



Department of Commerce

Safety & Buildings Division

201 West Washington Avenue

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Evaluation # 200329-G

Wisconsin Building Products Evaluation

Material

Fire Rated Ductwork
Flamebar BW11

Manufacturer

Illingworth Corporation
615 S. 89th Street
Milwaukee, WI 53214

Firespray International Ltd North America
Millars 3, Southmill Road
Bishops Stortford. Herts. England

SCOPE OF EVALUATION

GENERAL: This report evaluates Flamebar BW11 fire rated ductwork, manufactured by Illingworth Corporation. Flamebar BW11 fire rated ductwork was evaluated for use as smoke extract and pressurization ductwork, grease ducts serving Type I hoods, and instead of providing fire rated shafts, to the applicable codes listed below.

This review includes the cited **Comm** code requirements below in accordance with the current **Wisconsin Uniform Dwelling Code (UDC)**, (for 1 & 2 family dwellings):

- **There are no requirements.**

This review includes the cited **International Building Code (IBC)** requirements below in accordance with the current **Wisconsin Commercial Building Code**:

Fire Resistance Rated Construction:

- **Duct System:** Flamebar BW11 fire rated ductwork was evaluated in accordance with the general requirements of **s. IBC 707** and may be used in lieu of a rated shaft.
- **Prescriptive Fire Resistance Assemblies:** Flamebar BW11 fire rated ductwork was evaluated in accordance with the general requirements of **s. IBC 719.1, Table 719.1(2) and Table 719.1(3).**

This review includes the cited **International Mechanical Code (IMC)** requirements below in accordance with the current **Wisconsin Commercial Building Code**:

- **Duct Enclosure:** Flamebar BW11 fire rated ductwork was evaluated in accordance with **s. IMC 506.3.11.**

- **Commercial Kitchen Hoods:** Flamebar BW11 fire rated ductwork was evaluated in accordance with the general requirements of **s. IMC 507**.

DESCRIPTION AND USE

Flamebar BW11 fire rated ductwork is manufactured to specific standards to provide any degree of fire resistance up to and including 4 hours for stability, integrity and insulation fire ratings for: smoke outlet ductwork, non-domestic kitchen, basement and enclosed car park extract systems, escape route ducts, etc.

Flamebar BW11 fire rated ductwork is constructed from galvanized sheet steel, degreased and factory sprayed with Flamebar BW11 a water based compound. The coating contains mineral fillers in a low permeable elastomeric binder to a thickness of approximately 1 mm.

Flamebar BW11 fire rated ductwork is produced in flanged sections and is assembled on site utilizing tested fireproof gaskets.

TESTS AND RESULTS

A fire test was conducted on a ventilation duct coated on its outside with a proprietary coating material identified as Flamebar BW11, and was also clad on its outside with a mineral wool insulation material having a thickness of 50 mm.

The test measured the ability of representative duct assemblies to resist the spread of fire from one compartment to another (without the aid of fire dampers) where the ducts pass through fire separations. The test also determined stability, integrity and insulation ratings as defined by ISO 6944-1985, and to establish UL Classification on the Flamebar BW11 ventilation duct as a “coated duct” for fire resistive duct assemblies.

The test was conducted in accordance with Standard ISO 6944-1985: Fire Resistance Tests – Ventilation Ducts (for Duct A External Fire Exposure), except Duct A did not include one sharp bend of the same cross sectional area as the main duct and a T-piece to form a short branch duct as required by the Standard.

Paragraph 3.6 of the Standard ISO 6944-1985 allows the omission of portions of the test described, provided that the duct concerned is not required, in practice, to meet all of the conditions anticipated by the test.

The fire test described in Test Record No. 1 was conducted at the facilities of the Loss Prevention Council, Borhamwood, United Kingdom and witnessed by a representative of Underwriter’s Laboratories, Inc.

The test report also included a section titled, “Study for Classification Purposes”, to consider the following:

1. An evaluation of fire resistance tests described in Technical Evaluation Report CC85644 of the Loss Prevention Council to determine the stability, integrity and insulation ratings of both insulated and uninsulated duct assemblies.
2. To determine compliance to ANSI/UL 1479 for both insulated and uninsulated Flamebar BW11 coated duct assemblies. See **Note** below.

Note: Neither of the assemblies described in Reports TE82414 and TE84033 were subjected to a hose stream test as required by ANSI/UL 1479, the materials used as part of the penetration seal of either assembly were not evaluated for compliance with the hose stream requirements of ANSI/UL 1479. Instead, the submitter requested the substitution of any UL Classified mortar shown in the Fill, Void or Cavity Material Category of the Fire Resistance Directory. The request is acceptable, because all of the manufacturer’s mortar had been subjected to fire and hose stream tests per ANSI/UL 1479 for rating periods involved. It was judged that the ventilation duct reinforcement at the penetration would add additional support for the mortar. The manufacturer names and mortar types are shown on Systems Nos. **C-AJ-7029 and C-AJ-7030**.

The fire test was supplemented by other tests and examinations to provide information on the composition and physical properties of the materials used in the test assembly.

Based upon the results of the fire exposure test and Study for Classification purposes described in the test report, Ventilation Duct Assembly Nos. **V-5** and **V-6** were promulgated in the UL Building Materials Directory. In addition, Through-Penetration Firestop Systems Nos. **C-AJ-7029** and **C-AJ-7030** were promulgated in the UL Fire Resistance Directory.

LIMITATIONS OF APPROVAL

Flamebar BW11 fire rated ductwork is approved as an **alternative** to a one-, up to four-hour fire-resistance rated shaft enclosure for **commercial kitchen grease** and **air ventilation ducts** when constructed in accordance with this approval and the manufacturer's installation recommendations.

Flamebar BW11 fire rated ductwork is also approved as a method of reducing clearance to combustible materials to zero when constructed in accordance with this approval and the manufacturer's installation recommendations.

The **IMC** limitations below are in accordance with the current **Wisconsin Amended IMC Code**:

- **Ducts Serving Type I Hoods:** the duct shall comply with the requirements of **s. IMC 506.3**.
- **Joints and Seals:** of grease shall comply with **s. IMC 506.3.3**.
- **Supports:** for grease ducts shall comply with **s. IMC 506.3.4**.
- **Cleanouts and Openings:** grease duct access doors shall comply with **s. IMC 506.3.9**.
- **Duct Enclosure:** the Flamebar BW11 fire rated ductwork system complies with **s. IMC 506.3.11**.
- **Commercial Kitchen Hoods:** the Flamebar BW11 fire rated ductwork system is allowed for use in accordance with the general requirements of **s. IMC 507**.
- **Materials Exposed within Plenums:** the Flamebar BW11 fire rated ductwork system complies with the requirements of **s. IMC 602.2.1**.

This review is limited to the Flamebar BW11 fire rated ductwork system constructed as described in the **DESCRIPTION AND USE** section of this approval, and the fire resistive systems described in the **TESTS AND RESULTS** section of this approval. Use of any components other than those listed in the **TESTS AND RESULTS** section of this approval for purposes other than those listed in this approval **has not been evaluated**.

This approval will be valid through December 31, 2009, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the current edition of the applicable codes. This approval may be void for project approvals made under future applicable editions. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

Revision Date:

Approval Date: February 25, 2004 By: _____

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Product & Material Review
Integrated Services Bureau