WATCH OUT for Electrical Connector Fires
The “Using Certified Components Properly” Series

Many people believe that all it takes to making UL/CSA/CE compliant products is using UL/CSA/CE certified components. While that is a good start, there are many considerations to properly selecting and using certified components. Our “Using Certified Components Properly” series of whitepapers will help educate you on the proper selection and use of UL/CSA/CE certified components.

Electrical Connectors – A Warning:
A large number of product fires begin at a wire connector during normal operation of the product = without any circuit fault conditions! When this occurs, it is almost always caused by an improperly stripped and/or crimped wire connection. Fires can occur when the surface area of the wire making connection with the terminal of the connector is reduced to such an extent that significant overheating occurs. It doesn’t matter if the connector is certified, this is a problem caused by improper assembly.

How Certified Connectors Can Catch Fire:
It is very important to use the tools specified by the connector manufacturer for proper preparation of the wire stripping and crimping the connection. If you accidently cut strands of the wire, you are reducing the amount of contact area on which current can be carried from the wire to the connector. This can also happen if you make a bad crimp connection, not getting all the strands into the connector terminal, or by crimping onto part of the wire insulation. If you have high enough current and you have reduced the connection point to a small enough area, you can have substantial heating at the connection point. Connectors and wire insulation are made of combustible materials that have a temperature limit. Exceed the temperature limit by enough of a margin and don’t be surprised if the end result is a fire.

Proper Certified Connector Assembly:
You need to be extremely diligent when making wire connections, especially when they are done by hand. Train your staff on the importance of checking wire stripping for damaged strands and insuring that all strands are inserted into the connector terminal. And in all cases, it is imperative that you use the tools specified in the user instructions for the certified connectors – the crimping tools are designed for the specific connector to help minimize damage to wiring while maximizing the contact area of the connection. In fact, the connectors are certified with the stipulation that the tools specified in the instructions are used. If you don’t use the proper tools, the connector certification may not be valid.

YES, it is confusing!

CertifiGroup can help
Compliance Assistance Services to help you get it right the 1st time
Preliminary Design Reviews, Design Guidance, Training
US, Canadian, CE, & International Certifications