

**STATE OF OREGON
BUILDING CODES DIVISION**

**INTEROFFICE MEMO
MAY 18, 2009**

To: Building Officials
c/o various building department jurisdictions

From: Richard Rogers
Structural Program Chief

Subject: Rescission of Interpretive Ruling No. 92-2B & 92-25 "Fire wall separation Dwelling/Garage".

The above-mentioned statewide interpretations were issued in 1992, under the provisions of the 1990 OTFDC. Both interpretations are hereby rescinded with immediate effect. These interpretations have filled a void in the residential code for many years, but the 2006 *International Residential Code*, which Oregon adopts as its base document, adopted a new section which addresses the issue of penetrations through the sheetrocked separation required by R309.2. These interpretations were a useful tool at one time, but are no longer relevant.

If you have any questions related to this action, please contact Micheal D Ewert at (503) 373-7529 or mike.d.ewert@state.or.us.

Oregon
Alternate Method Ruling No. 92-5 B
"FIREWALL" SEPARATION DWELLING/GARAGE AND DWELLING/DWELLING
UNDER THE ONE AND TWO FAMILY DWELLING SPECIALTY CODE
(revised 7-1-99, editorial only)

Requested By: Gary Phillips, President, Gary's Vacuflo
December 5, 1991

QUESTIONS CONSIDERED

What protection is required for penetrations of "firewalls" between dwelling/garage and between dwelling under the One and Two Family Dwelling Specialty Code?

CODE SECTION

Sections 309.1, 309.1.1, 309.2 and 320.1:

309.1 Opening protection. Openings from a private garage directly into a room used for sleeping purposes shall not be permitted. Other openings between the garage and residence shall be equipped with either solid wood doors not less than 1³/₈ inch (35 mm) in thickness or 20-minute fire-rated doors.

309.1.1 Duct. Ducts penetrating the wall or ceiling separating the dwelling from the garage are permitted provided such ducts within the garage are constructed of steel having a thickness not less than 26 gage and having no supply or return air openings into the garage. When a vibration isolator is used in the garage duct, it must be installed at least 18 inches (457mm) from the penetration. Vibration isolators shall be installed in accordance with Section 1901.2.2.

309.2 Separation required. The garage shall be separated from the dwelling and its attic area by means of minimum 1/2-inch (12.7 mm) gypsum board applied to the garage side of the wall. Where the separation is a floor-ceiling assembly, the structure supporting the separation shall be protected by 1/2-inch (12.7mm) gypsum board or equivalent.

Exception: A carport need not be separated from a dwelling.

and;

320.1 Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other by wall and/or floor assemblies of not less than a 1-hour fire-resistance rating when tested in accordance with ASTM E 119. Fire-resistance-rated floor-ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend to the underside of the roof sheathing.

BACKGROUND

ORS 455.060 gives the Agency the authority to issue alternate methods and materials rulings.

The original request was related to a local inspector's order that a plastic vacuum line penetrating a ceiling be protected by a metal sleeve. The 1996 Edition of the Mechanical Specialty Code provides for vacuum system piping in Chapter 6, Section 609.2(2). (The 1999 Edition of the Mechanical Specialty Code does not include the same provisions). The Oregon One and Two Family Dwelling Code has no specific requirements for vacuum system piping. The Dwelling Code reduces the requirements for the "separation" between the garage and the dwelling from what was earlier required in the Structural Specialty Code. The Dwelling Code, however, has the same requirements as the Structural Code for the separation between two attached dwellings, a duplex.

STAFF ANALYSIS

Before the *Dwelling Code* was adopted, the *Structural Code* specified the fire separation between the Dwelling and garage as one-half of a one-hour fire wall, on the garage side. The most used method of protection was 5/8 inch Type "X" gypsum board on studs spaced 16 o.c. and nailed and taped as required for one-hour construction. Penetrations were permitted only under certain conditions.

The *Dwelling Code* now requires only ½ inch gypsum or equivalent on the garage side. The type of gypsum, stud spacing, nailing and taping are not specified. However, under the *Dwelling Code* the garage is to be "separated from the residence and its attic area" (except for the specified doors).

Conditions vary in a room containing a fire. Since products of combustion rise due to convection, the hottest gasses are at the ceiling. The risk is higher for plastic materials penetrating near the top of walls and at the ceiling. In this area plastics can melt, burn or collapse leaving an opening for fire to pass through and involve the dwelling. Therefore, if plastic is allowed, it is desirable to have a penetration low on the wall and not through the ceiling.

BOARD FINDINGS

- The *Dwelling Code* requires separation between the garage/dwelling with ½-inch gypsum board (except for the door that is permitted by Section 309.1).
- While Section 108 allows acceptance of alternates in lieu of those specified in the *Dwelling Code*, this section does not authorize the building official to specify more restrictive requirements than those required in the code.
- Section 108 authorizes the building official to accept alternate materials and systems which satisfy certain safety criteria of this section. Any penetration allowed must be approved under the provisions of Section 108 by the building official having jurisdiction.
- ORS 455.060 authorizes the Agency to issue statewide rulings on alternate materials and methods.
- Within the limits of the *Dwelling Code*, alternate methods and materials should be consistent between the *Structural Code* and the *Dwelling Code*. Systems permitted in the *Structural Code* for a more restrictive firewall are deemed to satisfy the requirements for protection of the *Dwelling Code's* reduced separation requirements.

BOARD'S DISCUSSION AND RECOMMENDATION: At the March 18, 1992 meeting the Structural Code Advisory Board specified a solution to the wall penetration portion of this requested interpretative ruling and referred the ceiling portion of the request to the Board's Code Changes Committee for a recommendation. (see **Interpretive Ruling 92-25**)

This Board has concluded that the *Dwelling Code* is inadequate to address this issue and is also deemed to be too restrictive in this case. Revisions to this code will take some time to complete. In the meantime, it is in the public interest for the board to recognize alternate and equivalent methods for penetration of the garage/dwelling fire separation as authorized by ORS 455.060.

Q 1: When a furnace is located in the garage, may duct work penetrate the separation wall?

A 1: Section 309.1.1 of the *Dwelling Code* allows such penetration of air ducts passing through the wall, floor or ceiling separating one- and two-family dwelling and garage, provided such ducts within the garage are constructed of steel having a thickness not less than 0.019 inch (No. 26 galvanized sheet gauge) and having no openings into the garage.

Q 2: Where the plumbing washer-waste standpipe penetrates the garage-to-dwelling separation wall, must the pipe be of metal, or is plastic which is tightly fitted or plastered, suitable?

A 2: The code only requires ½ inch gypsum board, or equivalent, on the garage side of the wall. Usually there is ½ inch gypsum board on both sides of such a wall and this wall is normally part of the "thermal envelope" of the building and is also insulated. Both the extra layer of gypsum and the insulation which prevents the wall space from acting as a chimney provide greater fire protection than specified in the code. The Board has directed that in cases where there is gypsum on both sides of an insulated wall, one ½ inch gypsum membrane may be penetrated by plastic piping serving a clothes washer, vacuum cleaner system plastic piping or plastic electrical outlets, telephone, television or similar equipment. If both gypsum membranes are penetrated in a stud space then this alternative cannot be used.

Q 3: What is the definition of a duct?

A 3: There is no definition of "duct "in the *Dwelling Code*, but there is a definition of a "duct system." "A duct system is a continuous passageway for the transmission of air which, in addition to ducts, may include duct fittings, dampers, plenums, fans and accessory air-handling equipment." Therefore, a duct is a continuous passageway for the transmission of air.

Q 4: Is vacuum PVC pipe considered plastic plumbing or a duct?

A 4: A pipe is a hollow cylinder. If such pipe were used for drain-waste-and-vent (DWV) plumbing it would carry both liquids, solids and gases. If it were used for a vacuum system it would predominantly carry air and dry particulates but may also be designed to transmit liquid droplets in the air flow. By definition, PVC pipe used for a vacuum line is a duct.

(signed July 15, 1992)
John Talbott, Chairman
Structural Code Advisory Board

Date

The recommendations and findings of the Structural Code Advisory Board are accepted and are adopted:

(signed July 15, 1992)
Gary J. Wicks, Administrator
Building Codes Agency

Date