

## Regulatory Safety and Testing Standard Agencies

### **Underwriters Laboratories, Inc**

Underwriters Laboratories, Inc (UL) was founded as a non-profit organization which provides testing for products and UL "Recognition" or "Listing" for manufacturers. In the United States UL sets the standard of safety for wire.

#### **UL "AWM" Recognized Components**

Many wire and cable products have UL AWM (Appliance Wiring Material) Recognized components styles. A wire or cable product bearing a UL Style can be used for internal and external wiring as a Recognized component of an original equipment product. By using an appropriate UL Recognized component AWM Style product, the manufacturer can then obtain the appropriate UL listing for their product.

#### **UL "Listed" Wire and Cable Products**

UL Listed wire and cable products are used in applications where the product is not an integral part of the manufactured system. UL Listed wire and cable products are intended for use within residential, commercial or industrial buildings. The National Electric Code (NEC®) requires use of listed products to meet requirements for various "Articles" within the code.

#### **UL Certification for Canadian Products**

Products that meet the required Canadian Standards, but are certified by the Underwriters Laboratories, Inc. versus CSA are marked with the appropriate logos.

### **Canadian Standards Association**

#### **AWM - Appliance Wiring Material**

AWM - Appliance Wiring Material (AWM) is manufactured in accordance with CSA Standard C22.2 No. 210. These products are intended for the internal wiring of electrical and electronic equipment and interconnecting wiring between equipment.

Definitions:

I=Internal use / II=External Use

A=Not subject to physical abuse / B=May be subject to physical abuse

All of these wires and cables must pass one of the following flame tests in order to fully comply with CSA Certification requirements. The following are the most common flame standards:

#### **FT1 - The Vertical Flame Test per CSA C22.2 No. 3**

FT1 - The Vertical Flame Test per CSA C22.2 No. 3 which specifies that finished cable shall not propagate a flame or continue to burn after one minute after five, fifteen-second applications of the test flame. There is an interval of fifteen seconds between flame applications.

#### **FT4 - The Vertical Flame Test per CSA C22.2 No. 3**

FT4 - The Vertical Flame Test per CSA C22.2 No. 3 for cables in cable trays. This test is similar to but more severe than, the UL Standard 1581 Vertical Tray flame test. The UL 1581 has its burner at 0° from the horizontal while the FT4 has its burner mounted at 20° from the horizontal with its burner parts facing up. The allowable char length is only 1.5m (4.92 ft.) while UL 1581 allows damage up to a maximum of 8 feet.