

**Oregon  
Interpretive Ruling No. 92-4  
PLASTIC PIPE IN TYPE I AND II BUILDINGS**

**Requested By: WALTER FRIDAY, CODE ENGINEER, BUILDING CODES AGENCY  
DECEMBER 18, 1991**

**REQUEST FOR RULING**

Request by BCA for interpretive ruling related to a question asked by the City of Portland on the use of plastic plumbing in Type I and II fire resistive Buildings.

The City of Portland asked:

ISSUE	LOCATION	CONDITION	ANSWER
Can polypropylene pipe be USED IN Type I and II buildings in:	A plenum	Unprotected	
		With pipe wrap protective cover of flame spread of 25 or less	
		Not at all	
	A crawl space	Unprotected	
		With pipe wrap protective cover of flame spread of 25 or less	
		Not at all	
	Within wall assemblies	Unprotected	
		With pipe wrap protective cover of flame spread of 25 or less	
		Not at all	
	In cabinets or exposed to the room	unprotected	
		With pipe wrap protective cover of flame spread of 25 or less	
		Not at all	

**CODE SECTIONS**

The Uniform Plumbing Code and the Oregon Plumbing Specialty Code in Section 401 (a)(2) and 503(a)(2) say, “(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 is proposed for deletion in the next edition of the State Plumbing Specialty Code.

**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 “non-combustible and Construction 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 ½ inch 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 exceed 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) 6, paragraph 2 and 4304(e), paragraph 2, both of which allow penetration only if the penetrating material is metal.

Section 4305 (a), last paragraph, says that if the material is incorporated into an otherwise fire-resistant 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 also may apply to other material contained in the wall.

The State Fire Marshall, and later the Structural Code Advisory Board, have 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 if the penetration is protected on each side with 18 inches of metal sleeve.

Interpretation PPPI-2004, “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.

Also enclosed is a related response from ICBO on your question.

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 polypropylene pipe in the building, but it must be used in such a way to not betray the fire-resistive construction.

## **BACKGROUND**

The initial mind-set of the Building Codes Agency staff was that plastic piping was not permitted in Type I and II, fire-resistive types of construction. Upon in-depth review of the code our thinking has changed. We asked for an interpretation from the International Conference of Building Officials.

ICBO’s response agreed with the thrust of our research. The issue was then submitted to the State Fire Marshal’s Office. They also 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 polypropylene pipe in the building, but it must be used in such a way as to not betray fire resistive construction.
- 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 each side with 18 inches of metal sleeve.
- PPPI-4094 related to plastic plumbing is obsolete due to Plumbing Specialty Code changes.

## DISCUSSION AND CONCLUSION

1. The answers to Portland’s questions are:

ISSUE	LOCATION	CONDITION	ANSWER	
Can polypropylene pipe be USED IN Type I and II buildings in:	A plenum	Unprotected	Yes, if satisfies the limitations of section 1002 MSC. No, if it does not.	
		With pipe wrap protective cover of flame spread of 25 or less	No, except the building official might approve such a system under Section 105 as an alternate to complying pipe.	
		Not at all	Not applicable	
	A crawl space	Unprotected	Yes, unless the space is used as a plenum	
		With pipe wrap protective cover of flame spread of 25 or less	Not applicable	
		Not at all	Not applicable	
	Within wall assemblies	Unprotected	Yes, provided the pipe does not penetrate a wall assembly requiring protected openings. However these assemblies can be penetrated when the penetration and assembly are tested in accordance with the provisions of Section 4302(b) or in Oregon where it complies with PPPI-2004	
			With pipe wrap protective cover of flame spread of 25 or less	Not applicable
			Not at all	Not applicable
		In cabinets or exposed to the room	unprotected	Yes
			With pipe wrap protective cover of flame spread of 25 or less	Not applicable
			Not at all	Not applicable

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 (signed June 25, 1992)  
 John Talbott, Chairman  
 Structural Code Advisory Board

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

ISSUE	LOCATION	CONDITION	ANSWER
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		With pipe wrap protective cover of flame spread of 25 or less	Not applicable
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	In cabinets or exposed to the room	unprotected	Yes
		With pipe wrap protective cover of flame spread of 25 or less	Not applicable
		Not at all	Not applicable

2. Due to Plumbing Specialty Code changes, PPPI 4094 is hereby withdrawn.

(signed June 29, 1992)  
 Gary J Wicks, Administrator  
 Building Codes Agency