FLASH

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Electrical hazards found at sports fields

The Electrical Safety Authority (ESA) has found numerous electrical hazards at sports fields throughout Ontario. The hazards are related to installation and maintenance of electrical equipment. The areas of focus that emerged during these inspections are:

- Sports field lighting
- Electrical panels and enclosures
- Conduits to auxiliary buildings

ESA recommends that Municipalities set up a periodic visual inspection of all electrical installations at their facilities to ensure there are no electrical hazards related to damaged or deteriorated electrical equipment. Generally the issues that have been identified during inspections include:

- Condition of the electrical installation:
    - Exposed electrical wiring not protected by a raceway.
    - Deterioration of the raceways containing electrical conductors.
    - Conduits that have rusted or broken apart.
    - Deteriorated enclosures allowing weather to infiltrate the equipment inside.
    - Loss of bonding continuity creating shock hazards.
- Non-compliant installations:
    - Conduits installed in unsuitable locations and without mechanical protection.
    - No bond wire installed as part of the original installation.
    - Electrical equipment such as panels, not guarded where exposed to mechanical damage.
    - Equipment has holes or is missing panel fillers, making energized conductors accessible.
    - Equipment that is not properly maintained and showing evidence of imminent failure.

In addition to the above, the Ontario Electrical Safety Code (OESC) Rule 26-708 requires all receptacles exposed to the weather be provided with cover plates suitable for wet locations whether or not a plug is inserted into the receptacle and marked “Extra Duty”. Additionally, OESC Rule 26-704 requires all outdoor receptacles within 2.5 m of

finished grade having CSA configuration 5-15R or 5-20R shall be protected with a Ground Fault Circuit Interrupter of the Class A type. GFCI's should be tested monthly, in order to minimize the potential hazards where the public are exposed to the electrical outlets. Locking of electrical equipment is also recommended as a means of guarding equipment exposed to the public.

Specific sports field lighting issues identified:

- Some towers used to support lighting are in a deteriorated condition.
- Original installation may have been modified, exposing energized conductors (See Photo F1).
- Box covers are missing or improperly installed.
- Electrical Metallic Tubing (EMT) was commonly used a number of years ago as raceway for electrical wiring in outdoor installations which included sports fields.
    - EMT can become rusted and break where it has been used in exposed installations.
    - EMT may shear off where it exits concrete as it deteriorates.
    - Damaged and deteriorated EMT may pose a shock hazard through loss of bonding continuity.

Photo F1 – Deteriorated and incomplete conduit system with exposed conductors

Specific auxiliary building issues identified:

- PVC conduit damaged by snow removal or lawn care equipment, potentially exposing wires.
- Conduits are not protected from ongoing mechanical damage, see Photo F2.
- Conduits concealed by snow during winter months, creating the potential for additional damage.

Photo F2 – Improperly protected conduit (Damaged)

Specific electrical panel and enclosure issues identified:

- Electrical panels rusting.
- Electrical panels with unused openings as a result of missing panel fillers which exposes the live bus to anyone putting their hands on or near the panel.
- Electrical panels protected by wooden enclosures which are not weather-proof or are deteriorated.
- Electrical panels are not locked.
- Evidence of animal nesting.

Some of the above conditions are shown on Photo F3 below.

Photo F3 – Accessible and Deteriorated Enclosure

Sports Field Maintenance Considerations:

Once deterioration or damage is identified, repairs should be made immediately. When making repairs, the requirements of the current revision of the OESC should be considered. When it is necessary to replace all or part of an electrical installation it should be confirmed that any such work complies with the current requirements of the OESC and that a notification (permit) is obtained for the work as per Rule 2-004.

If the municipality does not have trained or qualified personnel to complete regular inspections, a Licensed Electrical Contractor (LEC) can help with the assessment and repairs to damaged or deteriorated electrical installations.

To find a LEC in your area please visit the following webpage: https://findacontractor.esasafe.com/

For more electrical safety information, please visit our website at www.esasafe.com