

PLUMBING AND MECHANICAL INTERPRETATION MANUAL



CODE: 2003 IRC & IPC

DATE:

CODE REF: IRC Section 2903.6.1 2003 IPC 504.6.2

8/3/2007

SUBJECT: Use of CPVC for T & P Discharge Pipe(Page 1 of 2)

Question: Is copper pipe required for the first 12" or more on the discharge pipe of a T & P Line?

Answer: No, Section 2903.6.1 (IRC) and Section 504.6.1 (IPC) state the following:

2003 IRC 2803.6.1 Requirements of discharge pipe.

The outlet of a pressure relief valve, temperature relief valve or combination thereof, shall not be directly connected to the drainage system. The discharge from the relief valve shall be piped full size separately to the floor, to the outside of the building or to an indirect waste receptor located inside the building. In areas subject to freezing, the relief valve shall discharge through an air gap into an indirect waste receptor located within a heated space, or by other approved means. The discharge shall be installed in a manner that does not cause personal injury or property damage and that is readily observable by the building occupants. The discharge from a relief valve shall not be trapped. The diameter of the discharge piping shall not be less than the diameter of the relief valve outlet. The discharge pipe shall be installed so as to drain by gravity flow and shall terminate atmospherically not more than 6 inches (152 mm) above the floor. The outlet end of the discharge pipe shall not have a valve installed.

2003 IPC 504.6.2 Materials. Relief valve discharge piping shall be of those materials listed in Section 605.5 or shall be tested, rated and approved for such use in accordance with ASME A112.4.1. Piping from safety pan drains shall be of those materials listed in Table 605.5.

Although the IRC does not list or make reference to any specific table for approved material for the discharge line the 2003 IPC reference Table 605.5 for approved materials.

**TABLE 605.5
PIPE FITTINGS**

MATERIAL	STANDARD
Acrylonitrile butadiene styrene (ABS) plastic	ASTM D 2468
Cast-iron	ASME B16.4; ASME B16.12
Chlorinated polyvinyl chloride (CPVC) plastic	ASTM F 437; ASTM F 438; ASTM F 439
Copper or copper alloy	ASME B16.15; ASME B16.18; ASME B16.22; ASME B16.23; ASME B16.26; ASME B16.29
Fittings for cross-linked polyethylene (PEX) plastic tubing	ASTM F 1807, ASTM F 1960, ASTM F 2080
Gray iron and ductile iron	AWWA C 110; AWWA C 153
Malleable iron	ASME B16.3
Metal (brass) insert fittings for Polyethylene/Aluminum/Polyethylene (PE-AL-PE) and Cross-linked Polyethylene/Aluminum/Polyethylene (PEX-AL-PEX)	ASTM F 1974
Polyethylene (PE) plastic	ASTM D 2609
Polyvinyl chloride (PVC) plastic	ASTM D 2464; ASTM D 2466; ASTM D 2467; CSA-B137.2
Stainless steel (Type 304/304L)	ASTM A 312; ASTM A 778
Stainless steel (Type 316/316L)	ASTM A 312; ASTM A 778
Steel	ASME B16.9; ASME B16.11; ASME B16.28

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The temperature rating of CPVC is based on the working pressure of the application for example CPVC will with stand a 180°temperature @ 100 psi. Therefore with a T&P discharge pipe there would not be any pressure when used as an open drain pipe and would be capable of withstanding greater temperatures. The T & P is designed to open at 210°

The 2003 IPC Commentary states the following:

“The discharge pipe for the relief valve could be constructed of any of the rigid piping materials listed in Table 605.4 or manufactured drain tubes in compliance with ASME A112.4.1

The pipe must have a minimum pressure rating of 100 psi (690 kPa) at 180°F (82°C). Even with this rating, the pipe may be suitable for the higher temperatures of 210°F (99°C) because the discharge pipe is open to the atmosphere. Water heater temperature relief valves are generally set to open at 210°F (99°C)”

As soon as the relieve valve opens at a temperature of 210°F (99°C) the incoming cold water will reduce the discharge temperature with in a matter of just a few seconds depending on the static pressure of the water system and the incoming water temperature.

Conclusion: CPVC may be connected directly to the T & P relief valve with out the use of a copper discharge line for the first 12-18 inches of the discharge pipe.

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