Playing It Safe With Sports Field Lighting

By Mike Trigg

The Westmont Park District in suburban Chicago, IL, strives to provide good, safe athletic facilities. Yet in the summer of 1986, a 13-year-old boy was killed while watching a Little League baseball game. He was electrocuted when he touched a metal fence and the conduit on a wooden light pole at the same time.

There was no visible sign that a problem existed. The lighting equipment at all the fields had been checked during relamping. At the time of the accident, not one lamp was flickering, or even dim. The accident didn't result from carelessness or a lack of concern. The park district staff was not aware of the inherent dangers and problems that can develop often without apparent symptoms.

The accident was the result of the melting of a fixture-mounted, in-line fuse, underrated for excessive current. Because of this melting, live conductors had fused to the fixture casing, electrifying all metal parts attached to the pole, including the conduit. Inadequate grounding also was discovered. Without a ground to the service panel, the panel breaker couldn't detect the faulty current, so power to the pole wasn't cut off.

This is not an uncommon problem to go undetected. Many potential dangers with athletic field lighting are not visible to the naked eye, and can only be detected through testing by a qualified electrician.

In addition, many of the electrical components of outdoor field lighting are plainly visible, exposed to the elements, birds and rodents. All of these and more can hasten the deterioration of the system.

Professional design, proper construction, and routine maintenance will result in a safe lighting system for all who come in proximity to the high-voltage electrical equipment while watching or playing a game.

Design For Safety

Turn to lighting professionals, familiar with electrical codes and equipment options. You need someone who has practical knowledge of outdoor electrical applications to provide a well-designed electrical system.

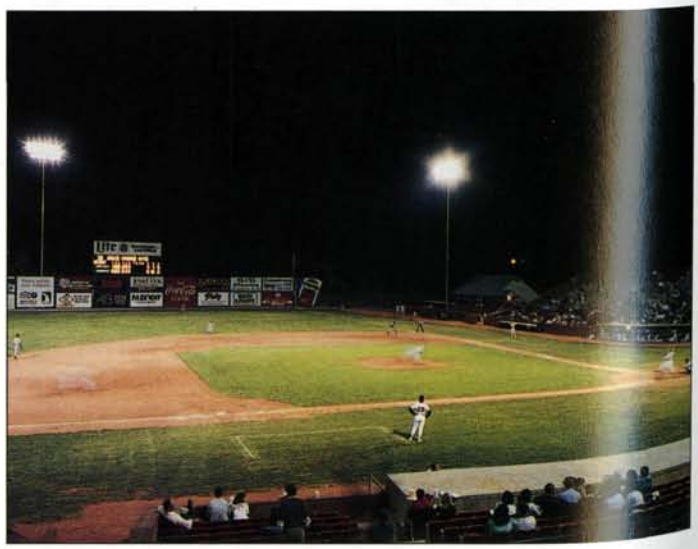
All aspects of an electrical system must be designed for optimal operation. The design goal is for maximum safety with low maintenance and proper load sizing without over-design. Key design issues include:

- Specifications should be in compliance with local codes and National Electric Code.
- Service entrance and supplemental equipment grounds should be properly installed.
- Access to electrical components should be limited by placing them in locked enclosures.
- Electrical components should be of the appropriate size and rating for the function.
- Properly sized fuses or circuit breakers should be located at the service entrance and at each fixture.
- The power distribution system should be designed to perform safely and efficiently.

Safe Construction

No matter how well-drafted the specifications are, the finished system will only be as good as the materials and methods used in construction. Some criteria to consider in installation of a safe sports turf lighting electrical system are:

- Use an experienced electrical contractor installation.
- Inspect the installation for compliance with specifications and code requirements.



Whether field lighting is for major stadium or a smaller, more intimate venue, the goal of providing adequate illumination safely is paramount. Photos courtesy: General Electric Lighting Systems, Hendersonville, NC.

• Obtain as-built drawings for future reference.

Maintenance For Safety

Regular maintenance keeps the outdoor sports field lighting system operating safely, effectively and efficiently year after year. Schedule routine maintenance of all lighting system components — electrical, fixtures, and structural for each lighted field. Also, schedule regular diagnostic tests to identify problems that are not easily visible. When repairs are required, hire a licensed electrician.

Set up the following basic maintenance practices:

• Establish a written schedule for maintenance of the system.

• Use a qualified electrician for testing and repairs.

• Although only a professional electrician licensed to work on high-voltage systems should make repairs to a sports field lighting system, *some* maintenance tests can be performed by in-house staff. It is essential that the sports lighting system receive visual inspection *before* the lights are turned on.

A manual is available to provide guidance for those with the ultimate responsibility of selection, installation, and maintenance of sports field lighting. Titled, *"Sports Field Lighting Electrical Systems Guidelines and Safety Considerations,"* the manual provides, in layman's terms, design guidelines and maintenance practices recommended for a safe lighting installation. The Parks and Natural Resource Management Section of the Illinois Parks and Recreation Association acknowledges Musco Sports-Lighting, Inc., for the technical support that made this manual possible. Also key to development of the manual are chief editor John M. Vann, superintendent of parks and planning, Westmont Park District, Westmont, IL, and contributing editors Joe Crookham, Jeff Rogers, Mark Flesner, Bonnie Bailey, Jeanie Bieri, and Sheila Davis-Walker. For more information on this manual, write: IPRA c/o Parks and Natural Resources Management Section, 1N 141 County Farm Road, Suite 100, Winfield, IL 60190.

Whether you're planning a new lighting system or evaluating an existing one, a few simple precautions will ensure maximum safety for facility employees, players and spectators. ❑

Editor's Note: Mike Trigg is a parks supervisor for the Waukegan Park District, Waukegan, IL. He's a member of the national Sports Turf Managers Association and past president of the Midwest Chapter STMA.

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