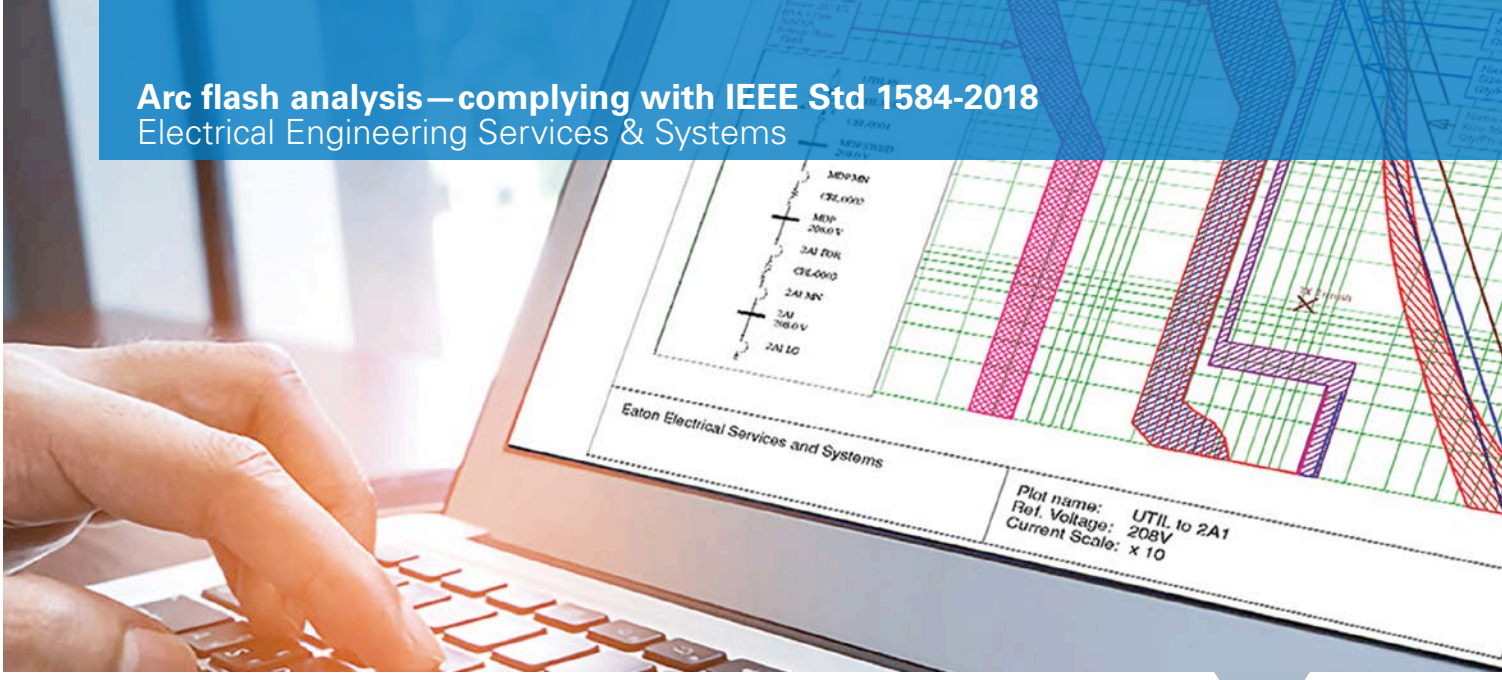

When it comes to safety, Eaton leads the way in compliance

The new IEEE Std 1584™-2018 guide is based on more than 1800 laboratory tests, compared to just 300 tests for the 2002 model. The result is a new mathematical model and calculation procedure that is more comprehensive, accurate and complex than before.

A more accurate procedure

IEEE® published IEEE Std 1584-2018 in November 2018, the first update to the IEEE Guide for Performing Arc-Flash Hazard Calculations in 16 years. It provides a new mathematical model to determine arc flash hazard incident energies and boundaries.

What does the new guide mean to me?

The new guide adds complexity to arc flash hazard analysis. Implementing the new guidelines requires a deep understanding of the nature of arc flash and the possible dangers of working with and around electrical equipment, in varying arrangements.

What you should know: The three major changes to IEEE Std 1584-2018 and how Eaton can help

The exception to exclude <240 V locations fed from transformers smaller than 125 kVA has been removed.

What it means:

In the IEEE Std 1584-2018 model, testing has shown that it may be possible for an arc to sustain at small 208 V equipment locations, thus the exception has been removed. Per the updated guide, it is less likely for an arc to sustain at equipment locations at 240 V or less with a short-circuit current below 2000 A, but an arc flash is still possible. This change adds to the scope of the analysis—previously excluded equipment should now be labeled.

How Eaton addresses:

Eaton now recommends that all three-phase locations be included in the arc flash scope and calculations, due to the removal of the 125 kVA transformer exception. Even for locations with available short-circuit current below 2000 A, it is still possible for an arc to occur. Excluding small equipment should be determined on a case-by-case basis depending on the end user/facility operator's site safety plan and risk assessment procedure.

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Five electrode configurations must be considered during the analysis

What it means:

The 2002 IEEE Std 1584 model was based on testing of two vertical conductor configurations—vertical conductors in open air and vertical conductors in a metal box enclosure. The 2018 model is based on expanded test data with three additional configurations.

- Horizontal conductors in open air
- Horizontal conductors in a metal box enclosure
- Vertical conductors that end at an insulating barrier

This change adds to the complexity of the analysis—the equipment conductor and enclosure arrangement that most closely resembles the actual electrode configuration of the equipment must now be identified when performing an arc flash analysis.

How Eaton can help:

With the new model, the equipment conductor and enclosure arrangement that most closely resembles the actual electrode configuration of the equipment must be identified. It may be tempting to choose the worst-case electrode configuration for all equipment types, but this can lead to overly conservative incident energy calculations and labeling.

Eaton's recommendation is to evaluate the type and class of equipment to determine the possible bus configurations that a worker would be exposed to. With experience as an equipment manufacturer, service organization, and engineering study group, Eaton can help select the configurations that most apply to your equipment.

The actual dimensions the equipment enclosure can now be specified

What it means:

In addition to several new typical equipment classes, the 2018 model allows the actual height, width and depth of an equipment enclosure to be selected, whereas the IEEE Std 1584-2002 model provided typical enclosure dimensions for various classes of equipment.

How Eaton can help:

With the option of modeling actual equipment enclosure dimensions, study engineers must now decide whether to use typical default dimensions or model the actual height, width and depth.

While using actual field-measured values may result in more accurate results, consideration must also be given to the time, effort and increase complexity in obtaining dimensions for all enclosures. Eaton recommends that this tradeoff be considered when performing arc flash studies.

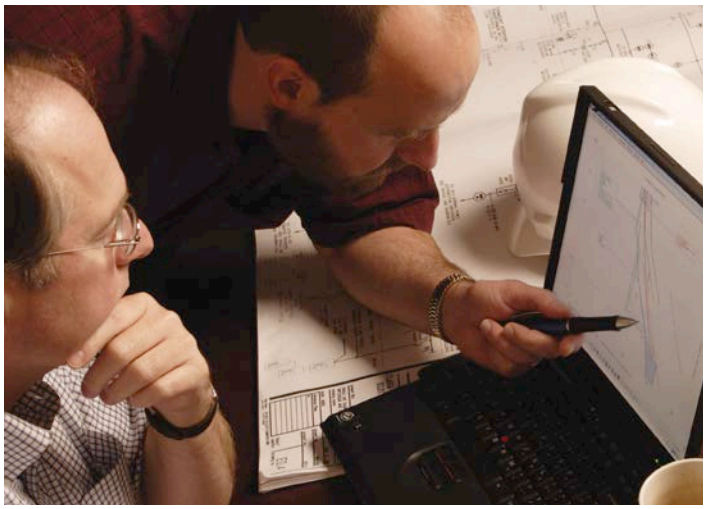
Eaton's recommendation for compliance

NFPA-70E requires that an arc flash incident energy analysis be reviewed and updated every 5 years. Eaton recommends that the new IEEE Std 1584-2018 guide be used to provide the most accurate results to ensure the protection of employees and equipment.

Why choose Eaton?

With 140+ power system engineers across North America, Eaton completes more than 2500 arc flash studies annually and is actively involved in the IEEE Std 1584-2018 Working Group. Eaton is here to help understand how the changes will affect your equipment, arc flash labels and safe work practices.

- 95 power system engineers in the U.S.
- 31 offices across the U.S.
- 2500 studies performed every year
- Active involvement in IEEE, the IEEE Std 1584 Working Group and NFPA-70E
- Access to the latest power system software versions
- On-site field verification and data collection services available



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