equal to the product of 1/2 of the maximum pressure in the piping (in kPa [psi]) times the largest nominal diameter of that piping (in mm [in.]), or the cross-sectional area of the chase, whichever is smaller. Where more than one fuel gas piping system is present, the free area for each system shall be calculated and the largest area used. [NFPA 54:7.4.3]

1210.6 Appliance Over Pressure Protection. The maximum operating pressure for piping systems serving appliances designed to operate at 36cm (14 in.) w.c. inlet pressure or less shall be 14kPa (2.0 psi) unless an over pressure protection device designed to limit pressure at the appliance to 14kPa (2.0 psi) upon failure of the line gas pressure regulator is installed.

1210.7 Gas Pipe Turns. Changes in direction of gas pipe shall be made by the use of fittings or factory bends. [NFPA 54:7.5]

1210.7.1 Metallic Pipe. Metallic pipe bends shall comply with the following [NFPA 54:7.5.1]:

(1) Bends shall be made only with bending equipment and procedures intended for that purpose.

(2) Bends shall be smooth and free from cracks or other evidence of mechanical damage.

(3) The longitudinal weld of the pipe shall be near the neutral axis of the bend.

(4) The pipe shall not be bent through an arc of more than 1.6 radian (90 degrees).

(5) The inside radius of a bend shall be not less than six times the outside diameter of the pipe.

1210.7.2 Plastic Pipe. Plastic pipe bends shall comply with the following [NFPA 54:7.5.2]:

(1) The pipe shall not be damaged, and the internal diameter of the pipe shall not be effectively reduced.

(2) Joints shall not be located in pipe bends.

(3) The radius of the inner curve of such bends shall be not less than twenty-five times the inside diameter of the pipe.

(4) Where the piping manufacturer specifies the use of special bending equipment or procedures, such equipment or procedures shall be used.

1210.7.3 Elbows. Factory made welding elbows or transverse segments cut therefrom shall have an arc length measured along the junction of not less than 25mm (1 in.) for pipe sizes 50mm (2 in.) and larger. [NFPA 54:7.5.3]

1210.8 Drips and Sediment Traps.

1210.8.1 Provide Drips Where Necessary. For other than dry gas conditions, a drip shall be provided at any point in the line of pipe where condensate collects. Where required by the Authority Having Jurisdiction or the serving gas supplier, a drip shall be provided at the outlet of the meter. This drip shall be installed to constitute a trap wherein an accumulation of condensate will shut off the flow of gas before it will run back into the meter. [NFPA 54:7.6.1]

1210.8.2 Location of Drips. Drips shall be installed only in such locations that they will be readily accessible to permit cleaning or emptying.

1210.8.3 Sediment Traps. (See Section 1211.7).

1210.9 Outlets.

1210.9.1 Location and Installation.

(1) The outlet fittings or piping shall be securely fastened in place. [NFPA 54:7.7.1.1]

(2) Outlets shall not be located behind doors. [NFPA 54:7.7.1.2]

(3) Outlets shall be located far enough from floors, walls, patios, slabs, and ceilings to permit the use of wrenches without straining, bending, or damaging the piping. [NFPA 54:7.7.1.3]

(4) The unthreaded portion of gas piping outlets shall extend not less than 25mm (1 in.) through finished ceilings, indoor or outdoor walls. [NFPA 54:7.7.1.4]

(5) The unthreaded portion of gas-piping outlets shall extend not less than 50mm (2 in.) above the surface of floors, outdoor patios or slabs. [NFPA 54:7.7.1.5]

(6) The provisions of Sections 1210.9.1(4) and (5) shall not apply to listed quick-disconnect devices of the flush-mounted type or listed gas convenience outlets. Such devices shall be installed in accordance with the manufacturer's installation instructions. [NFPA 54:7.7.1.6]

1210.9.2 Cap Outlets.

(A) Each outlet, including a valve, shall be closed gas-tight with a threaded plug or cap immediately after installation and shall be left closed until the gas utilization appliance is connected thereto. When an appliance is disconnected from an outlet and the outlet is not to be used again immediately, it shall be closed gas-tight. [NFPA 54:7.7.2.1]