

Arc-Fault Protection Requirements for Ground-Mounted Solar Photovoltaic Systems

PURPOSE

To provide clarity and guidance to installers of ground mounted solar photovoltaic systems to industry and installers.

CODE REFERENCES

64-216 Photovoltaic dc arc-fault circuit protection

- 1) Solar photovoltaic systems with dc source circuits or output circuits, or both, and operating at a maximum system voltage of 80 V or greater, shall be protected by
 - a) a dc arc-fault circuit interrupter; or
 - b) other system equipment that provides equivalent protection.
- 2) The protection required in Subrule 1) shall
 - a) detect and interrupt arcing faults resulting from a failure in the intended continuity of a conductor, connection, photovoltaic module, or other system component in the dc photovoltaic source and output circuits;
 - b) not have the capability of being automatically restarted;
 - c) have annunciation, without an automatic reset, that provides a visual indication that the
circuit interrupter has operated; and
 - d) disable or disconnect
 - i) inverters or charge controllers connected to the faulted circuit when the fault is detected; or
 - ii) the photovoltaic dc source circuits or dc output circuits either within the combiner, at the module junction box, or at the module cable connectors.

DISCUSSION

Industry and solar photovoltaic system installers have questioned the validity of requiring dc arc-fault circuit protection on ground-mounted systems not installed on or above a building. The original intent of the arc-fault circuit protection requirement is to protect against structural fires when photovoltaic systems are installed on or above a building.

APPLICATION

This variance applies to ground-mounted solar photovoltaic renewable energy systems where risk of fire is limited to the solar photovoltaic system only.

Unless stated otherwise, all references in this STANDATA are to the Canadian Electrical Code, Part I, 2018.

Issue of this STANDATA is authorized by
the Provincial Electrical Administrator

[Original Signed]

Clarence C. Cormier, P.Eng.

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VARIANCE

Ground-mounted solar photovoltaic systems, or those mounted on trackers, not installed on or above buildings, may omit the arc-fault requirements of Rule 64-216 providing the following requirements are satisfied and maintained:

1. Vegetation around the area the photovoltaic installation is controlled as to mitigate the possibility of fire spread.

This variance provides approximately equivalent or greater safety performance with respect to persons and property as that provided for by the Safety Codes Act.

This VARIANCE is applicable throughout the province of Alberta and remains in force until revoked by the Administrator.