Mas Factory
For Precast and Concrete Products
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About Us

MAS Factory for Precast and Concrete Products was built in a 9 hectares piece of land in the newly established Al-Kharj Industrial City, approximately 125 Kilometers south of Riyadh.

Three (3) Main Production Halls were constructed to manufacture the following products:

- Pre-stressed Hollow Core Slabs,
- Double Tee,
- Pre-stressed Beams and Columns and various Pre-cast elements as follow:
  - Cladding, Boundary Walls, Parapets, Spandrel beams.
  - Canopies, Stairs, etc. of different finishes, from fair faced finish, fluting and textured exposed aggregates.

The Hollow core production Hall contains six (6) lines of bed of 136.0 meters in length. Beds are equipped with heating lines under to speed up the curing process of concrete. The heat is formed using oil burners on the heating plant to circulate hot water in a coil of pipes under the beds that will transmit radiant heat through the steel plate to the concrete.

Production Capacity:

- Pre-stressed Hollow Core Slabs Capacity: 950 m²/day
- Pre-stressed Double Tee Slabs, column and beams: 500 m²/day
- Pre-cast Cladding, Parapets, Boundary Walls, etc.: 500 m²/day
Scope Of Operations

1. Design and Shop Drawing:
MAS Factory for Precast and Concrete Products (MASFPCP) offers a complete design service to include shop drawings and redesign of the entire structure to suit pre-cast systems. To enable MASFPCP to offer this service, they retain the services of an International Consultant and Managers to locally based design office which is well experience in all design aspects of pre-cast and pre-stressed concrete and GRC.

2. Production Capacity
MASFPCP have annually capacity to produce over 312,000 m2 of Hollow Core slabs and 26,000 cubic meters of Pre-cast Concrete Products at the moment. This will be surpassed once expansion facilities will be completed. Production is carried out to the highest standard and in accordance with American, British and Saudi Arabian Standards and Practices.

3. Experience.
MAS Factory for Precast and Concrete Products have fully trained teams of Managers, Technicians and Operatives who are fully conversant with the design, production and erection of all pre-cast products.

4. Quality Control
The Quality Control Engineers and Technicians of Assad Said Pre-cast maintains comprehensive Quality Assurance and Control Procedures to inspect, test all products and materials and operate extensive Test Schedules in suitable equipped in-house laboratory. Quality Control Plan and Procedures is prepared for all new contracts, if required. All Procedures and Test results is routinely reviewed by the International Consultant of MASFPCP.

5. Transport
MAS Factory for Precast and Concrete Products transport fleet supervisors have considerable experience of transporting pre-cast products and can deliver to all parts of the Kingdom.

6. Raw Materials
MASFPCP have identified the most suitable local materials and maintains large stocks to ensure all necessary materials are available in
the production. All materials selected for inclusion in the production process and tested to ensure compliance to relevant Local and International Standards.

**Equipment and Machineries List**

**Hollow Core production equipment’s consist of the following;**

- 1 set Batching Plant, twin’s shaft, drum type, 3.0m³ capacity.
- 6 sets Elematic steel beds, 1.2 x 136 meters long.
- 1 set Elematic Extruder Machine 150 to 470 mm deep.
- 1 set Elematic Bed saw
- 1 set Elematic Angle & longitudinal Cutting Bed saw
- 1 set Elematic Bedmaster
- 1 set Elematic Concrete Distributor and Shuttle
- 1 set Elematic Heating Plant
- 1 set Elematic Stressing Machine
- 2 sets 20 ton Double Girder Overhead Cranes
- 2 sets Winched Trolleys to transfer produced slabs to the stockyard.

**The Pre-cast and Pre-cast Pre-stressed Production Halls on the other hand is equipped with the following plants;**

- 1 unit Batching Plant, planet type, 1.0m³ capacity, 50-60m³/hr.
- 2 units Speedy Concrete Distributor
- 1 unit 10m³ Transit Mixer
- 1 set 30 ton capacity Stressing Jack and Pump
- 20 sets Tilting Tables, 4 – 4.5 m wide x 8 - 9.0 m long, complete with vibrators.
- 1 set Pre-stress Double Tee Mould line, 90 meter long
- 1 set Pre-stress Beam Mould line, 90 meter long.
- 1 set Pre-stress Column Mould Line, 90 meter long
- 15 sets Column moulds up to 3.7 meter long for Boundary Walls
- 5 sets 10 ton double girder Overhead Cranes.
- 6 sets Boundary Walls Columns Sidings and Shutter
- 1 set Boiler for Steam Curing
- 80 sets Elematic Magnets
- 650 sets Bianchi Magnets, 2t capacity
- 2 set Bar Bending Machine
- 2 sets Bar cutting Machine
- 1 sets Sand Blasting Machine
- 1 set 1000 liters Air Compressor
- 9 sets Electric Welding Plant and Gas cutter
- 1 set 250 CFM Mobile Compressor
- 1 unit 3m³ capacity Concrete Bucket
- 1 set 90 ton capacity Winch trolley to transfer Wall Elements to the stockyard
- 22 sets Stacking Racks and A-Frames
Products

Hollow Core Slabs

1. Uses
   Pre stressed Hollow Core Slabs are widely used for almost any type of structures for flooring, roof, wall cladding and boundary walls. From steel framed building to concrete in situ framed buildings, Pre-cast concrete column beam frame and load bearing walls.

2. Manufacturing
   The process of manufacturing Hollow Core Slabs is via extrusion on long line steel mold. Concrete mix for Hollow core slab is basically dry. Vibration within the extruder machine consolidates concrete ingredients to form a monolithic concrete of grade 50 to 60 Mpa.

   The slabs are cut to length required on site by a diamond tipped saw mounted on the bed. The bed saw was designed to cut square corners. Skew ends slabs are formed either while concrete is still fresh or via angle grinder at stockyard.

3. Finish
   The surface at the bottom of hollow core slab is smooth ex mould while the top is machine finish. This can be roughened, as required, to increase bonding to subsequent concreting or smoothed, ready to receive paint in case the slab is used as wall element.

4. Pre Camber
   Pre stressed elements are subject to pre camber. Depending on the amount of load applied and centroid of the pre-stressing force, modulus of rigidity of the cross section and length of the slabs. Graph shown below indicates the maximum and minimum average deflection of non-loaded elements after a month of storage. Thus, design to take accounts the pre camber to determine the thickness of the topping and screeds and the final levels after finishing.

5. Structural Topping
   Steel wire mesh reinforced concrete of minimum 40mm deep is used as structural screed. This increases the capacity of the slab and caters changes of load or important point load during seismic action.

6. Bearing
   Bearings or support lengths are nominally 70mm on steel or concrete and 100mm on masonry. Reduction of this length depends on the span, loading and the slenderness of the support and amount if any, of ties are being used. Neoprene or other packing materials ensures an even dispersion of loads.

7. Grouting
Immediate grouting of the slabs joints after final positioning prevents the space being filled with waste materials and losing effective dispersing of loads. Where structural screeds are to be used, joints are to be filled during screeding operation.

8. Holes And Notches
Service holes and notches are formed mostly in green concrete. Early detailed discussion will ensure optimum service hole location and use. Small holes for electrical or water supply may be cut through the cores on the site by the contractor.

9. Quality Assurance
ASSAD SAID PRECAST FACTORY adopts an advance quality assurance system to guaranty uniform quality of its products. In house laboratory with complete staffs and facilities was installed for all types of test.

Hollow Core Slabs Types
a. Hollow Core Slabs 150 X 1200
b. Hollow Core Slabs 180 X 1200

![Diagram of Hollow Core Slab 180 X 1200]

- Density 2400kg/m³
- Area of Cross Section 0.136m²
- Theoretical weight of Slab 271kg/m³

![Graph of Load vs Span for Hollow Core Slabs 180 X 1200]

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c. Hollow Core Slabs 200 X 1200

![Diagram of Hollow Core Slab 200 X 1200]

- Density 2400kg/m³
- Area of Cross Section 1.182m²
- Theoretical weight of Slab 236kg/m³

![Graph of Load vs Span for Hollow Core Slabs 200 X 1200]

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d. Hollow Core Slabs 250 X 1200

Density 2400 kg/m³
Area of Cross Section 1653 cm²
Theoretical weight of Slab 331 kg/m²

e. HOLLOW CORE SLABS 300 X 1200

Density 2400 kg/m³
Area of Cross Section 1676 cm²
Theoretical weight of Slab 335 kg/m³ (+ Strands)
f. Hollow Core Slabs 470 X 1200

Density 2400 kg/m³
Area of Cross Section 2695 cm²
Theoretical weight of Slab 539 kg/m³

Capacity curves of HCE470: P65.1875
According to EN1188-23 and EN1885-1.1

[Diagram with capacity curves and dimensions]
**Precast Concrete**

Due to certain degree of repetitiveness of most building components, the use of precast is of great advantage because the systems offers consistent quality material, reduce project duration, thus saves cost. With the use of high strength concrete in every precast element, sizes of load bearing columns can now be reduced to almost half of the section required in the conventional construction.

Beams can span longer with the use of pre-stress as well as the floor thickness reduction, hence, saving in foundation and building frame cost. Wall finishes from plain stucco to texture and liner finish. Because of the consistent high quality of concrete use in precast, buildings retains its commercial value than traditionally made buildings.

**Element which can be made in pre-cast in this factory are as follows:**

1. Socket Footings & Foundation Pads
2. Pre-cast & Pre-stressed Columns
3. Pre-cast and Pre-stressed Beams, Single &Double Tees
4. Floor and Roof Slabs
5. Insulated and Non - Insulated External Walls
6. Internal Walls/Partitions
7. Boundary Walls
8. Cladding
9. Parapets
10. Scuppers
11. Pre-cast & Pre-stressed Lintels
12. Spandrels
13. Stairs
14. Canopies
15. Copings
16. Cornices
17. Sewer & Drainage Manholes
18. Reinforced Concrete Pipes
19. Catch Basins & Curbstones
Cladding Panels

Element A Below Provides A Simple Flat Surface Cladding, But Also Incorporates An Insulated Wall Solution To A Building. Element B As Shown Below Is A Spandrel Which Can Also Support The Floor If Necessary.

Standard Cladding

Non-Standard Cladding

A Non-Standard Cladding Product Can Be Produced In A Variety Of Designs And Sections. Typical Examples Can Be Seen Below:
Boundary Wall Elements

Boundary wall can be made as a precast in its entirety as shown below. Wall panels will be connected by providing groves in the column and will be fully grouted after placement of the panels. Columns will be connected in a socketed footing made from either precast or cast in site concrete and will also be grouted in order to maintain fixity between column and footing.

Boundary walls general arrangement
Figure a. Shows various types of precast columns that can be produce to suit as per site requirements.

Figure b. Shapes and architectural design can be imposed in the wall during casting (optional).

Figure c. Socket type footing in various dimensions as required in the design.
Typical Wall Panel Elements

A. Precast Column
B. Precast Wall Panel
C. Precast Footing
<table>
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<tr>
<th>NO.</th>
<th>PROJECT NAME</th>
<th>LOCATION</th>
<th>OWNER / CLIENT</th>
<th>ACTIVITIES</th>
<th>CONTRACT VALUE</th>
<th>STATUS</th>
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<tbody>
<tr>
<td>1</td>
<td>MAS Factory Building, Mosque and Guardhouse</td>
<td>Industrial City, Al Kharj</td>
<td>Assad Said</td>
<td>Corbelled Column PC/HC Walls, Beams, Columns, Parapets HC Slabs</td>
<td>3.5 Million</td>
<td>Completed</td>
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<td>2</td>
<td>ASC Head Office Extension Bldg.</td>
<td>Riyadh</td>
<td>Assad Said</td>
<td>Corbelled Columns, Beams, Hollow Core Slabs</td>
<td>2.9 Million</td>
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<td>PP11 380kV Substation S/S #9022</td>
<td>Dhurma</td>
<td>SEC / SIEMENS</td>
<td>Precast Boundary Wall Panels and Columns</td>
<td>1.2 Million</td>
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<td>4</td>
<td>PNU 380kV Substation S/S #9024</td>
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<td>5</td>
<td>Khasm Al A’nn 380kV Substation S/S #9017</td>
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<td>6</td>
<td>SWCC Ras Al Khair WTS Pumping Station Project</td>
<td>Ras Al Khair, Riyadh</td>
<td>SWCC / SSEM</td>
<td>Yard Shafts Roof PC Roof Slab</td>
<td>3.8 Million</td>
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<td>7</td>
<td>GAMI Housing Extension Project</td>
<td>Al Kharj</td>
<td>GAMI</td>
<td>Sewer Manholes, Pre-Stress Lintels, etc.</td>
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<td>8</td>
<td>GAMI Housing Extension Project Mosque No.3</td>
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<td>GAMI</td>
<td>Insulated Bearing Walls, Partition, HC Slabs, Minaret</td>
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<td>9</td>
<td>Industrial Area 380kV Substation S/S #9027</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Industrial City, Riyadh</td>
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<td>Precast Boundary Wall Panels and Columns</td>
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<td>10</td>
<td>SVC Qassim Substation</td>
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<td>Precast Trench Cover</td>
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<td>PP13 380 building + Control building + 132 building</td>
<td>Durma</td>
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<td>On going</td>
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<td>Around Kingdom</td>
<td>Ministry of Justice</td>
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<td>9072 Siemens Kharj</td>
<td>Saudi Electricity Co.</td>
<td>Completed building including design And bounding walls</td>
<td>3.6 Million</td>
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<td>TOTAL CONTRACT VALUE SR.</td>
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شهادة انساب

الموقع / الموافق: 2015/10/25

تشهد غرفة التجارة والصناعية بالخرج، بأن محمد احمد سعيد الصغير، منصب مهندس اجتماعات، بعد مراجعة وتفتيش صناعي وموارد، واعتماده، أنه يحقق الجودة والمصداقية في الانتاج وفقاً للشروط المذكورة في الشهادة رقم 412/2010.

تاريخ: 20/11/2014

وشخصي

علوان

عنوان غرفة التجارة والصناعية

الخرج، عند توليهم مقالة

شهادة صادرة عن غرفة التجارة والصناعية بالخرج، رقم: 412/2010

ممثلة للشركة

www.kccl.org.sa

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Registration Certificate

QMS international plc

This document certifies that the quality management systems of

MAS FACTORY FOR PRE-CAST & CONCRETE PRODUCTS

have been assessed and approved by QMS International plc to the

following quality management systems, standards and guidelines:

ISO 9001:2008

The approved quality management systems apply to the following:

PRE-CAST & CONCRETE PRODUCTS FACTORY

Original Approval: 20 July 2012

Current Certificate: 20 July 2012

Certificate Expiry: 19 July 2022

Certificate Number: KSA 20446

On behalf of QMS International plc

This Certificate remains valid while the holder maintains their quality management systems in accordance with the standards and guidelines above, which will be verified by QMS International plc.

QMS

ISO 9001
REGISTERED FIRM
Client Approval

External Correspondence

ENGINEERING & PROJECTS
Consolidated Transmission Area Projects Department
Support Facility Projects Division
Telephone: 464333-14402 - Fax: 2171628

Reference: 11/23690/030742
Date: 01-11-2011 G (08-12-1432H)

Mohammed Assad Ameen Said (MASS),
Pre-Cast Manufacturing Factory, Riyadh

Subject: Manufacturer Approval for Pre-cast Boundary Wall

Please be informed that M/s MASS is acceptable for manufacturing and supply of pre-cast Boundary Wall Panels only.

However the approval of M/s MASS for the manufacturing and supply of Building Structures is still under process.

Regards,

Eng’r. Abdul Halim Omer Fallatah
Division Manager
CTAPD/Support Facility Projects Division

Cc: Division Manager, CTAPD/EHVPD

Route: RAK/File
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CONSTRUCTION OF PUMP STATIONS, LVS & TIE-IN STATIONS

CONSORTIUM
SSEM – AL RASHID – HAK

METHOD STATEMENT FOR PRODUCTION OF PRECAST CONCRETE COVERS FOR YARD SHAFTS