

IEEE 1584-2018 Arc Flash Incident Energy Calculation

New Standard, New Method, New Learning Curve

A NEW CHALLENGE IS AHEAD FOR THE electrical safety community. The revision process of IEEE Std. 1584 Guide to Performing Arc Flash Hazard Calculations is completed. Engineers everywhere will be challenged with understanding how to apply this new model. The Industry has awaited this update for almost two decades, and now that it is here, safety experts are getting ready to explain why the thermal incident energy calculations may be different!

The new arc flash model is the result of the NFPA and IEEE collaboration effort to improve the accuracy of the IEEE 1584-2002 incident energy calculations. Immediately after the first arc flash model was released, a few researchers published their findings about missing electrical conductor configurations known in the industry as vertical conductors in a box terminating in an insulating barrier (VCBB), horizontal conductors in a box (HCB) and in open-air (HOA). If present in actual equipment, these configurations yield higher energy outputs and may require higher PPE arc rating selections.

VCBB

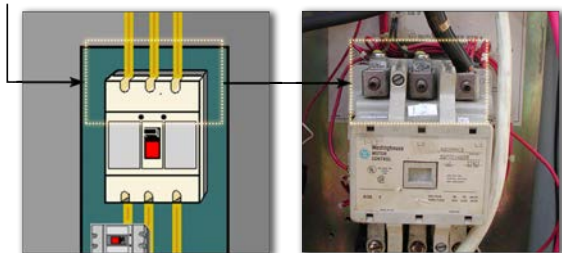


Figure 1. New Electrode Configurations as described in IEEE 1584-2018



Further laboratory testing performed by IEEE and NFPA led to the development of a new model to represent the physical behavior of arc current and incident energy.

The new model includes the effects of both horizontal (HCB, HOA) and vertical conductor orientations (VCB, VOA, VCBB), plus refined models for arc current variation and enclosure size effects on the incident energy.

Perhaps the most difficult question that safety experts may have to deal with is how to detect and classify equipment into one of the five electrode configurations.

In conclusion, the new IEEE 1584-2018 model poses a big implementation challenge. Fortunately, ETAP has actively participated in the development and validation of this model to ensure its correct application in power system analysis software.

The new IEEE 1584-2018 module is available in the **ETAP 19** Release. For more information about the New IEEE 1584-2018, Arc Flash Incident Energy Calculation Method using ETAP 19 visit etap.com/arcflash

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