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Legacy report on the 1997 ICBO Uniform Mechanical Code™, the 1997 Uniform Building Code™, the 2000 International Mechanical Code®, the 2000 International Building Code® and the 2000 International Residential Code®

DIVISION: 15—MECHANICAL
Section: 15810—Ducts

THERMO-PAN® PANELS—RETURN AIR SYSTEM

THERMO MANUFACTURING, INC.
3709 COLUMBUS ROAD, N.E.
CANTON, OHIO 44705

TECUMSEH CORRUGATED BOX COMPANY
205 4TH STREET
PERRYSBURG, OHIO 43551

1.0 SUBJECT

THERMO-PAN® Panels—Return Air System.

2.0 DESCRIPTION

2.1 General:

The THERMO-PAN® Panels—Return Air System panels are aluminum-clad sandwich panels attached to the floor joists and are used to form a return air plenum constructed between the stud or joist spaces in wood frame construction. The panels are manufactured in sizes of 16 inches by 47 1/2 inches (406 mm by 1206 mm), 19 1/2 inches by 47 1/2 inches (495 mm by 1206 mm), 22 inches by 47 1/2 inches (406 mm by 1206 mm), 24 inches by 47 1/2 inches (610 mm by 1206 mm), and 32 inches by 35 1/2 inches (813 mm by 902 mm). The panels are constructed of aluminum foil facing having a thickness of 0.00025 inch (0.00635 mm), adhered to a fiberboard-core, Type-B flute, corrugated cardboard. Panels comply with the Underwriters Laboratories standard UL 181 as a Class 2 factory-made air-duct material. Overall thickness is 0.118 inch (3 mm), and unit weight is 1 psf (4.88 kg/m²).

2.2 Installation:

The THERMO-PAN® panel end is either attached to the underside of the wood members, or a 1-inch (25.4 mm) section is bent to 90 degrees and attached to the vertical side of the wood member. The THERMO-PAN® panels are fastened to the wood studs or joists using minimum 3/8-inch-long (9.5 mm) staples or roofing nails spaced 2 inches (51 mm) on center. The joints formed between THERMO-PAN® panels and return ducts, studs, joists or adjacent panels are sealed using 2-inch-wide (51 mm) aluminum tape. Butted panels are connected with a plastic THERMO-CONNECTOR™, and taped. The tape must comply with

Underwriters Laboratories Standard UL 181A. Tapes found to be compatible by THERMO MANUFACTURING, INC., include the following:

- 1. Avery Dennison Fasson 0800 and 0810.
2. Tyco Adhesives No. 324A Nashua tape and No. 339 Polyken tape.

See Figure 1 of this report for an illustration of the installed THERMO-PAN® panel.

2.3 Identification:

The panels recognized in this report are identified by the THERMO-PAN® name, the company name (THERMO MANUFACTURING, INC.) and address, the rated negative and positive pressures, the velocity rating, the evaluation report number (ICBO ES ER-5398) and the name of the inspection agency (NSF International).

The THERMO-CONNECTOR is identified by the name "THERMO-CONNECTOR™" and the name (THERMO MANUFACTURING, INC.) and address of the manufacturer on the packaging.

3.0 EVIDENCE SUBMITTED

Reports of vapor permeability, pressure, erosion, collapse, mold growth and humidity, fatigue, and surface-burning characteristics tests in accordance with Underwriters Laboratories Standard UL 181.

4.0 FINDINGS

That the THERMO-PAN® Panels—Return Air System panels described in this report comply with the 1997 ICBO Uniform Mechanical Code™ (UMC), the 1997 Uniform Building Code™ (UBC), the 2000 International Mechanical Code® (IMC), the 2000 International Building Code® (IBC), and the 2000 International Residential Code® (IRC), subject to the following conditions:

- 4.1 The THERMO-PAN® panels are installed in combustible underfloor-space plenums of return air in accordance with Section 601.4 of the UMC, Section M1601.4 of the IMC or Section 602.2.1 of the IRC.
4.2 The THERMO-PAN® panels are used in combustible construction and nonfire-rated assemblies.
4.3 The THERMO-PAN® panels are used in dry locations only.

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- 4.4 The THERMO-PAN® panels are used in return-air plenums only.
- 4.5 The THERMO-PAN® panels are used to a design pressure not exceeding a positive or negative 0.25 inch of water (62.2 Pa).
- 4.6 The wood construction components used to attach the THERMO-PAN® panels, and the component attachment, are in accordance with the applicable code, and the components are spaced no more than 16 inches (406 mm) on center.
- 4.7 The THERMO-PAN® panels are installed in accordance with the manufacturer's installation instructions and this report.
- 4.8 The THERMO-PAN® panels are used to a design air velocity not exceeding 1,200 feet/minute (366 m/minute).
- 4.9 Fire dampers are provided at locations described in Section 713.11 of the UBC or Section 715.5 of the IBC.
- 4.10 Panels are manufactured by Tecumseh Corrugated Box Company, 205 4th Street, Perrysburg, Ohio, with inspections by NSF International (AA-633).
- This report is subject to re-examination in two years.



FIGURE 1—INSTALLED THERMO-PAN® PANELS