



Fact Sheet with Main Points for Stadium Electrical Design

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Fact Sheet with Main Points for Stadium Electrical Design

Grid Supply

- Supply via 2 independent grid lines (full stadium capacity on each of the lines);
- Can be achieved by integration of the stadium in a mid-voltage open half ring design;
- Lines shall take physically different routes to access the stadium (even they come from the same transformer- / sub-station);
- Remote fault location / operation systems preferable;
- Automatic switch over between both grid supplies.

Stadium Design

- Primary supply via grid;
- Back-up solution for essential groups as emergency/evacuation/safety & security according to national regulation, UEFA requirements and international standards;
- Back-up for floodlight via second supply or stand-by diesel generators (parallel synchronized operation of grid and diesel generator is not preferred in terms of reliability and sustainability);
- Uninterrupted power supply for floodlight and sensitive IT equipment e.g. turnstile operation via UPS (uninterrupted power supply) battery systems to cover the time gap between grid power (primary source) failure and diesel generator take-over;
- To follow new and future TV / IT technology the power system shall be designed consequently as 5-wire TN-S system to comply 100% with EMC rules as described in the IEC 60364-4-444 with one single bonding of neutral and earth in all switching modes in the operational concept foreseen, even more crucial in combination with stadium solar energy concepts;
- Centralized remote monitoring system and alarm annunciation for all main electrical substations
- Installation of Overvoltage surge protection class 1 and 2 must be installed as coordinated concept;
- Implementation of coordinated RCD protection concept, following strict selectivity towards the end circuit protection
- Lightning protection concept for the complete building structure according IEC 62305
- Installation of sufficient additional 3 phase power outlets in hospitality areas, broadcast areas and pitch side for temporary event usage; and:
- Horizontal and vertical cable ducts from main power distributions (with sufficient capacity headroom) to major event hot spots as pitch, roof and hospitality areas/kitchen areas;
- Cabling ways from TV Compound to all broadcast relevant areas for temporary signal and power cabling;
- Installation of an underground meshed earthing system located under the area of the TV compound (also included possible extensions) with several connection points for OB trucks and an equipotential connection to the stadium's earthing system, following the principle of 'one venue – one earth', even more crucial with electrical railway lines close to the venue.