



World-Class Soccer Stadiums Brazil



Site Report

STADIUMS:

Arena da Amazônia
Arena Corinthians
Arena das Dunas
Estádio do Maracanã
Arena Fonte Nova
Estádio Mineirão
Estádio Nacional Mané Garrincha
Arena Pantanal
Arena da Baixada
Arena Pernambuco
Arena Castelão



RAIN BIRD BRAZIL PROJECT TEAM:

José Giacoia Neto
Frederico Maia Haun
André Beltrão
Kelly Silva
Marcelo Zlochevsky
Daniel Azevedo

PITCH* CONSULTANT:

Artur Melo

PITCH CONTRACTORS:

Greenleaf
World Sports
Campanelli Gramados

DISTRIBUTORS & CONTRACTORS:

CE Irrigação	Irricom
RN Irrigação	Asbranor
Hidroserv	LR Instalações
Regatec	Hidrogardem

PROJECT OVERVIEW:

Rain Bird Brazil provided irrigation system design, installation and project management for 11 regional soccer stadiums that will host international soccer tournaments in Brazil.

RAIN BIRD PRODUCTS:

- IQ™ v2.0 Central Control
- ESP-LXD Controller
- 8005 Stainless Steel Rotor
- WR2 Wireless Rain Sensor
- Landscape Irrigation & Maintenance Remote
- Flow Sensors

"The reliability of the technical support provided by the Rain Bird Brazil team, and the technical guidance from Jose Giacoia and André Beltão, gave us the confidence to recommend the use of the design and irrigation materials from Rain Bird."

— Artur Jorge P. B. de Melo,
Agronomic Engineer and Associate Director
MA Design and Consulting Ltd.

*"Pitch" is a term used internationally when referring to the turf playing field in soccer and other sports.

WORLD-CLASS BRAZILIAN SOCCER STADIUMS

Eleven regional soccer stadiums hosting the largest international soccer tournaments rely on Rain Bird irrigation systems to provide best-in-class system control and precise, uniform irrigation.

In Brazil, to showcase the country in international soccer tournaments new soccer stadiums have been recently constructed and older stadiums have been renovated to increase seating capacity and visibility for spectators. Located throughout the country, these stadiums have many modern, state-of-the-art features and were constructed with a focus on sustainable design.

It was essential to sports field managers that the irrigation systems gave them precise control over the cultivation and management of the pitch*. Pitch conditions at these stadiums are required to meet the highest quality standards to ensure the best possible playing conditions for the game and for player safety.

Irrigation design for the soccer pitch was led by Rain Bird Brazil. Their goal was to create irrigation systems that provided managers with a number of programming and management features that helped them control pitch conditions and system components in the most efficient way and to deliver a consistent, safe playing surface.

RAIN BIRD BRAZIL'S TEAM OF EXPERIENCED IRRIGATION PROFESSIONALS

Rain Bird Brazil played an integral role in the design and installation of the irrigation system at 11 stadiums throughout the country. The team's extensive irrigation experience, breadth of services provided, country-wide network of distributors, and high-quality features of Rain Bird products allowed them to deliver comprehensive irrigation solutions to each stadium. Construction of the 11 stadiums was fast paced, and Rain Bird Brazil delivered each project on-time. "One big advantage for Rain Bird Brazil is having a service department and sales team made up of agricultural engineers with previous irrigation and service experience. Our technical experience made Rain Bird Brazil stronger than the other competitors. In Brazil, companies in the sports field industry have adopted Rain Bird as the technical reference," said José Giacoia Neto, Rain Bird Brazil's general manager.

Rain Bird Brazil created the designs and specifications, supplied all products, including other manufacturers', and



coordinated logistics for 11 stadiums. For seven stadiums, Rain Bird Brazil installed the irrigation systems, and for the remaining four stadiums, Rain Bird Brazil oversaw the installation of the systems using local Rain Bird distributors and contractors, and provided final training and commissioning. Rain Bird Brazil also worked on several training centers and back-up stadiums.

"On several occasions over the past 20 years I have had the opportunity to use Rain Bird products in our designs. Greenleaf was chosen to build seven arenas, and all use Rain Bird because of the quality and technical expertise provided by Rain Bird Brazil," commented Alexandre Vieira dos Santos, Greenleaf's technical director and agronomic engineer.

SHADOW STUDIES AND PRECISE IRRIGATION CONTROL CREATE SUPERIOR PITCH CONDITIONS

Pitch that is uniform, consistent and healthy recovers faster after games, reduces player injury, and does not affect the outcome of a game. Healthy pitch conditions

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are dependent on many factors, including soil, nutrients, oxygen, maintenance, sunlight and water. Uniform and precise irrigation based on environmental conditions is a key factor in creating consistent playing conditions.

In large, professional sports stadiums, tall walls and overhangs, which protect spectators from the weather, also create their own wind conditions and shadows, which shade the field from sunlight. Pitch consultants used shadow movement studies to determine how the shadows shifted throughout the year. These shadows impact the growth of grass and soil moisture content. To effectively manage irrigation schedules according to soil moisture content and other environmental inputs Rain Bird Brazil had to create a very flexible and automated system that enabled managers to gain precise control over the schedule and irrigation components in the field. To achieve this level of control, an IQ™ v2.0 Central Control system with the ESP-LXD Controller and 8005 Rotors, as well as rain sensors and soil moisture sensors, were chosen.



IQ OFFERS AUTOMATION FOR HIGHLY CUSTOMIZED SCHEDULING

Sports field managers responsible for management of the pitch and irrigation schedule and system are able to be more efficient and effective with IQ. IQ gives managers the ability to control the system from a central computer as well as through other remote devices, such as a smartphone or Rain Bird's Landscape Irrigation Maintenance Remote.

For the Brazilian stadiums using IQ with the ESP-LXD Controller and soil moisture sensors gave managers the ability to adjust the irrigation schedules based on evapotranspiration (ET) rates and soil moisture levels. IQ automatically adjusts schedules based on these inputs rather than relying on time-based schedules, which leads to healthier

playing surfaces.

Identifying problems, such as mainline breaks is critical to avoiding damage to the pitch and other building structures. Managers cannot afford to have a field flooded on game day, and IQ automates system flow management. When using flow sensors and advanced flow sensing software, IQ alerts managers to low- or high-flow situations and automatically shuts down the irrigation system in the event of pipe or mainline breaks. Using IQ's flow sensing, irrigation schedules can be optimized based on hydraulics using flow rates measured by flow sensors, giving managers another tool to manage irrigation schedules and to ensure better system performance.

"At two of these arenas, RN and CE Irrigation [Local Rain Bird distributors] worked with Rain Bird Brazil on the implementation of the most modern automated irrigation system for sports fields using IQv2.0"

— Sérgio José Olimpo Lobo
Director, RN and CE Irrigation

ESP-LXD DECODER CONTROLLER PROVIDES FLEXIBILITY

At the stadiums each station or zone uses one rotor. This



unique design was implemented to give managers very precise control over the amount of water delivered to the pitch based on changing shadow patterns throughout the year. The ESP-LXD is connected to IQ and to soil moisture sensors installed in the pitch. "We used a Smart Approved WaterMark soil moisture sensor that would work with the

ESP-LXD. We used the sensor in critical areas of the pitch for two periods of the year, when the shadows created by the stadium affected the soil moisture and ET rates," said Giacoia.

Considering that each zone had only one rotor, it was important that the ESP-LXD provided installation and programming flexibility and could handle high station counts. The ESP-LXD Controller uses field decoders that are connected to the controller and valve(s) using a shared 2-wire path. Depending on the type of field decoder chosen, one decoder can control up to six valves which streamlines installation. The ESP-LXD can handle up to 200 stations, thus significantly increasing the number of stations that each stadium can control with one ESP-LXD.

With the ESP-LXD, managers can simultaneously operate up to eight valves, which offered a flexible programming solution to managers, considering the high station count. Custom irrigation programs were also used to run specific rotors in combination with the fertilizer injection system and game-day schedules, which allowed for quick irrigation cycles using all full-circle rotors.

RAIN CURTAIN™ NOZZLES AND 80-FOOT THROW RADIUS DELIVER UNIFORM COVERAGE

In addition to using the highly customized programming features of IQ and the ESP-LXD to ensure that irrigation schedules were adjusted based on environmental conditions, Rain Bird Brazil designed the system with the 8005 Series Rotor with Rain Curtain Nozzles. Rain Curtain's superior coverage and gentle close-in watering around the base of the rotor enable managers to cultivate uniform playing conditions throughout the field.

The 8005's throw radius, which can be adjusted from 39 to 81 feet is ideal for sports fields. The 8005 also gives designers and grounds managers added flexibility because the arc can easily be adjusted from 50° to 330° using a flat-head screwdriver, and used as a full-circle, 360° rotor. The stainless steel riser option was installed for additional strength and durability.

"I have been working with Rain Bird products in construction and maintenance for sports turf, especially for soccer pitches, for more than 17 years in Brazil. We have several success stories in more than 100 projects. In my opinion, Rain Bird products provided excellent water application uniformity," said Fabio Camara, technical director, World Sports Company.



EXPERIENCED PROFESSIONALS DELIVER SYSTEMS WITH HIGHLY CUSTOMIZED PROGRAMMING FEATURES

Rain Bird Brazil's experience and technical authority in the marketplace, plus access to a network of distributors, contractors and consultants, helped them deliver highly automated irrigation systems to 11 soccer stadiums. Each stadium is able to customize the irrigation system to meet its unique needs, and benefits from several of the core system and component features. IQ's flow management, automatic schedule adjustments and remote access give managers precise control over pitch conditions. From installation to programming, the ESP-LXD Controller gave the team additional flexibility when meeting specific in-field requirements for the cultivation and management of the pitch. These system features combined with the expert technical advice and support from Rain Bird Brazil helped create pitch conditions worthy of championship soccer.



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