



# INTERNATIONAL FIRESTOP COUNCIL

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## *IFC White Paper – Changes to UL HNLN Category Code*

### **Introduction:**

This article is written to provide background on important changes recently made to UL Ventilation Duct Listings, and discuss implications on their installation including:

- Recent updates to UL category code HNLN aimed at helping to ensure that the differences between Duct Assembly Categories are understood.
- What is different about these new “Fire Protective Ratings” compared to fire resistance ratings.
- Why the correct types of systems need to be used, in their entirety, for the full length of the duct system.

### **Code Requirements:**

The proper use and installation of fire resistive duct assemblies, specifically for air distribution duct systems, has consistently presented challenges in interpretation across the industry. Fire resistive duct assemblies, specifically for air distribution duct systems, can be installed as an alternate to code prescribed shaft enclosures using the alternative means and methods approach permitted in the IBC:

#### **Section 104.11 Alternative materials, design and methods of construction and equipment:**

*The provisions of this code are not intended to prevent the installation of any material or to prohibit any design or method of construction not specifically prescribed by this code, provided that any such alternative has been approved. An alternative material, design or method of construction shall be approved where the building official finds that the proposed design is satisfactory and complies with the intent of the provisions of this code, and that the material, method or work offered is, for the purpose intended, not less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability and safety.*

### **Properly Interpreting UL Category Codes and Listings:**

All UL fire resistive duct assemblies are tied back to the root directory HNKN. Within the HNKN root directory, branch directories exist which delineate the differences between the individual Listing categories and identify acceptable tests and/or other criteria. For HNKN these are defined as follows:

- Grease Duct Assemblies (HNKT)
- Ventilation Duct Assemblies (HNLJ)
- Uninsulated Ventilation Duct Assemblies (HNLN)

The HNKN root directory classifies assemblies as follows:

*A fire-rated duct assembly is a construction consisting of a duct and materials designed to protect the duct for a specified hourly rating. The specifications for the materials in the fire-rated duct assembly and the assembly of the materials are details that directly relate to the established ratings. Information concerning these details is described in the individual assemblies. The hourly ratings apply only to the complete assemblies. Individual components are designated for use in a specific assembly to achieve specific ratings. The individual components are not assigned ratings and are not intended to be interchanged between assemblies.*

Within these categories, duct assemblies are created as either single source solutions or as individual components (i.e. duct with external wrap), to satisfy the requirement of achieving the specified hourly rating in accordance with the appropriate standard and criteria employed.

The acceptable test standards within the HNLJ category code are ISO 6944 and ASTM E2816. The acceptable test standards within the HNLN category code is ISO 6944. In order to be considered and certified to be a fire resistive duct with a specific hourly rating, the systems must meet the requirements of the standard. While ISO 6944 evaluation criteria permit reporting of the Stability, Integrity, and Insulation individually, in order to apply IBC 104.11, based on the Code prescribed criteria for fire resistance ratings for shafts, the hourly rating must be based on, and is required to be the lowest of the Stability, Integrity, and Insulation ratings achieved by the fire testing. In contrast, ASTM E2816 permits only a single hourly rating to be derived via a successful test result because this mirrors the conditions of acceptance used in the IBC for fire resistance ratings derived from ASTM E119 and UL 263. There are also conditions of use associated with each listing that are clearly defined.

### **UL Changes to Clarify HNLN Category Code:**

Currently, all UL Listings in the Uninsulated Ventilation Duct Assemblies category show a zero insulation rating. As such, these do not offer the complete level of protection required for a fire resistance rating as outlined above.

To clarify, this very important distinction assists in the proper selection of a fire resistive duct assembly. UL has made the following changes to the HNLN category code:

- The term fire-resistive has been replaced with fire-protective to more clearly highlight that these are different.
- Partial application of a field-applied insulation or system has not been evaluated (not tested) by UL in their Listings.
- According to UL, properties of these ducts, including fire resistance, other than those specifically detailed in ISO 6944, and the degree of fire protection of specific duct assemblies, have not been investigated (not tested).
- RELATED PRODUCTS: The following categories cover products related to ventilation ducts investigated for fire-resistance, see Ventilation Duct Assemblies (HNLJ).

These clarifications clearly define that duct systems in HNLN are a component of a fire resistive duct assembly, not a complete assembly. To select a fire resistive duct assembly, you must refer to listings in the branch directory HNLJ.

### **Conclusion:**

Until a specific standard for testing fire resistive duct assemblies, designed to evaluate air distribution duct systems, is included in the IBC, these systems will continue to be approved as alternates to code prescribed shaft enclosures using the allowance for alternative means and methods in IBC Section 104.11. Section 104.11 clearly states systems shall not be less than the equivalent of that prescribed in this code in quality, strength, effectiveness, fire resistance, durability, and safety.

As outlined above, when specifying a UL listed fire resistive duct assembly for air distribution duct systems, you must look to the HNLJ category code for a complete system. As always, when using alternate materials and methods, the local AHJ should be consulted for approval prior to use.

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