

# Incident Alert

College of  
Electrical  
Training

NECA  
Western Australia

Electrical  
Group  
Training

## Incident Title:

Electric Shocks – PV Solar Panel Installs

## Date of Incidents:

25<sup>th</sup> of October 2010

## Incident Description and Details:

Recently we have had two EGT Apprentices involved with receiving shocks during the course of installing solar panels on domestic roof tops. This latest incident involved a 1<sup>st</sup> year apprentice who inadvertently handled an energised cable while retrieving a roll of insulation tape which had rolled under one of the solar panels. The cable had been placed loosely into a junction box, directly under the panel and was waiting to be terminated. The apprentice assumed that this cable was dead and was unaware that the cables were energised even though the string of panels was not connected back to the mains. The bare cable would have been producing an open circuit voltage of approximately 176 volts DC.

## Recommendations / Lessons:

There is an important safe work method for the installation of solar panels that needs to be adhered to at all times. This safe method of installing solar panels ensures that no one will come into contact with potentially lethal DC voltages. It is generally considered standard install (and safe) practice to run and terminate both ends of the solar DC cable between the array junction box and the DC Isolator first before starting to electrically connect the solar panels (is a simple plugging in). This is followed by “plugging in” each panel to the next in the string as well as the PV extension lead if used. This safe method of installing solar panels that ensures no one will come into contact with potentially lethal DC voltages.

If two strings are being connected in parallel, ensure that no panels have been plugged in until all DC terminations are complete. Tag the other array plugs out if necessary. This will eliminate the chance of an electric shock occurring due to back-feed from the other string. Finally, ensure the PV cables are correctly restrained to prevent movement. This is mandatory.

After discussing this incident with Energy Safety, it was noted that this same issue is of great concern throughout the solar industry, as important steps are frequently being missed or skipped during the install of PV systems.

It was identified that the apprentice failed to check to ensure the cable he was about to touch was not live. Apprentices must test all cables before touching with the appropriate tool. **Not all volt-sticks work on DC** current so the correct voltmeter must be used at all times. It is imperative that all tradesmen utilise and train apprentices in the correct use of isolation procedures. Apprentices also need to communicate effectively with the tradesman at all times throughout the job.

Remember, the electric shock may not always kill you but falling off a roof certainly can – **Please Remember to always use appropriate Fall Prevention Equipment. Your life is worth more than a customer's solar panels.**

For further information relating to Safety or to receive a copy of the NECA procedure and SWMS for installing solar panels please contact Corey Hannan

## Contacts:

Corey Hannan, OH&S Manager – NECA WA, [channan@necawa.asn.au](mailto:channan@necawa.asn.au) or 1300 632 292

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Date of Incident Alert issue: 13<sup>th</sup> August, 2010

Alert Number: 251010-01