

Oregon
Interpretive Ruling No. 92-22
DUCT INSULATION REQUIREMENTS FOR RETROFIT OF EXISTING
FORCED AIR HEATING EQUIPMENT

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REGARDING: Energy Conservation
Chapter 53, Energy Conservation, Section 5304(c) EXCEPTION and 5305(a)
Construction Means and Methods (Group R Buildings, three stories and less in height)

QUESTIONS CONSIDERED

1. Is it necessary to add duct insulation to existing ducts when an existing furnace is replaced, in Group R buildings three stories and less in height?
2. Is it necessary to install additional insulation to the duct system when an air conditioner is added to, or heat pump replaces an existing forced air heating system, for Group R buildings three stories and less in height?

APPLICABLE CODE SECTION

Section 5304 (c) EXCEPTION of the Oregon Structural Specialty Code.

(c) **Insulation of Ducts.** All duct systems or portions thereof, exposed to nonconditioned spaces shall be insulated with not less than the amount set forth in Table No. 53-K

EXCEPTION: Group R, Division 1, 3 stories and less, shall be insulated in accordance with Table No. 53-P.

Section 5305 (a) of the One and Two Family Dwelling Specialty Code.

Sec. 5305. (a) **Insulation of Ducts.** All duct systems or portions thereof, exposed to nonconditioned spaces shall be insulated in accordance with Table No. 53-P.

BACKGROUND

The insulation level on existing forced air system ducts is not required to be upgraded at the time an existing furnace is replaced. The replacement of an existing furnace may be done for a number of reasons. An old unit is replaced because it is beyond repair, changing to a more cost effective fuel, or simply an upgrade. Any new duct that is added to an existing forced air system must be insulated to the requirements specified in the code. The problem arises when an air conditioner is added, or heat pump replaces an existing forced air heating system.

It is extremely difficult, if not impossible, to insulate existing ducts that are the manufactured, flexible, insulated, type. They can have the air flow restricted and not have the ability to support itself when additional insulation is installed.

The savings vary greatly from insulating ducts that have existing insulation. Duct accessibility is another issue with insulating existing duct systems.

FINDINGS

1. Duct Insulation Requirements for Replacement of Existing Furnace

- The replacement of an existing furnace does not require work on the duct system. It is not considered an alteration or repair to the entire system, including the ducts. This is an alteration or repair to only the furnace.

2. Replacement Equipment Requirements

- The addition of a "new" furnace or heat pump does not typically require work on the existing duct system. It is not an alteration to the entire system. This is an alteration or repair to only the furnace.

- An existing furnace or air conditioner may be replaced with a “used” (not rebuilt/remanufactured) **identical** furnace as a less expensive way to **repair** the furnace.
- 3. Adding Air Conditioning or a Heat Pump to an Existing Forced Air Heating System**
- Adding air conditioning or a heat pump to an existing forced air heating system does not require work on the duct system other than to connect the system. It is not an alteration or repair to the entire system, including the ducts.

DISCUSSION

Code requirements only apply to work done to a structure. An addition to an existing building must comply with code relative to the addition, not the entire existing structure. The existing duct system insulation does not need to be upgraded when an existing furnace is being replaced. This would also apply if an air conditioner is added, or heat pump replaces an existing forced air heating system.

RULING

Energy Requirements for Replacing an Existing Furnace

- The new furnace or air conditioner shall meet the “Equipment Performance Requirements” specified in section 5305 of the One and Two Family Dwelling and Structural Specialty Codes.
- An existing furnace or air conditioner may be replaced with a “used” (not rebuilt/remanufactured) **identical** furnace.
- Addition of insulation to existing ducts is not required when a furnace is retrofitted.
- All new ducts added to an existing duct system shall be insulated to the requirements specified in Table No. 53-P.

Adding Air Conditioning or a Heat Pump to an Existing Forced Air Heating System

- Upgrading existing ducts to the levels specified in Table No. 53-P shall not be required.
- All new ducts added to an existing duct system shall be insulated to the requirements specified in Table No. 53-P.

The Energy Conservation Board and Structural Code Advisory Board make this recommendation as an interpretation to the requirements in Chapter 53, Energy Conservation.

(signed December 2, 1992)
Rodger Bekooy, Chairman
Energy Conservation Board

Date

(signed November 18, 1992)
John Talbott, Chairman
Structural Code Advisory Board

Date

The recommendations and findings of the Energy Conservation Board and Structural Code Advisory Board are accepted and the interpretations are adopted as stated above.

(signed December 3, 1992)
Gary J. Wicks, Administrator
Building Codes Agency

Date