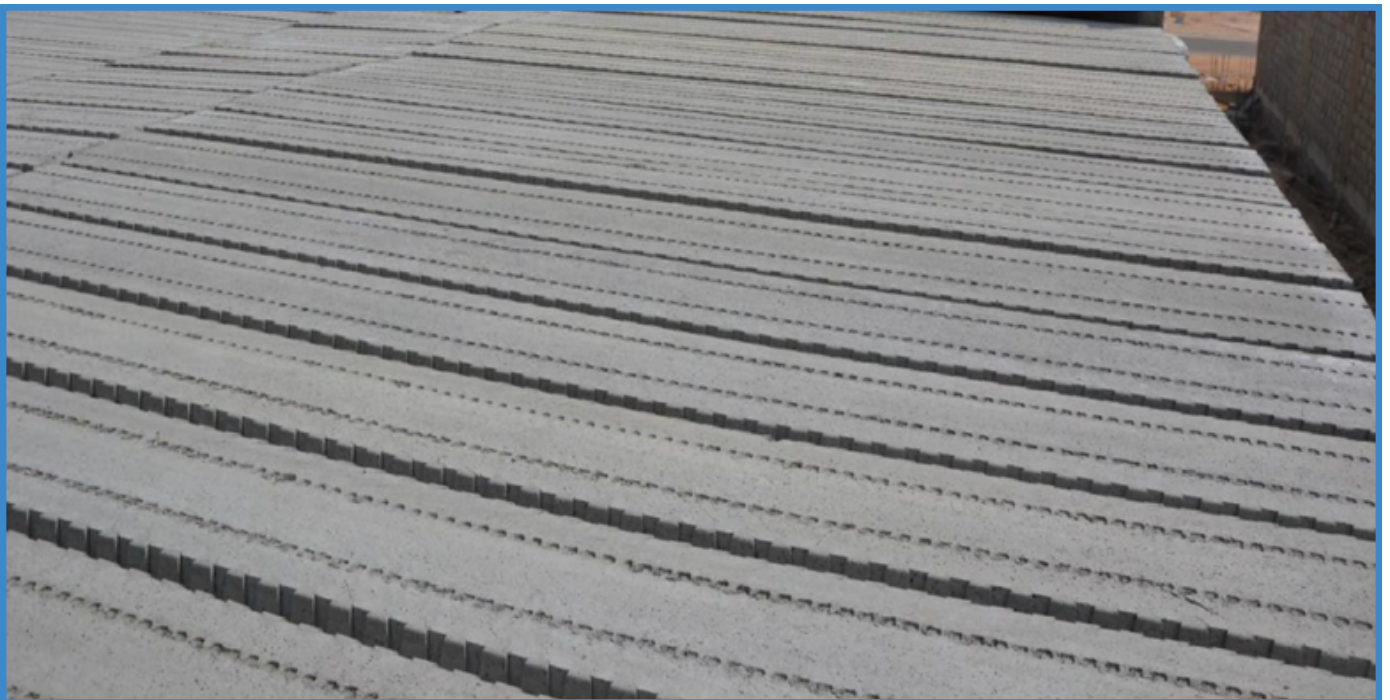
# AZYAN NAMAR PROJECT



# PRIVATE HOUSING VILLA IN RIYADH

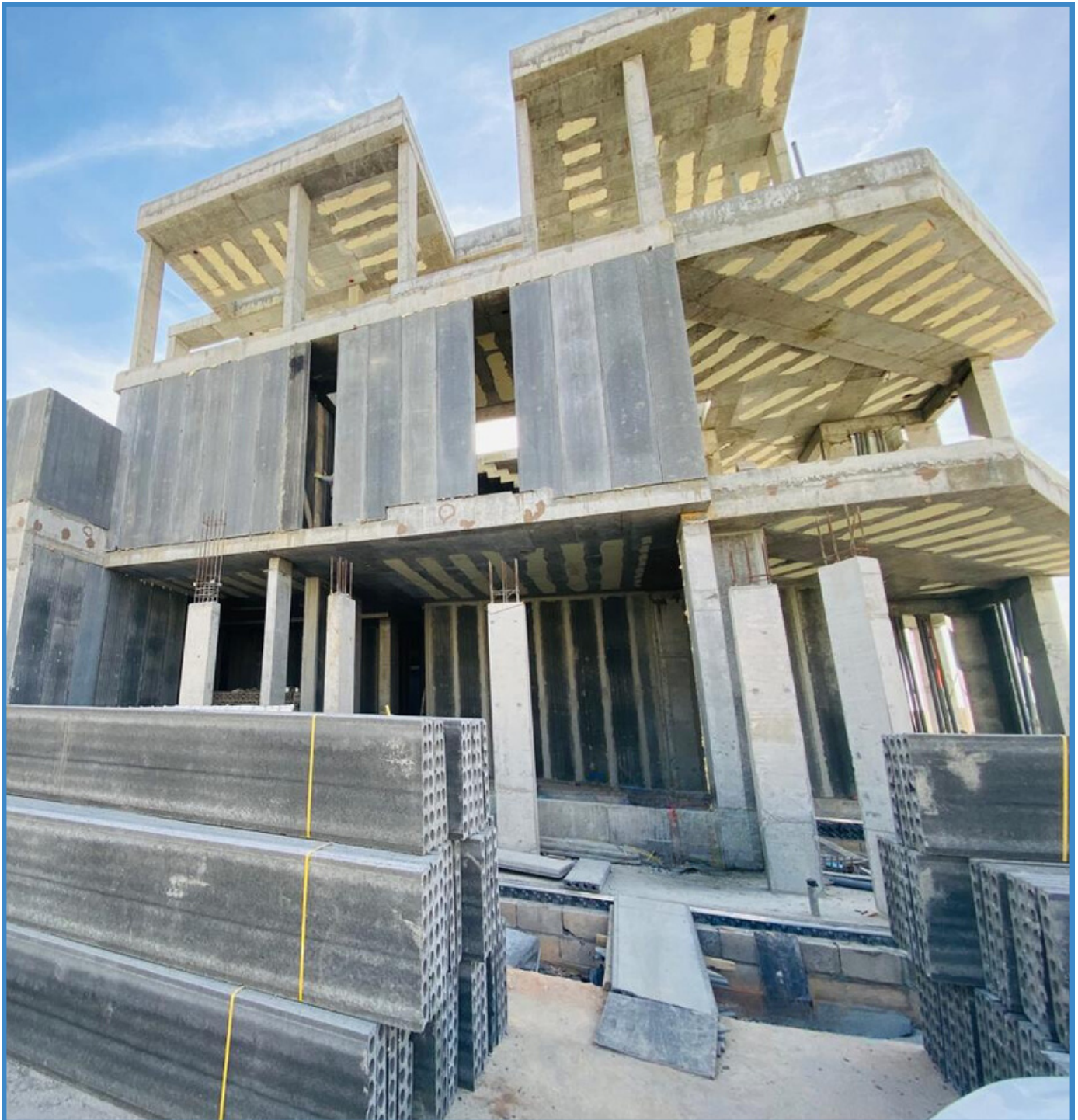


# PRIVATE VILLA IN AL KHARG





# PRIVATE HOUSING VILLA IN RIYADH



# Clients



## COMPANY ACTIVITIES



Participation in Big 5 Exhibition 2014 in Jeddah.

Participation in Big 5 Exhibition 2014 in Dubai.





Participation in Saudi Build 2014 in Riyadh.

Salman University Engineering college visit to the factory.





شركة مصنع اوراك  
**ORAK Factory Co.**  
لإنتاج للأجزاء الخرسانية الجاهزة



شركة مصنع اوراك  
**ORAK Factory Co.**  
لإنتاج للأجزاء الخرسانية الجاهزة



Exit18, Istanbul st, Alsulai District, Riyadh, Saudi Arabia  
T: +011 810 6169 | M: +966 593 269 995  
E: Info@orakprecast.net | W: www.orakprecast.net