

**1206.9.1 Flood hazard.** Piping located in areas of special flood hazard shall comply with Appendix G of the *New York City Building Code*.

**1206.10 Pipe support.** Pipe shall be supported in accordance with Section 305. Seismic supports shall be provided where required by the *New York City Building Code*.

**1206.11 Condensation.** Provisions shall be made to prevent the formation of condensation on the exterior of piping.

### SECTION MC 1207 TRANSFER FLUID

**1207.1 Flash point.** The flash point of transfer fluid in a hydronic piping system shall be a minimum of 50°F (28°C) above the maximum system operating temperature.

**1207.2 Makeup water.** The transfer fluid shall be compatible with the makeup water supplied to the system.

### SECTION MC 1208 TESTS

**1208.1 General.** Hydronic piping systems other than ground-source heat pump loop systems shall be tested hydrostatically at one and one half times the system design operating pressure, but not less than 100 psi (689 kPa). The duration of each test shall be not less than 2 hours. Ground-source heat pump loop systems shall be tested in accordance with Section 1208.1.1.

**1208.1.1 Ground source heat pump loop systems.** Before connection (header) trenches are backfilled, the assembled loop system shall be pressure tested with water at 100 psi (689 kPa) for 30 minutes with no observed leaks. Flow and pressure loss testing shall be performed and the actual flow rates and pressure drops shall be compared to the calculated design values. If actual flow rate or pressure drop values differ from calculated design values by more than 10 percent, the problem shall be identified and corrected.

### SECTION MC 1209 EMBEDDED PIPING

**1209.1 Materials.** Piping for heating panels shall be standard-weight steel pipe, Type L copper tubing, or approved plastic pipe or tubing rated at 100 psi (689 kPa) at 180°F (82°C).

**1209.2 Pressurizing during installation.** Piping to be embedded in concrete shall be pressure tested prior to pouring concrete. During pouring, the pipe shall be maintained at the proposed operating pressure.

**1209.3 Embedded joints.** Joints of pipe or tubing that are embedded in a portion of the building, such as concrete or plaster, shall be in accordance with the requirements of Sections 1209.3.1 and 1209.2.

**1209.3.1 Steel pipe joints.** Steel pipe shall be welded by electrical arc or oxygen/acetylene method.

**1209.3.2 Copper tubing joints.** Copper tubing shall be joined by brazing with filler metals having a melting point of not less than 1,000°F (538°C).

**1209.4 Reserved.**

## SECTION MC 1210 HIGH-PRESSURE STEAM PIPING SYSTEMS

**1210.1 Scope.** The provisions of this section shall apply to high-pressure steam piping system which is defined as a system operating at a steam pressure of more than 15 psi (103 kPa). For purposes of this section, loops, bends or offsets of the piping shall not be considered expansion joints.

**1210.2 New systems.** For purposes of this section, the replacement of existing steam piping systems, the installation of a new system in existing buildings, as well as installations in buildings hereafter constructed, shall be considered to be new high-pressure steam piping systems. The following requirements are applicable:

**1210.2.1 Design.** The design of new steam piping systems shall be conducted as follows:

1. The system shall be designed by an engineer. An application and plans shall be filed and the approval of the department obtained. The plans and application shall contain, but not be limited to, the following information:
  - 1.1. Size and location of all steam piping.
  - 1.2. The operating pressures and temperatures.
  - 1.3. The location, type, specifications and details of all expansion joints.
  - 1.4. The design, size, material and location of all anchors, guides and auxiliary steel, and the stresses thereon.

2. Systems using utility street steam shall be designed for a pressure of 200 psig (1379 kPa) and 413°F (212°C) up to and including the steam pressure reducing valve or valves which reduce the pressure of 90 psig (621 kPa) or below. For steam pressures between 90 psig (621 kPa) and 16 psig (110 kPa), the system shall be designed for 125 psig (108 kPa).

**1210.2.2 Installation.** The installation of new steam piping systems shall be conducted as follows:

1. Installations, including any welding, shall be by special inspection by the engineer responsible for the design, or by an engineer acceptable to him or her.
2. Welders shall be qualified for all required pipe sizes, wall thicknesses and positions in accordance with the *ASME Boiler and Pressure Vessel Code*, Section IX. Requalification is required every 3 years or sooner if the commissioner has a specific reason to doubt a welder's ability to make sound welds.
3. Welder qualification testing shall be performed by an agency listed with the department, and if the testing is by radiography, the inspection shall have a minimum

radiography qualification of Level II in accordance with the ASNT, Document No. SNT-TC-1A.

4. Copies of the certified welder qualification reports shall be maintained by the responsible welding agency and the company performing the welding, and shall be made available upon request to the department.
5. No reports from any welding inspection agency shall be accepted unless such agency has first requested and obtained approval from the department in accordance with rules of the department.
6. Pipe welding shall conform to the following:
  - 6.1. All piping over 2 inches (51 mm) shall be butt-welded. Piping 2 inches (76 mm) and under may be socket-welded or threaded.
  - 6.2. Threaded piping may continue to be used for existing construction in sizes of 6 inches (152 mm) and under.
  - 6.3. Where welding is not feasible, the commissioner may allow an acceptable alternative.
7. Radiographic examination, when required, shall be performed on butt-welds in accordance with ASME B31.1 based on the piping pressure and shall be as follows:

Piping Pressure	Percentage
90 psig (621 kPa) or below	Not Required
91 psig (627 kPa) to 150 psig (1034 kPa)	10 at Random
Over 150 psig (1034 kPa)	100

However, if, in the opinion of the engineer responsible for special inspection, radiographic examination is not required for piping at pressure between 90 psig (621 kPa) and 150 psig (1034 kPa), the engineer shall so specify in writing, and the final report on the installation may omit the foregoing, and be predicated on all of the other requirements noted in this section, and a hydrostatic test.

**1210.2.3 Testing.** Hydrostatic testing shall be conducted on the completed installation at 150 percent of the design pressure for all piping pressure. Where the changes in an existing steam system involve less than 30 percent of the piping in the system, the testing may be in accordance with ASME B31.1.

**1210.2.4 Relocation.** The commissioner, where deemed necessary, shall require the replacement or relocation of any joints, guides or anchors. The commissioner shall cause the joints in potentially hazardous locations, such as those that are located adjacent to tenant occupied spaces, to be relocated, unless means exist or are provided for eliminating the hazard.

**1210.3 Existing systems.** Existing steam piping systems shall be in accordance with Sections 1210.3.1 through 1210.3.3. Upon the completion of a new high-pressure steam piping system and department approval of same, the rules relating to maintenance requirements and the keeping of records for existing high-pressure steam piping systems shall apply.

**1210.3.1 Maintenance inspections.** Expansion joints, anchorage and guides shall be inspected as follows:

1. Expansion joints shall be inspected weekly.
2. The anchorage and guides shall be inspected annually. Exposure of the structural attachments to the buildings of the anchorages or guides shall not be required.
3. A record of such inspections shall be kept by the person in charge of the mechanical equipment of the building or other qualified person designated by the owner and acceptable to the commissioner. The records shall be available at the premises and subject to inspection by the commissioner.

**1210.3.2 Work approval.** No joint, anchorage or guides shall be repaired, replaced or relocated without a work permit issued by the department. The application for the permit shall contain all pertinent information and shall be filed by an engineer knowledgeable as to high-pressure steam piping systems. The engineer shall be responsible for the special inspection of the proposed work in accordance with the approved application. This provision shall not apply to the repacking of a slip or ball joint; however, records of such repacking shall be kept in the inspection records as provided in Section 1210.3.1, Item 3. When, in the opinion of the engineer, the requirement for prior department approval would create an imminent health or safety hazard, the engineer may permit the work to proceed without prior approval. In such cases, the engineer shall, prior to the repair, replacement or relocation, notify by telephone the borough commissioner of the borough in which the building is located; and, if the emergency occurs at other than normal working hours, he or she shall notify the department in a manner prescribed by the commissioner. This shall be followed by the filing of the application for department approval as specified in Section 28-105.4.1 of the *Administrative Code*.

Section 1308.1 of the *New York City Mechanical Code*

2. Systems and equipment exempt from service equipment certificate of compliance in accordance with Section 28-116.4.1 of the *Administrative Code*.

**1704.17 High-pressure-steam piping.** High-pressure-steam piping regulated by Section 1210 of the *New York City Mechanical Code*, shall be subject to special inspection in accordance with this section.

**1704.17.1 Welding.** The special inspector shall verify the qualifications of the welder and the quality of the welding materials and equipment prior to welding operations. The special inspector shall review the proposed welding procedures for compliance with applicable standards listed in Section 1210.4 of the *New York City Mechanical Code*.

**1704.17.2 Welding operations.** The special inspector shall perform periodic inspection of the pipe joining and welding operations in accordance with the above. Radiographic testing shall be applied to connections as indicated in Section 1210.4.9 of the *New York City Mechanical Code*. Unacceptable connections and installations shall be rejected.

**1704.17.3 Testing of high-pressure-steam piping.** Hydrostatic testing shall be performed on the completed installation of new and altered systems in accordance with Section 1210.4.10 of the *New York City Mechanical Code*.

**Exception:** Testing requirements shall not apply to alteration or repairs to existing high-pressure-steam piping systems in which the integrity of the piping is not affected. Such alterations shall be visually inspected for compliance with the approved construction documents.

**1704.18 High-pressure-gas piping.** High-pressure-gas piping regulated in Section 406 of the *New York City Fuel Gas Code* shall be subject to periodic special inspection in accordance with this section.

**1704.18.1 Welding.** The special inspector shall verify the qualifications of the welder, the quality of the welding materials and equipment prior to welding operations. The special inspector shall review the proposed welding procedures for compliance with applicable standards listed in Section 406 of the *New York City Fuel Gas Code*.

**1704.18.2 Welding operations.** The special inspector shall perform periodic special inspection for the pipe joining and welding operations in accordance with the above. Radiographic testing shall be performed to the connections as indicated in Section 406.4 of the *New York City Fuel Gas Code*.

**1704.18.3 Testing of high-pressure-gas piping.** Pressure testing shall be performed on the completed installation of new and altered systems in accordance with Section 406.4 of the *New York City Fuel Gas Code*.

**1704.19 Structural safety during construction operations.** Construction work consisting of structural alterations, excavation, underpinning, and demolition work that requires "design" as defined in Chapter 33, including earth shoring, underpin-

ning, protection of adjacent structures and buildings, shall be subject to special inspection in accordance with this section. All alterations to existing structures in which loads are transferred from one structural system of structural elements to another, such as installation of columns or girders, replacement of existing bearing walls, the creation of openings or slots in existing walls, girders or floors, alteration of arches, rigid frames, trusses in frame buildings, or where the stability or integrity of a structural system is to be temporarily diminished shall be subject to special inspections in accordance with this section.

**Exception:** Construction operations not requiring "design" as defined in Chapter 33.

**1704.19.1 General.** Prior to commencement of work, the special inspector shall review the contractor's proposed sequence of operations and determine the areas of work that require design. A written statement shall be prepared, mutually acceptable to the contractor and the special inspector, indicating:

1. The portions of work requiring design as defined in Chapter 33.
2. The names and addresses of the licensed professionals that have been engaged to supply design documents for applicable work.
3. The approximate dates for delivery of design documents.
4. A schedule of periodic special inspections, at agreed intervals, including adequate frequency to assure the contractor's continued compliance with the proposed designs and sequence of construction operations.

**1704.19.2 Site structural safety design documents.** Design documents, including shop drawings, sketches and written descriptions of proposed work regarding site structural safety in construction operations shall be prepared by a registered design professional in the employ of the owner or the contractor. Such designs may be revised at any time by the registered design professional. Copies of the special inspection log book, the design documents and revisions thereof, shall be maintained at the job site, and at the office of the special inspector, available for use and review at all reasonable times, until the structural work is complete. In the case of alteration to existing structures, the design documents shall be reviewed by the registered design professional of record.

**1704.19.3 Inspection for structural safety in construction operations.** The special inspector shall visit the jobsite at agreed intervals, assess the ongoing work and verify that operations conform with the design documents. Deficiencies shall be reported as required by Section 1704.2. In the event unsafe conditions are discovered, the commissioner and the registered design professional employed by the contractor shall be immediately notified.

**1704.19.4 Records of structural safety inspections in construction operations.** The special inspection logbook

Special Inspection Category	2008 Code Section	Qualifications <sup>1,2</sup>		
		Primary Inspector or Inspection Supervisor	Supplemental Inspector (Alternative 1) - under direct supervision of Inspection Supervisor	Supplemental Inspector (Alternative 2) - under direct supervision of Inspection Supervisor
<b>4. Structural Materials &amp; Construction Operations</b>				
Welding: Steel Highpressure Steam Piping High pressure Gas Piping Aluminum (2 RNCY 25 – BSA RULE)	BC 1704.3.1 BC 1704.17 BC 1704.18 BC 1704.26	<ul style="list-style-type: none"> <li>• PE or RA; and</li> <li>• AWS Certified Welding Inspector (AWS-CWI);</li> </ul> OR <ul style="list-style-type: none"> <li>• PE or RA; and</li> <li>• ICC Certification as a Structural Welding Inspector (ICC-SWI); and</li> <li>• 1 year relevant experience</li> </ul>	<ul style="list-style-type: none"> <li>• AWS Certified Welding Inspector (AWS-CWI)</li> </ul> OR <ul style="list-style-type: none"> <li>• ICC Certification as a Structural Welding Inspector (ICC-SWI)</li> <li>• 3 years relevant experience</li> </ul>	<ul style="list-style-type: none"> <li>• AWS Certified Associate Welding Inspector (AWS-CAWI)</li> </ul> <b>Note:</b> AWS-CAWI only permitted to inspect when an AWS-CWI or ICC-SWI is on site supervising
Structural Steel – Erection & High-Strength Bolting  <b>Note:</b> Inspection can also be performed by agency approved to inspect welding	BC 1704.3.2, BC 1704.3.3	<ul style="list-style-type: none"> <li>• PE – Civil/Structural; and</li> <li>• ICC Certification as a Structural Steel and Bolting Inspector; and</li> <li>• 1 year relevant experience</li> </ul>	N/A	<ul style="list-style-type: none"> <li>• Technician with ICC Certification as a Structural Steel and Bolting Inspector; and</li> <li>• 3 years relevant experience</li> </ul>
Structural Cold-formed Steel	BC 1704.3.2.4	<ul style="list-style-type: none"> <li>• PE or RA; and</li> <li>• 1 year relevant experience</li> </ul>	<ul style="list-style-type: none"> <li>• Bachelor's degree in engineering or architecture; and</li> <li>• 2 years relevant experience</li> </ul>	<ul style="list-style-type: none"> <li>• Technician with ICC Certification as a Structural Steel and Bolting Special Inspector; and</li> <li>• 3 years relevant experience</li> </ul>