

OREGON
Interpretive Ruling No. 92-18
PLASTIC PIPE IN BUILDINGS OF NONCOMBUSTIBLE CONSTRUCTION

Requested By: TED GRIZZELL, PLASTIC PIPE AND FITTINGS ASSOCIATION
DECEMBER 18, 1991

REQUEST FOR RULING

Mr. Grizzell registered concern about table No. M-1 in the Plumbing Specialty Code that:

1.
 1. Plastic plumbing is not permitted in Occupancy separation walls.
 2. In walls required to be of fire-resistive construction, plastic plumbing penetrations shall be through metallic sleeves extending 18 inches beyond the foot of the wall.
 3. Plastic plumbing is not permitted in exterior walls.

CODE SECTIONS

The Oregon Plumbing Specialty Code in Section 401(a)(2) and 5303(a)(2) says, “(2) ABS and PVC DWV piping installations shall be limited to those structures where combustible construction is allowed”. The Oregon Plumbing Specialty Code adds to each subsection, “(see Appendix M.)” Oregon’s Appendix M reproduces information from the Oregon Structural Specialty Code and attempts to explain combustible construction types and the limitations on areas, heights, and occupancies. Appendix M is also mentioned in a number of other places: 1004(a), IAPMO IS 5-87 and IAPMO IS 9-87.

Appendix M and related references were proposed for deletion in the 1992 edition of the State Plumbing Specialty Code. The Plumbing Board elected to retain Appendix M and it still appears in the Plumbing Code.

The unamended 1991 UPC Sections 401 (a)(2) and 503(a)(2) have been revised to read:

(2) ABS and PVC DWV piping installations shall be limited to structures not exceeding three floors above grade. For the purpose of this subsection, the first floor of a building shall be that floor that has fifty (50) percent or more of the exterior wall surface area level with or above finished grade. One additional level that is the first level and not designed for human habitation and used only for vehicle parking, storage, or similar use shall be permitted.

Structural Specialty Code

Chapters 18 through 22 detail the material that may be used in the different types of construction. In construction types I and II, the only allowed combustible construction material is in partitions that may be of fire-retardant treated wood.

Table No. 17-A shows construction types divided into two groups. Construction types I and II are “noncombustible” and types III, IV, and V are “combustible”.

Section 415 defines “Noncombustible”. If it ignites and burns it is combustible. If it meets U.B.C. Standard 4-1 it is considered noncombustible.

U.B.C. Standard 4-1 (based on ASTM E 136-79) requires a 1 1/2 inch square dry specimen to be inserted in a furnace, with attached thermocouples, and heated to 1382 degrees. F. +/- 10 degrees. The material is noncombustible if three of four of the specimens pass the following:

1. The recorded temperature of the specimen does not rise more than 54 degrees above the temperature of the furnace;
2. If there is no flame from the specimen after 30 seconds; and

3. When the weight loss from the test exceeds 50 percent, there is no temperature rise and there is no flame.

Chapter 43 has a number of relevant sections:

4302 (b) references U.B.C. Standard 43-1 related to testing of assemblies.

U.B.C. Standard 43.1, section 43.106, related to test specimens says the specimen shall be truly representative of the assembly for which the classification is desired.

4303(b), paragraph 2 and 4304(e), paragraph 2, both of which allow penetration only if the penetrating material is metal.

Section 3405(a), last paragraph, says that if material is incorporated into an otherwise fire-resistive assembly which may change the capacity for heat dissipation, the Building Official shall be shown fire test results that the fire-resistive time period is not reduced. This is an insulation issue but it may also apply to other material contained in the wall.

The State Fire Marshal, and later the Structural Code Advisory Board, addressed fire assembly penetrations through PPPI-2004 on "Poke Holes", last revised in 1982. This interpretation allows nonmetallic pipes, ducts, and vents to penetrate a rated wall or floor/ceiling assembly if the penetration is protected on each side with 18 inches of metal sleeve.

Interpretation PPPI-4094, "Combustible Construction and Plastic Pipe" issued in 1981 is still active even though the Plumbing Code has been revised.

"Crawl space" is not defined in the Structural Specialty Code. "Plenum" is not defined in the Structural Specialty Code, but is defined in section 418 of the Mechanical Specialty Code. Section 1002 of the Mechanical Specialty Code, paragraph 6, limits flame-spread and smoke-development to 25 and 50, respectively. There are six exceptions.

The Plumbing Code specifically limits the use of PVC and ABC plumbing in DWV systems in buildings of combustible construction. There is no limitation on having polypropylene pipe in the building, but it must be used in such a way as to not betray the fire resistive construction.

HISTORY

The Structural Code Advisory Board addressed a similar issue in Interpretive Ruling No. 92-4, on use of polypropylene plastic pipe in Type I and II buildings. This interpretation is an expansion of that ruling. Interpretation 92-4 changed certain perceptions.

Initially it was believed that plastic piping was not permitted in type I and II fire-resistive types of construction. In-depth review of the code, our thinking has changed. Also an interpretation from the International Conference of Building Officials agrees with the thrust of staff's research. The issue was also submitted to the State Fire Marshall's Office. They concur that certain plastic piping may be used in Type I and II construction with proper protection of penetrations.

BOARD FINDINGS

- The Plumbing Code specifically limits the use of PVC and ABS plumbing in DWV systems in buildings of combustible construction.
- There is no limitation on having other types of plastic pipe in buildings, but it must be used in such a way as to not betray fire resistive construction [OPSC 901(a)(2)].
- PPPI-2004 on "Poke Holes", allows non-metallic pipes, ducts and vents to penetrate a rated wall or floor/ceiling if the penetration is protected on both sides of the wall with 18 inches of metal sleeve.
- The Structural Specialty code permits other approved methods of protection of penetrations of fire resistive construction.

DISCUSSION AND CONCLUSION

There are various types of fire resistive construction required by the Oregon Structural Specialty Code that

must be considered, including: type of construction, shafts, corridors, walls, [occupancy separation, location on property (exterior)], floors and ceilings, and structural systems.

Based upon the code language, interpretation from ICBO and the State Fire Marshal's Office and the Board's findings the following conclusions are made:

Q1: Is plastic piping permitted in occupancy separation walls?

A1: Yes, approved plastic pipe is permitted in occupancy separation walls of **noncombustible buildings**, except that PVC and ABS plastic pipe are not permitted in this type of construction by the Plumbing Specialty Code.

Q2: Are walls required to be of fire-resistive construction required to have plastic plumbing penetrations protected by metallic sleeves extending 18 inches beyond the foot of the wall?

A2: Protected openings not required. No, provided the pipe does not penetrate a wall assembly requiring protected openings.

Q3: Is plastic plumbing permitted in exterior walls?

A3: Yes, approved plastic pipe is permitted in exterior walls of combustible buildings.

Yes, for noncombustible buildings, except that PVC and ABS plastic pipe is not permitted in this type of construction.

(signed October 20, 1992)
John Talbott, Chairman
Structural Code Advisory Board

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

(signed October 23, 1992)
Gary J. Wicks, Administrator
Building Codes Agency

RESCINDED