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**BUILDINGS BULLETIN 2011-020**  
**OTCR**

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**Supersedes:** Buildings Bulletin 2011-005 dated February 17, 2011

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Director, Office of Technical Certification and Research

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**Purpose:** This document establishes acceptance criteria for the use of polypropylene ("PP") piping systems in hydronic piping, irrigation systems and water recycling distribution piping systems as alternative materials in the 2008 NYC Construction Codes.

<b>Related Code</b>	AC 28-113.2.3	BC 1704.13	PC Chapter 7
<b>Section(s):</b>	MC Chapter 12	BC 1704.15	PC Chapter 11
	MC 1206	PC 608	PC Appendix C

**Related Buildings Bulletin(s):** BB 2010-027

**Subject(s):** Hydronic piping, polypropylene; Irrigation system, polypropylene; Water recycling distribution piping system, polypropylene

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**Background:** Polypropylene ("PP") piping is not permitted in the NYC Plumbing code for water supply, sanitary drainage and storm drainage. The NYC Mechanical and Plumbing codes do not clearly address the use of PP for hydronic piping, irrigation and water recycle piping systems.

**Description:** Polypropylene ("PP") is a thermoplastic material made by polymerizing propylene and is used for various applications including the manufacture of piping. PP piping system components include piping, fittings, valves, and manifolds.

**Uses:** PP piping systems may be used for hydronic piping, irrigation systems and water recycling distribution piping systems.

**Restrictions:**

PP piping systems shall not be used in the following applications:

1. Storm drainage in accordance with PC Chapter 11
2. Sanitary drainage in accordance with PC Chapter 7
3. Water supply and distribution in accordance with PC Chapter 6

**Evaluation** 2008 NYC Construction Codes

**Scope:**

**Evaluation Criteria:** Pursuant to section AC 28-113, the Office of Technical Certification and Research recognizes PP piping system components tested and evaluated in accordance with ASTM F 2389 "Standard Specification for Pressure-rated Polypropylene (PP) Piping Systems" <sup>1</sup>. Acceptable PP piping systems shall be listed and labeled by an approved agency in accordance with section AC 28-113.2.3 and shall comply with the conditions of this bulletin.

**Conditions of Acceptance:** PP piping systems shall be designed, installed and manufactured in accordance with the 2008 NYC Construction Codes and other applicable provisions including but not limited to the following:

**A. Design**

**1. Hydronic systems:**

Hydronic piping systems shall be designed as per MC Chapter 12.

**2. Irrigation systems:**

- a. When connected to the potable water supply system, the valve isolating the PP irrigation system from the domestic water supply system shall be located after any required building RPZ valve and such valve shall comply with the Plumbing and Mechanical codes for potable water system valves.
- b. When connected to water recycling systems, the PP irrigation piping shall:
  - i. be not less than 3 inches in diameter, and
  - ii. be located in the same lot as the water recycling system as per OTCR Buildings Bulletin 2010-027, issued on November 10, 2010.

**3. Water recycling distribution piping systems:**

All PP piping systems used with recycled wastewater shall comply with OTCR Buildings Bulletin 2010-027.

**B. Installation**

**1. General requirements:**

- a. Installation requirements shall be in accordance with the manufacturer's instructions, the NYC Plumbing Code, and the conditions of this bulletin.
- b. Installation of PP piping system shall be performed by a NYC licensed plumber.
- c. PP piping systems shall be identified as carrying nonpotable water even if such systems contain potable water.
- d. All shipments and deliveries of materials shall be accompanied by a certificate or label certifying that the materials shipped or delivered are equivalent to those tested and approved.

**2. Hydronic systems:** PP piping systems installations shall be in accordance with section MC 1206.

**3. Water recycling distribution piping systems:**

- a. In accordance with OTCR Buildings Bulletin 2010-027, PP piping systems used for water recycling distribution shall be identified as containing nonpotable water even such systems contain potable water.
- b. When potable water is provided to PP piping systems as makeup water, the potable water shall be protected against backflows in accordance with sections PC 608 and PC C101.7.

**C. Inspection of Installation**

**1. Hydronic systems:**

Special inspection for hydronic systems shall comply with section BC 1704.15.

**2. Irrigation systems:**

Special inspection for irrigation systems shall not be required.

**3. Water recycling distribution piping systems:**

Pursuant to section BC 1704.13, the installation of PP piping systems shall be subject to special inspection requirements of Chapter 17 of the Building Code and all Department rules covering special inspection. Special Inspectors of PP piping systems shall:

- a. Have qualifications and experience which include Professional Engineer or Registered Architect and 1 year relevant experience.
- b. Have duties and responsibilities in accordance with, but not limited to: 1) verifying compliance with part “A” items 1 to 3 of this bulletin, 2) witnessing tests as per section PC 312.1.2 as the approved agency and 3) all code provisions and departments rules regarding special inspections.
- c. Complete the statement of special inspection under “Alternative Materials, BC 1704.13” in section 3.0 of the TR1 form.

<input type="checkbox"/>	<input type="checkbox"/>	Wood - Installation of Metal-Plate-Connected Trusses	BC 1704.6.3	
<input type="checkbox"/>	<input type="checkbox"/>	Wood - Installation of Prefabricated I-Joists	BC 1704.6.4	
<input type="checkbox"/>	<input type="checkbox"/>	Soils - Site Preparation	BC 1704.7.1	
<input type="checkbox"/>	<input type="checkbox"/>	Soils - Fill placement & In-Place Density	BC 1704.7.2, BC 1704.7.3	
<input type="checkbox"/>	<input type="checkbox"/>	Soils - Investigations (Borings/Test Pits)	TR4	BC 1704.7.4
<input type="checkbox"/>	<input type="checkbox"/>	Pier Foundations & Drilled Pier Installation	TR5	BC 1704.8
<input type="checkbox"/>	<input type="checkbox"/>	Pier Foundations		BC 1704.9
<input type="checkbox"/>	<input type="checkbox"/>	Underpinning		BC 1704.9.1
<input type="checkbox"/>	<input type="checkbox"/>	Wall Panels, Curtain Walls, and Veneers		BC 1704.10
<input type="checkbox"/>	<input type="checkbox"/>	Sprayed Fire-Resistant Materials		BC 1704.11
<input type="checkbox"/>	<input type="checkbox"/>	Exterior Insulation Finish Systems (EIFS)		BC 1704.12
<input type="checkbox"/>	<input type="checkbox"/>	Alternative Materials - OTCR Buildings Bulletin # _____		BC 1704.13
<input type="checkbox"/>	<input type="checkbox"/>	Smoke Control Systems		BC 1704.14

Use this line to identify PP Piping systems.

**D. Manufacturing**

**1. Material manufacture:**

Material specifications and materials used in the manufacture of polypropylene piping systems shall comply with section 5 of ASTM F 2389.

**2. Dimensions and tolerances:**

PP pipe dimensions shall meet the requirements as per International Piping Standards (IPS) schedule 80 in accordance with section 7 of ASTM F 2389.

**3. Workmanship:**

Finish and appearance of PP piping systems shall be of uniform color, opacity, density and other physical properties.

**4. Marking for Polypropylene piping systems:**

- a. PP piping systems shall be marked in accordance with section 12 of ASTM F 2389 including:
  - i. manufacture's name
  - ii. nominal pipe size
  - iii. "IPS series SCH 80"
  - iv. pressure rating(s) and temperature
  - v. manufacture's production code
- b. All PP piping systems used with water recycling distribution shall be manufactured as purple.

**Referenced Standards:** 1. ASTM F 2389, "Standard Specification for Pressure-rated Polypropylene (PP) Piping Systems." ([www.astm.org](http://www.astm.org))