

# Arc Flash Analysis

Reduce Risk, Improve Safety, Enforce Compliance



## Industry Leader in Comprehensive Arc Flash Solutions

ETAP Arc Flash Analysis brings you new and enhanced capabilities which allow for faster and easier performance of arc flash hazard analysis. Identify and analyze high risk arc flash areas in your electrical system with greater flexibility by simulating various incident energy mitigation methods.

Arc Flash is a completely integrated module that solves multiple scenarios to determine worst-case incident energy levels. It also produces professional reports and high quality arc flash labels at the press of a button.

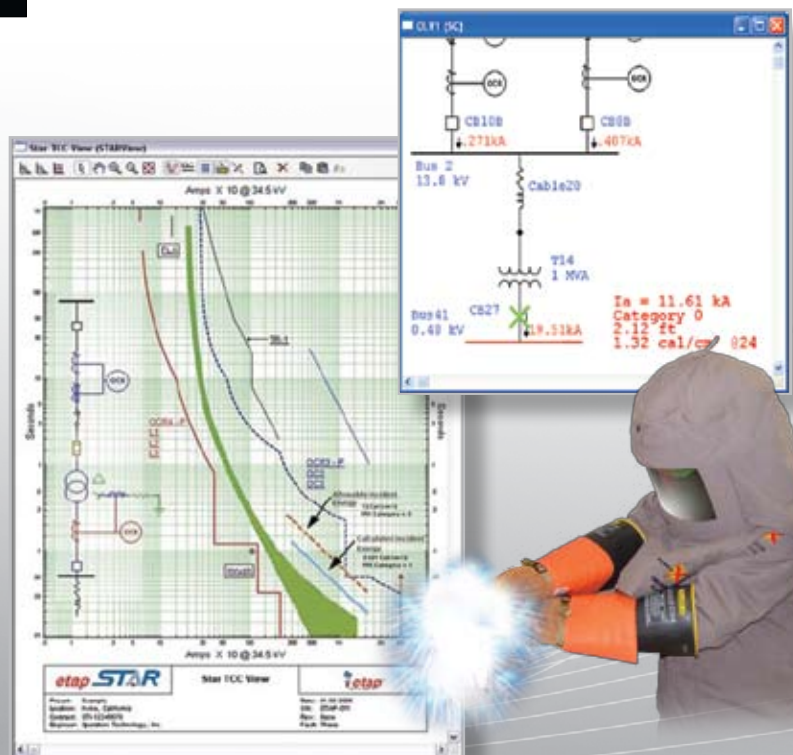
IEEE 1584a 2004

NFPA 70E 2000 & 2004

Enclosed & Open Air Equipment  
Arc Flash Calculations

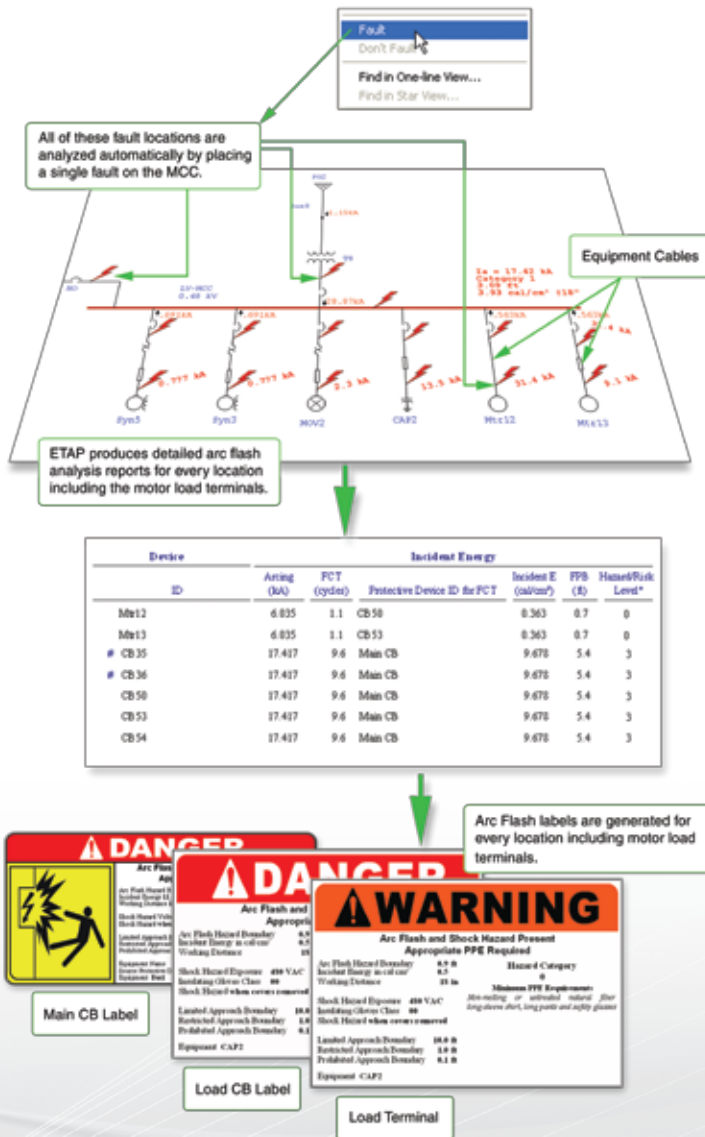
Integrated with ETAP Short-Circuit

Integrated with ETAP Star Protective  
Device Coordination



One-Line Diagram: TCC and arc flash results

# Most Capable & User-Friendly Arc Flash Hazard Assessment Solution



## Automated Analysis

- Automatically determine the Arcing Fault Clearing Time
- Instant determination of the flash protection, prohibited, restricted, & limited approach boundaries according to NFPA 70E
- Determine individual arcing current contributions
- Generate arc flash labels for every incoming main circuit breaker cubicle, load circuit breaker, & motor starter bucket
- Generate arc flash labels for every load terminal point including induction motors, synchronous motors, capacitor banks, & static loads

## IEEE & NFPA Features

The following capabilities are available to comply with IEEE and NFPA guidelines:

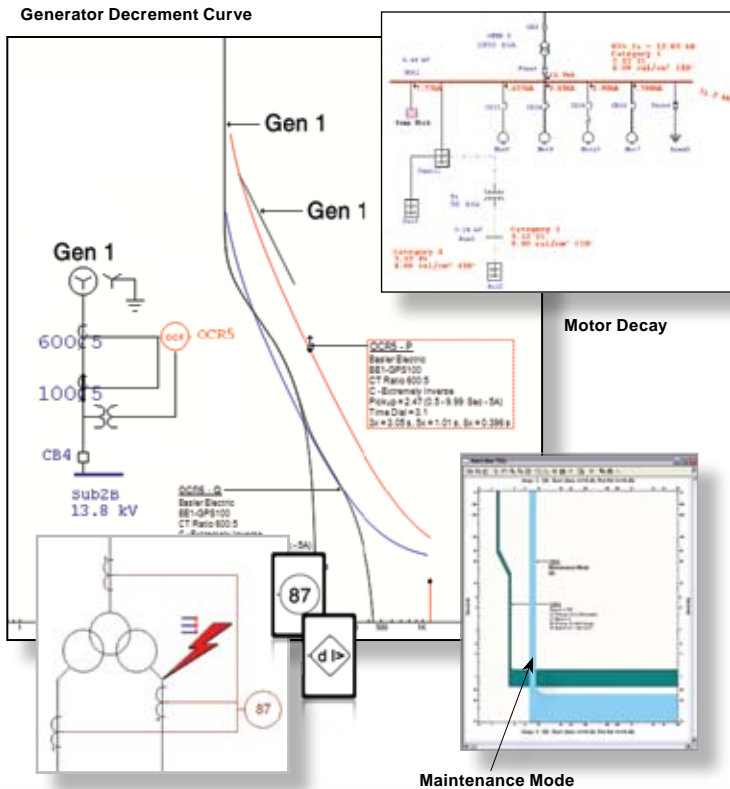
- Limit the incident energy based on maximum fault clearing time (e.g., two seconds)
- Built-in empirical equation range limits alerts & grounding configurations
- Automatically distinguish between load & line side protective devices
- User-definable & typical IEEE Equipment Gap between conductors for buses & X-factors (based on IEEE 1584)
- Automatically handle Incident Energy calculation for LV buses (e.g., 208 volts) fed by transformers rated less than 125 kVA
- Automatically assign hazard category for LV (<240 volts) with bolted current less than 10 kA

**One-Line Diagram to Reports to Labels:** Calculate arc flash results at multiple locations automatically

## Simple Operation

- Run multiple arc flash simulations with one-click & analyze all of the different results in minutes
- Define your own parameters or use system-calculated results to determine the incident energy
- Use the Quick Incident Energy Calculator to analyze "what if" scenarios at every bus

# Comprehensive Arc Flash Safety Program



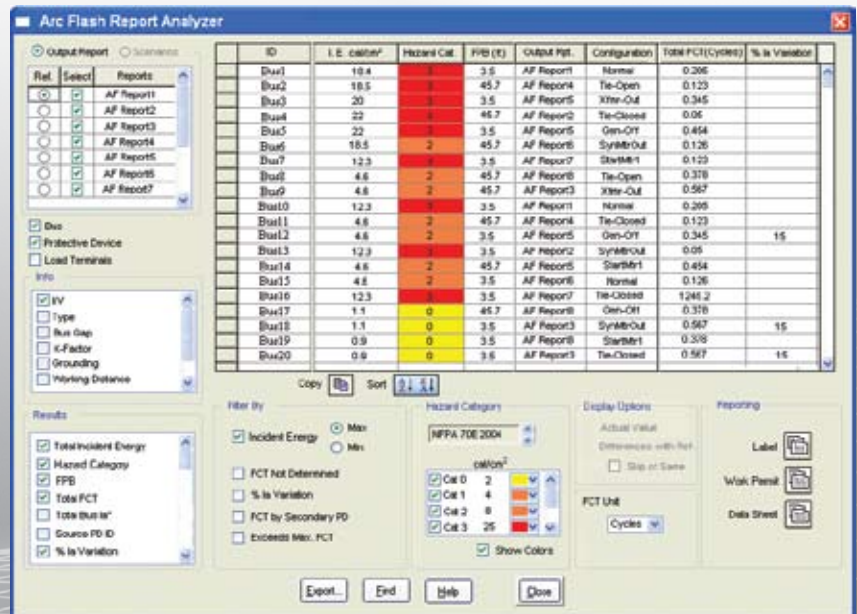
## Capabilities

- Consider Generator AC Decay & Decrement Curve automatically for individual synchronous generators
- Consider AC Motor short-circuit current decay
- Time varying fault clearing time calculation based on system bolted SC current decay
- Perform arc flash calculations for both 3-phase & 1-phase panel / UPS systems
- Handle radial & multiple source system
- Extended search of several levels past the point of multiple upstream source contributions
- Use automatic or user-defined source protective device search algorithm
- Modeling of differential relays, maintenance mode switches, & arc flash light sensors
- Capable of modeling Zone Selective Interlock Protection (ZSIP)
- Comprehensive library of overcurrent devices (fuses, LVCB, in-line relays, MCPs, OLRs, etc.)

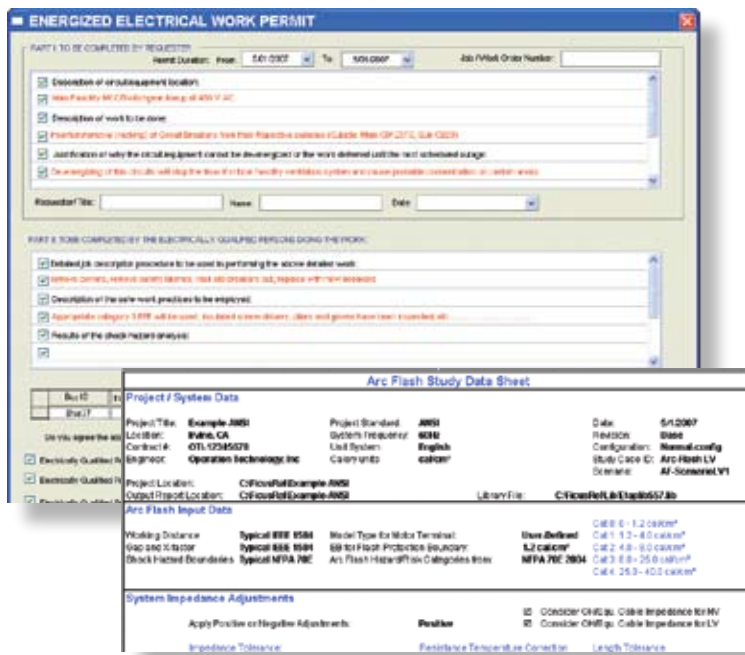
## Arc Flash Result Analyzer

ETAP Arc Flash has a very powerful calculation result analysis tool which helps to quickly identify high risk areas.

- Sort results from different studies by multiple criteria
- Find the worst-case incident energy results
- Quickly isolate & identify AF mis-coordination
- Find which protective devices failed to operate
- Filter out & analyze only the higher hazard category results
- Filter out all equipment with %  $I_a$  variation problems
- Locate slow responding protective devices
- Export customized AF results to Excel reports
- Analyze the results in Metric or English units
- Color code & filter results by category



# Work Permits, Data Sheets, Labels, . . .



- Customizable energized electrical work permits
- Custom data sheets to communicate arc flash study parameters
- User-interface for defining hazard categories (NFPA 70E 2000 & 2004) or customize based on your safety program requirements
- Generate IEEE 1584 & NFPA 70E look-up table results for different working distances & generate simple summary reports to communicate the results to personnel
- Alerts for PPE ATPV rating violations (maximum allowable PPE arc rating alerts)
- Find the safest mode of operation for maintenance work
- Automatically batch print arc flash labels based on highest incident energy from all operating modes

## Reporting

- Calculated results are displayed automatically on the one-line diagram
- Printing of ANSI Z535 arc flash label templates with user-defined text fields / PPE requirements / disclaimers
- Print assorted sizes (4" x 6", 4" x 4", 3" x 3") of arc flash labels to Brady® Label printers or DuraLabel® Pro printers
- Print arc flash labels to Avery® Permanent Durable ID templates
- Print labels in multiple languages, such as Spanish, Portuguese, & French
- Plot incident energy vs. time & arcing current in Star (for coordination)
- MS Excel reports for bus & individual protective device arc flash analysis results
- Hundreds of customizable arc flash label templates are available



**Multiple Language Arc Flash Labels:** Automatically generate and print arc flash labels in English, Spanish, Portuguese, and more

**Label Printer Support:** ETAP supports different label printers including Brady® Label and DuraLabel® Pro and high quality material Avery® Labels

