

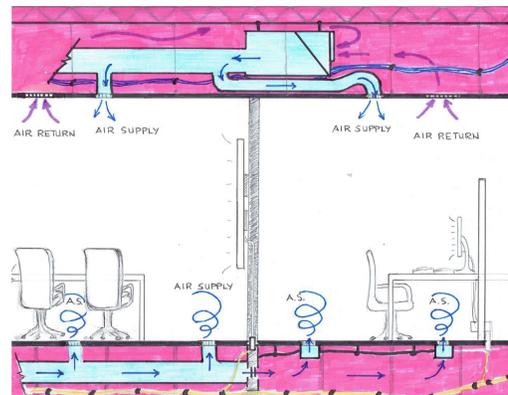


APPLICATION ENVIRONMENTS:

***Air-Handling Spaces (Plenums)
Low-Smoke and Heat Release***



There is an increasing awareness of safety hazards resulting from the effects of burning materials installed in spaces used for the exchange of environmental air. Model codes now include specific requirements for combustible products installed in these areas. The requirements reflect both the contribution of individual products and the cumulative impact of all products installed in such areas.



Nonmetallic products installed in air-handling spaces are now expected to have verified properties that limit the amount of smoke and heat that they generate

when exposed to a fire. Continuous products such as nonmetallic covered wire and cable are subjected to a test that also takes into consideration their potential to propagate flame over distance. However, this test is not appropriate for discrete products such as cable ties that are installed intermittently. Nevertheless, in consideration of the cumulative effects of all combustible materials installed in air-handling spaces, even small discrete components such as cable ties must have their low-smoke and heat generating properties verified by test.

The model code containing the requirements for products installed in air-handling spaces is NFPA 90A, *Standard for Installation of Air-Conditioning and Ventilation Systems*. The latest edition of NFPA 90A specifies that the means for verifying low-smoke and heat generating properties for cable ties is UL 2043, *Fire Test for Heat and Visible Smoke Release for Discrete Products and Their Accessories Installed in Air-Handling Spaces*. The results of this test are an index of maximum allowed values specified in NFPA 90A. Included are maximum values for peak rate of heat release, peak normalized optical density of smoke and the average normalized optical density of smoke. These testing requirements have been incorporated into the current cable tie standard, UL 62275.

UL 62275 refers to product suitable for use in air handling space as plenum rated. Plenum rated products are divided into two categories, AH-1 & AH-2. these categories specify what testing requirements the product needs to meet, and identifies which type of air handling space the cable tie is suitable to be installed in. All metallic cable ties are AH-1 rated and do not require testing. These ties can be assumed to be suitable for use wherever combustible wire and cable are permitted to be installed. The suitable installations areas for AH-1 rated products are



described in Section 300.22 (B), (C), and (D) of the *National Electrical Code*[®]. Nonmetallic or composite cable ties, and metallic cable ties with a nonmetallic coating, can be AH-2 rated. For an AH-2 plenum rating these products are required to meet the low-smoke and heat generation requirements. AH-2 rated products are only suitable for installation in area described in Section 300.22 (C) and (D) of the *National Electrical Code*[®].

A question that is often asked of manufacturers is: "Are red or maroon colored cable ties the only ones that can be used in air-handling spaces?" The simple answer is no. However, prior to the development of the present performance and verification requirements, cable ties molded from specialized materials with known low smoke properties were often specified. These products are readily identifiable by their maroon color. Among inspection authorities this color code identification has become commonplace. Importantly however, the more recent verification requirements and associated markings should not be overlooked, regardless of color.

Product Type	Standard Label Markings	Application*
<p>Metallic Cable ties and Fixing Devices</p>	<p>"Suitable for use in Air Handling Spaces (plenums)" in accordance with Section 300.22 (B), (C), and (D) of the National Electrical Code, and Rules 12-010 (3), (4), and (5), and 12-020 of the Canadian Electrical Code, Part I or an equivalent wording.</p> <p>Or AH-1</p>	<ul style="list-style-type: none"> • Inside Ducts Specifically Fabricated for Environmental Air • Spaces not specifically fabricated for environmental air handling purpose but use for air handling as a plenum
<p>Non-metallic or Composite Cable ties and Fixing Devices</p>	<p>"Suitable for use in Air Handling Spaces (plenums)" in accordance with Section 300.22 (C) and (D) of the National Electrical Code, and Rules 12-010 (3), (4), and (5), and 12-020 of the Canadian Electrical Code, Part I, or an equivalent wording.</p> <p>Or AH-2</p>	<ul style="list-style-type: none"> • Spaces not specifically fabricated for environmental air handling purpose but use for air handling as a plenum

*Please see section 300.22 of the *National Electrical Code*[®] for further details.



The manufacturer should always be consulted if there is a question about the proper application of a cable tie or associated fixing device.

NEMA members provide high value, consistent quality, safe and efficient use for cable ties and their associated fixing devices that meet the expectations of a wide variety of users. Visit us at <http://www.nema.org/prod/be/cable-ties/> for current information on our industry and for the names of NEMA member cable tie manufacturers.



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