

DHL Stadium

FAST FACTS

1. CONSTRUCTION

The DHL Stadium was built on part of the 9-hole Metropolitan Golf Course which was established 1895. The golf club and the city came to a consensus that the Stadium could be built on 5 of the greens provided the City of Cape Town developed 5 new greens for the Metropolitan Golf Course on the opposite road. DHL Stadium is a multi – purpose venue.

Construction Quick Facts

- Planning started in 2004 after winning the bid to host the FIFA 2010 World Cup™;
- Sod Turning: 20 March 2007 ;
- Construction commenced: 26 March 2007 ;
- Date Completed: 14 December 2009 (33 months to completion);
- Concept Designed by German Company: Robert Hormes GMP Architekten
- Detailed Design: Louis Karol and Point Architects (SA) Shape of Abalone shell, seats are to give a pearly effect;
- Total Cost: R 4, 5 Billion;
- +- 2 500 workers on site during construction period;
- +- 1 200 artisans trained;
- Contract was awarded to Murray & Roberts (M & R), WBHO (50 plus different consulting practices, 70 – 80 subcontractors).

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www.dhlstadium.co.za



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2. ELECTRICITY SUPPLY

- City of Cape Town commissioned a new 132kv/11,66kv substation at Mouille Point with integrated modern computerised control systems;
- The stadium is supplied from the substation at 10mva/11,66kv and power is distributed to a number of medium – voltage substations strategically positioned within the stadium;
- There are standby generators capable of running independently of the national grid;
- The floodlighting has been designed to ensure compliance with FIFA specifications that call for the floodlighting to have no break in supplies;
- This is achieved through installations of a dynamic rotary diesel-driven UPS (uninterruptable power supply) ;
- Day to day operating is controlled by the Building Management Systems (BMS) which is used to control the lighting and air – conditioning to limit any unnecessary use;
- Lighting designs include low – energy fittings coupled with electronic ballasts; these give up to 15% savings on energy consumption;
- Stadium can either use generators or municipal power which can help with costs.

3. ROOF

- Roof Design engineers, Schlaich Bergman and Partner (Stuttgart) requested that a wind tunnel testing to be done to verify design wind pressures;
- A model of the Stadium was built in order to go through the wind tunnel for testing. Built to withstand winds and turbulence. The inner roof edge can lift up by 1.8m over a period of 15 minutes;

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- Detail roof design could only start after receiving wind tunnel report;
- Cost: R429 million;
- Structural design of roof is like a half flat bicycle wheel with rims and spokes, with a tension ring on the inner edge and compression ring on the outer edge connected to each other by radial cables;
- Mesh fabric under the steel cables and trusses, translucent opaque glass over the seated area to counter heat load, with the translucent fabric ceiling giving access to lighting and ventilation below, while transparent glass covers the inner cantilever;
- Covers 37 000 square meters;
- Contains 7,5 km of steel cabling;
- Top layer of roof made up of 9000 laminated safety glass panels, 250 000 bolts, 20 000 steel pieces, and 16mm thick protect spectators from strong winds and rain, but also let in light. Most of the glass is coated in a white ceramic paint;
- The glass is the only cladding material that was heavy enough to exceed the total suction that would prevent the roof from lifting up;
- Underside is a lightweight membrane which is used to house technical elements such as lighting and public address system. Provides sound absorbency;
- Lights for pitch housed in the inner ring of the roof: Ring of Fire;
- Designed to reduce noise and light pollution;
- Let's in natural light, area above pitch is open, but spectators under cover;
- The white painted compression ring, resting on the columns, is made of a special steel alloy, welded into 2 x 1m box sections filled with Xenon gas to prevent internal corrosion;
- There are 4 bundled storm water downpipes draining the roof's vast area at 1 000 litres per second into a siphonic drainage system that feeds;
- Underground storage chambers, then released into the storm water system

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4. INFRASTRUCTURE

Parking bays: The Stadium has 1360 parking bays. It is generally used by emergency services, SAPS, VIPs and staff. The public is not permitted to use this parking due to security reasons as well as environmental reasons;

Police Cells: We have a charge office and 3 police holding cells. Generally used for people who do not adhere to the rules and regulations of the stadium;

Medical Area: On large bowl event days, we have a fully operational emergency room with numerous beds on this floor. Once a patient is stabilised, the patient will be sent to the hospital. We have 3 smaller emergency rooms on the concourse as well. On big event days, we will have 2 emergency golf carts to transport patients inside the stadium;

Warm-up room: This is a room used for players to warm up/stretch;

Changing rooms: 4 full size change rooms. Changing rooms can be divided into two sections or 4;

Jacuzzis and ice baths: 2 wet rooms each consisting of 3 Jacuzzis and 1 ceramic ice bath;

Doping room: Before each game random players are selected to do a doping test;

Mixing area: This is the area where the two teams meet for the first time before the match;

Level 01: Media Conference room (South) and Press Conference room (North), with 2 breakaway rooms on each side. The media tribune is used for press and media. Parking on Level 01 is usually reserved for VIP's;

Level 02: Public space, entrance to podium and concourse;

Level 03: Club Lounge similar to level 4, except that there's no balcony or view of the field. Used for various events like exhibitions, birthday parties, security training, etc. Two kitchens used for preparing of foods, no cooking allowed;

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Level 04: Business Lounge with 2132 VIP seats for bowl events. Also used for various functions such as banquets, parties, exhibitions. Two kitchens used for preparing of foods, no cooking allowed.

Level 05: There are VIP Suites right around the stadium which includes outside seating.

Level 06: There are VIP Hospitality Suites on both the west and east side of the stadium with spacious balcony's providing both a field and scenic facing view where applicable. Level 06 hosts the new 126 PAX Presidential Suite, finished with a luxurious shower and bathroom facilities. The Presidential Suite features major outside balcony's and rose gold plated bars.

Level 07: There are newly constructed VIP Hospitality suites available on the west and east side of the stadium offering spectacular views of the field, waterfront and table mountain. These suites include a balcony and outside seating.

Level 08: There are newly constructed VIP Hospitality suites available on the west and east side of the stadium offering field and scenic facing views of the stadium and the precinct area. These suites include a balcony and outside seating.

Stadium Structure: Quick Facts

• Stadium Site Area	56 990m ²
• Podium Perimeter	1 336m
• Stadium Perimeter	745m
• Stadium Length	290m
• Stadium Width	265m
• Stadium Height	50m
• Roof Area	40 000m ²
• Roof Weight	3 735 tons
• Outer Membrane Façade	27 500m ²
• Inner Roof Membrane	31 000m ²
• Floor Space	116 290m ²
• Concrete Used	96 000m ³
• Bricks Used	5 234 000
• Balustrades Total Length	4 480m

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- Handrails Total Length 2 230m
- Number of concrete column bases 562
- Length of concrete columns 6 526 m

Stadium Features: Quick Facts

- Pitch Area 13 535m²
- Pitch Playing Surface 11749m²
- Rugby pitch dimensions 100m x 68 m & goal area 8m
- 87 Turnstiles, 3 Main Gates
- 18 027 signs installed at a density of 1,2 per square metre
- 112 CCTV operated from a Control Room
- 178 Media Seats
- Internal Parking 900 Bays
- Venue Operations Centre (VOC)
- 887 Toilets
- 248 VIP Suites
- Medical Centre & Police Station
- 253 -wheel chair bays
- 16 Lifts and 4 new hospitality lifts on the new upper levels
- Four Changing Rooms 396m²
- 19 Concessionaire Stands (Level 02)
- 360 – 2000W Floodlights
- Mixing Zone: Level 00 867m²
- The Visitors centre 95m²

Seating Facts: kjh

- Level 00 – 02 Grand Stand 23 266
- Level 03-04 Grand Stand 15 594
- Level 6 Grand Stand 11 708
- Level 04 Business Club Lounge 2132
- Level 05 Suites (x110) & Open Blocks (x10) 2545
- Level 06 Suites (x56) 1156
- Level 07 Suites (x48) 904
- Level 08 Suites (x26) 578

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After all renovations, the new total capacity for the DHL Stadium will be 62 000 this is inclusive of support services and personnel.

5. ENVIRONMENTAL

- Environmental Impact Assessments were extensively carried out before and during the construction phases;
- Situated within the Green Point Urban Park: A green lung of the city;
- Stadium assessed in terms of CSIR Sustainable Building Tool standards: performed extremely well;
- 95% of old stadium was recycled into the building of the new stadium;
- Designed in an energy efficient manner;
- Water based air-conditioning system;
- Dual flush toilets;
- Storm water flowing from Stadium and surrounding paved – surface areas; used as water irrigation for golf course and green point common;
- Water for neighbouring Green Point Park is piped from historic Oranjezicht springs on Table Mountain;
- Limited parking facilities are allowed around the stadium on event days: fans are required to walk and use public transport (reduce congestion, emissions, etc.);
- Design aims to reduce the impact of noise and lights;
- Makes full use of natural light and mesh fabric allows for natural ventilation;
- Equipped with Building Management system that allows for the automatic and manual control of all systems in the stadium: e.g. can turn down lighting or air-conditioning in areas not in use.

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5. THE PITCH

- The type of grass used at the Cape Town stadium consist of varieties of grass:
 - 60% Perennial rye –Champion
 - 30% Dwarf fescue – Speedway
 - 10% creeping red fescue – SR5250
- Netlon is used to reinforce the field. The reason for the use of this type of grass are as follows, less stress fractures, fewer grass burns to athletes and the bounce of a ball is true and skids better off the grass faster. (Area of grass surface = 11749m² and the soccer pitch = 105m x 68m which complies to international standards).
- Turf area size 10400m²

Growing and maintenance processes and cycles: interesting facts and figures

- When over seeding is done the seed will germinate between 7- 10 days depending on the weather conditions;
- The pitch is made up of a sand base medium and a highly sophisticated drainage system was installed during the construction phase of the pitch
- Netlon was used as a pitch stabilizer and this prevents the grass from lifting up during running, sliding and scrumming;
- Grass is cut as little as possible and maintained at 35mm;
- For soccer it will be cut to 28mm and rugby 25mm;
- There are pop up sprinklers which are 30mm underneath the ground.

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Types of equipment, machinery, electronics, systems and schedules used in the maintenance processes

- The equipment used to mow the pitch consists of Honda and Dennis lawn mowers. Daily moisture readings are taken and the ideal moist reading is between 18-22;
- Early inter seeding of the grass takes place as required;
- Four workers are required for grass maintenance and one pitch manager for supervision.

Drainage and what happens after a match

- The whole field is served by a drainage system that drains into the moat around it;
- The sand is graded, not just any type of sand, it has been tested and washed;
- The grading process for the sand is quite a complicated and technical process whereby measuring degrees of infiltration and porosities so that it will provide a growing medium that can hold the grass, allowing just enough air and water to sustain the grass;
- There are no nutrients in it;
- Field drains very quickly;
- There is also a small pure rye grass nursery which can be planted into a small section of the pitch where necessary;
- After a match, all the debris gets raked up with brushes and removed from the field meticulously and lift out with a special lifting tool;
- This process speeds up the recovery time of the grass;
- Lights are switch on and the grass is sprayed with a kind of 'rescue remedy' to help the plants recover.

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6. 2020 /2021 SUITE CONSTRUCTION

Hospitality Suites

Total suites: 248

- Pods: 4
- Scenic: 27
- Field facing: 209
- Total Suite Capacity : 5183

Business Lounge

- Business Lounge A : 572
- Business Lounge B: 988
- Business Lounge C: 572
- Total Business Lounge capacity: 2132
- Total Hospitality capacity: 7315

Construction period

- Site Handover 7 February 2020
- COVID 19 Impact Halt in Construction: 27 March 2020
- Resume Construction: 8 May 2020
- Project Completion and Handback: 30 April 2021
- Budget: 263 million

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