Veris White Paper

VWP01

UL 1995 and Plenum Ratings

As more and more HVAC control products are installed above ceilings, in ducts, in mechanical lofts, and in other plenum areas, fire safety has become a greater concern. Plastics used in these areas must burn safely (i.e. not propagate a fire or release too much smoke). Underwriters Laboratories (UL) has developed a test called the Steiner Tunnel, which is used to evaluate the safety of plastic material in plenum areas. The concern regards the volume of plastic material that may be found in a given plenum space (wire insulation, plastic liners, etc.). The requirements for passing the Steiner Tunnel test are outlined in UL standard 1995 (third edition, February 18, 2005).

Paragraph 18.2* states:

"Material in a compartment handling conditioned air for circulation through a duct system shall have a flame spread rating of not more than 25, and a smoke developed rating of not more than 50, when tested as specified in Surface Burning Characteristics of Building Materials and Assemblies, CAN/ULC-S102, and their requirements for Standard Method of Tests For Surface Burning Characteristics of Building Materials, UL723. This requirement does not apply to the following.

e) Molded or formed components (not liners) of polymeric materials in such quantities that their total exposed surface area within the compartment does not exceed 0.93 m^2 (10 ft^2)."

Paragraph 18.3 states:

"Polymeric material exempted by item (e) of clause 18.2 shall have a flame spread rating of not more than 25, or shall comply with the requirements of the vertical burning test for classifying materials 94-5V in accordance with the Standard Tests for Flammability of Plastic Materials in Devices and Appliances, UL 94 and Test 5 V (500W) of Evaluation of Properties of Polymeric Materials, CAN/CSA-C22.2 No. 0.17 with a flammability rating of 5 VA."

Environmental Sensors: No model of Veris CO_2, humidity, temperature, or pressure series products is larger than 0.93 m^2 (10 ft^2). All models constructed of polymeric material have a flammability rating of UL94-5VA and can be safely used in plenum air handling systems where the aggregate plastics surface area is less than 0.93 m^2 (10 ft^2) without further concern.

Current Sensors: No model of Veris Victory Relay or H500 series current switch/relay combination device is larger than 0.93 m^2 (10 ft^2). All Veris UL508 listed products designed for use outside of electrical panels, including the Victory relays and H500 current switch/relay combination devices, have been evaluated by UL to meet the requirements of UL94-5VA. Therefore, Veris UL508 listed products can be safely used in plenum air handling systems where the aggregate plastics surface area is less than 0.93 m^2 (10 ft^2), without further concern.

Examples:

Victory Enclosed Relays Small Housing – 26 in^2, 0.18 ft^2

(Includes: V100, V200, V300, V400, V120, V220, V100D)

Victory Enclosed Relays Medium Housing - 48 in^2, 0.33 ft^2

(Includes: V101, V102, V103, V121, V122, V123, V201, V202, V203, V221, V222, V223, V320, V321, V420, V421)

H500 Series Housing – 68 in^2, 0.48 ft^2

(Includes: H540, H540NS, H548, H548NS)

* Excerpted from the 2005 UL standard relating to the salient point of this discussion. For further understanding of the scope and conditions to which this standard apply, please consult the standard in its entirety.

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