



Safe Work and Return to Work Awards

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Safe Work and Return to Work Awards example entry Category three – Best solution to an identified electrical safety issue

1. Describe the electrical issue and how it was identified.

Electricians work in the deadliest trade in construction. More sparkies die than any other trade. 56% of those fatalities are caused by contact with electricity (Source: SWA Work-related injuries and fatalities in construction, Australia | 2003 to 2013). Of those contact with electricity fatalities, 25% was a result of burns/arc flash (Source: Department of Health and Ageing, Flinders University | 2007). In January 2021, two Queensland electrical workers suffered burns following an arc flash. One of the main areas that NECA Safe has become a major industry leader in is the emerging issue of Arc Flash safety. Owen Leslie the manager of NECA Safe QLD, NSW, TAS & ACT has been researching, investigating and developing safety programs around this issue for the past 6 years. This has resulted in a much greater awareness of the hazard and the controls that can be implemented.

2. Explain the solution that was developed to address this issue.

A good risk assessment process will include a calculation of incident energy which is used for the selection of PPE and controls. Most electricians are daunted by the prospect of an Arc Flash calculation and normally bypass the important risk assessment procedure because they never being trained how to undertake it. Sure, to get super accurate results you probably need to have an engineering degree and some complex software.

However, a basic calculation to determine a safety control is much easier to complete. Owen Leslie from NECA analysed the calculations based on the formulae in Appendix B of ENA NENS-09, table 9 of AS/NZS 4836:2011 and IEEE 1584 Guide for Performing Arc-Flash Hazard Calculations. He then developed a simple method to risk assess arc flash hazards so that any electrician can follow. By using the KA (kilo amps) rating on a circuit breaker (which can be eyeballed onsite) electricians can use the NECA PPE table and utilize the appropriate PPE as described.

The PPE table has been included into the electrician SWMS template to allow them to easily refer to and choose the correctly rated Arc Flash PPE they need to keep safe.

After the table was developed, we ran 17 electrical safety workshops to 260 electrical businesses and over 600 attendees communicating the current status of isolation, test before you touch process, and it will also look at arc flash hazards and PPE for the everyday electrician. Critical learning for all electricians.

The NECA Safe team have also provided over 100 personal advisory visits to NECA members to help them specifically.

3. Outline how successful the solution was and how it improved electrical safety.

Based on sales from NECA's Trade Services Department the uptake of Arc rated PPE in the industry has experienced exponential growth in the last 6 years (based on PPE sales). It has spread into many different specialisations within the industry from your everyday electrician to military, mines and utilities.