1 - Entrance (by boat) Players
2 - Public entrance and turnstiles
3 - Evaporative cooling facade
4 - Aluminium cladding panels
In order to prevent condensation from occurring, interior spaces must be insulated from the inside. Concrete floors, stands and structure to maximise thermal mass. Floors cast in-situ, structure and stands are pre-cast and fixed on site with mortar joints. Reinforced concrete pile foundations needed to stabilise the structure on unstable ground (reclaimed land). Ventilation is achieved mechanically during occupancy of interior spaces via exhaust in the suspended ceiling. Insulated radiant cooling panels and dehumidifier panels make up the suspended ceilings and ensure a comfortable internal climate during matches.
1 - Public car parking area
2 - Public entrance to Museum of Islamic Art
3 - Access bridge to museum
4 - MIA park
5 - Stadium ticket offices
6 - Stadium access park
7 - Vehicular access ring to stadium
8 - Public plaza on stadium premises
9 - Public water steps
1 - Public parking area
2 - Doha Museum of Islamic Art
3 - Stadium site
4 - Traditional Dhow harbor
5 - Doha corniche park
6 - Doha dry docks and industrial zone
1. 1500 x 700 mm steel reinforced concrete column
2. 250 x 25 mm steel connector plates cast in concrete
3. Carbon fibre tension rods
4. 6700 x 850 mm steel compression unit
5. 150 mm diameter steel compression beam
6. Polycarbonate drainage gutter attached to mesh
7. 50 mm diameter steel tension cable
8. 300 x 150 mm steel connector plate for tension cables
9. 100 mm diameter insulated PVC water pipe
10. Raschel (Acrylic yarn) mesh
Ground Floor Plan

Project Title: AQUARENA
Scale: 1:500
Orientation: A1

Legend:
1. Restaurant / Cafe
2. Kitchen
3. Shops / Merchandising
4. Storage Room
5. Kiosk
1 - Toilets M/F/Disabled
2 - Media access to grandstand
1 - 800 mm diameter hollow steel roof member (truss)
2 - 150 mm diameter insulated PVC water pipe
3 - 190 x 165 mm extruded aluminum grid
4 - 100 mm diameter hollow steel roof member (truss)
5 - Steel ring connection component to facade tensile members
6 - 200 mm diameter steel tube
7 - 100 mm insulated aluminum radiant cooling panel
8 - Neoprene gasket for water-tightness. Gutter for dew water collection
9 - 6700 x 850 mm steel compression unit
10 - 300 mm diameter stainless steel cap for tensegrity compression member
11 - Polycarbonate gutter attached to mesh
12 - 50 mm mortar connection for pre-cast concrete column members
13 - 3 mm bent aluminum plate for connection to mesh
14 - 50 mm mortar connection for pre-cast concrete column members
15 - Polycarbonate gutter attached to mesh

Name: Osama Najj
Project Title: AQUARIA
Drawing: Details A-B-C-D
Scale: 1:10 A1
Orientation:
Typical stadium design: symmetrical layout

- No main facade
- Public functions distributed evenly
- Convex roof shape - large volume

Proposed design: Asymmetric layout

- Main facade oriented towards prevailing wind
- Public spaces and functions concentrated towards prevailing wind direction
- Concave roof shape - less air volume to cool and more efficient radiant cooling

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