

Durban, South Africa



Crestron Commercial Lighting Control Helps Durban Stadium Light Up 2010 FIFA World Cup™

Background

In anticipation of the 2010 FIFA World Cup™, the new Moses Mabhida Stadium has garnered praise and admiration from officials, visitors and players alike, both locally and internationally. Located in the heart of the new King's Park Sporting Precinct in Durban, South Africa, this world class, multi-use arena is already a landmark structure. The new stadium served as a primary regional venue for the 2010 World Cup™.

Completed ahead of schedule, the arena hosted several high-profile soccer matches prior to the World Cup. "We were extremely pleased with the success of the first events and have every faith that the stadium will be an enormous asset, not only to Durban, but to South Africa," said Julie-May

Ellingson, Head of the Strategic Projects Unit and 2010 Programme for the City of Durban.

Designed for year round action, the stadium seats 70,000 fans, with expansion capabilities to 85,000 seats for larger events such as the Olympic Games.

The Challenge

As consultants from around the world were involved in addressing all aspects of the project's building systems, the design had not been finalized when Electrosonic, SA KZN and others were invited to propose a lighting control solution.

The control concept was to provide a simple user interface for switching lighting and power circuits to the various areas of the stadium comprising nearly 3,000 loads. Architects required a flexible, networked design that could be configured to suit numerous switching requirements and integrate with the stadium BMS.

Crestron networked lighting control and switching solutions were selected to control general illumination and LED lighting throughout the stadium.

Delivering the scalability that building architects wanted, the Crestron system interfaces seamlessly with different lighting and building control disciplines throughout the stadium – from power switching to dimming, to controlling DALI and DMX systems, to interfacing with the stadium BMS system – and provides the scalability necessary to evolve building automation functions in the future.

“With a control objective that demanded a simple user interface and flexible customization for switching lighting and power circuits to all areas of the stadium, the obvious choice to meet these requirements was a Crestron system,” said Gerrie Coetzee, Manager of Electrosonic SA KZN.

Systems at a Glance

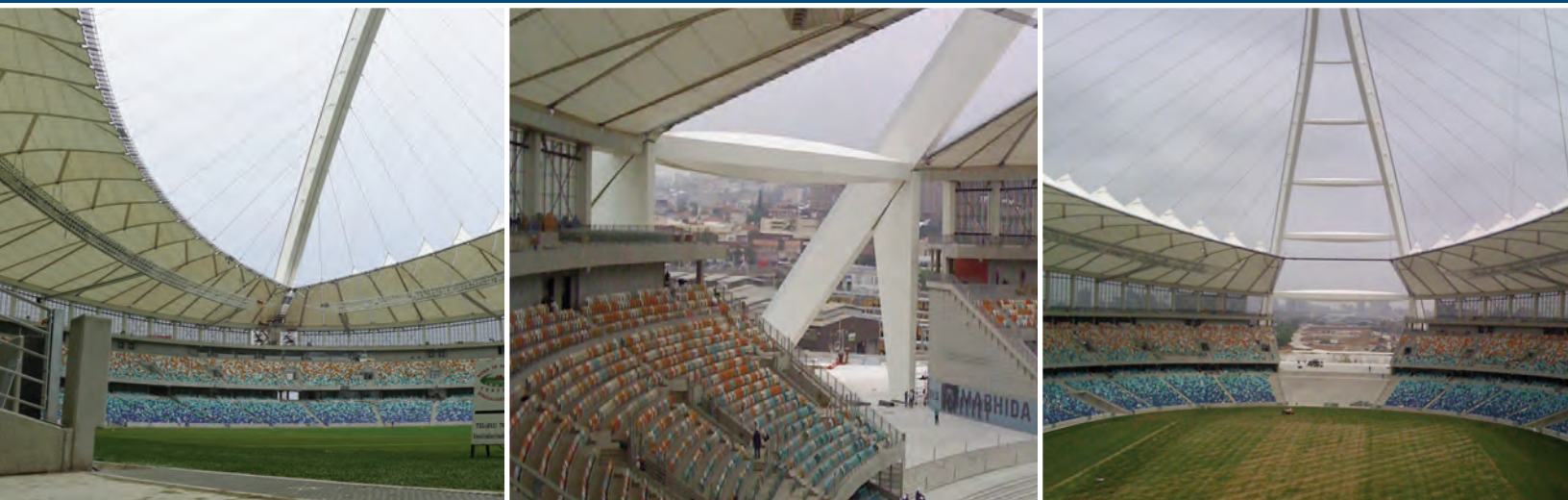
The completed design features Crestron AV2 processors linked via LAN to multiple Crestron DIN-AP2 Din Rail Automation Processors, which control more than 350 Crestron relays and 2,800 individual loads. To provide flexibility and ease of use for operators, the system allows the main control room to switch

power to individual areas and activate specific preset lighting modes using a Crestron touchpanel.

Loads consist of flood lights and bowl lights for the field and spectator areas, and general area lighting in walkways, concourse areas, restrooms, kitchens, dressing rooms, parking areas, and private boxes. Kitchen areas are also controlled from the touchpanel to ensure all cooking appliances and stoves are shut down after an event.

The bowl lighting comprises fluorescent fixtures which provide general illumination by shining up into the structure’s unique roof sails, in addition to indirect illumination for the seating areas. The 940 bowl lights are controlled via DALI, and also configured with custom presets for multiple scenarios. The DIN-AP2 controllers communicate on the DALI bus with 10 DALI routers for flawless execution. In total, 20 DALI zones are controlled from the Crestron system.

All preset lighting scenes are triggered by the control system, as operators have access to these “shows” via the BMS, which is linked with the Crestron system. Approximately 12,000 meters of Cresnet cable and 4,500 meters of DALI cable interconnect the system for reliable operation.



The final aspect of the lighting system is the control of the 1,320 LEDs that illuminate the stadium’s spectacular arch. Various chases and scenes were programmed to ensure the stadium is visible from a good distance. Scenes can be scheduled to run at random times or be triggered manually in real-time. For instance, the LEDs may be triggered to run a specific scene when a goal is scored.



How the System Works

When a preset scene is selected, the Crestron system will sequentially switch on the proper flood lights required to ensure the correct Lux levels for cameras, and minimize incoming power surges. An operator simply presses the appropriate button on the touchscreen and the system automatically provides the desired lighting scene requirements based on the desired event.

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Gerrie Coetzee, Manager of Electrosonic SA KZN

Primary control is maintained from the master control room in the basement, although on match days when operators need to be guided by activity on the fly, control can be handed to a secondary control room on the stadium's 5th level. A TPS-15G touchpanel and 12-button CNX keypads enable one-touch command of the whole system.

Flood lights are programmed to switch to different lighting intensities (brightness) required by various events on the playing field. For instance, the floodlighting can be set up for

‘Training’, ‘National Matches’, ‘International Matches’, and ‘High Definition Matches’.

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“We pushed the boundaries to get the system to do more, and we knew without a doubt that Crestron would deliver the results,” adds Coetzee.

Coetzee confirmed that the system is the largest Crestron lighting system installed to date in South Africa. “We have 10 individual processors linked together as one global system, and with all of the other items it amounts to more than 350 Cresnet devices in total,” Coetzee explained.

“Using the Crestron system gives us the peace of mind to know that the system will give the client the flexibility and room for growth to handle any possible requirements that may arise,” Coetzee says. “We are currently working with the stadium management team to further refine the system and add Roomview management functionality.”