

Element D Services

Plumbing

D2050 Natural Gas Distribution

PART 1 - GENERAL

1.01 OVERVIEW

- A. This section addresses natural gas distribution systems within and to five feet beyond the building perimeter.

PART 2 - DESIGN CRITERIA

2.01 GENERAL

- A. All natural gas piping on the customer side of the utility meter shall be designed, installed and tested in accordance with NFPA 54, Fuel Gas Code.
- B. Natural gas shall be provided for all gas fired food service equipment, and all other gas fired equipment requiring natural gas supply.
- C. Building natural gas distribution systems shall be metered and valved in accordance with the gas supplier's requirements.
- D. The design of building supply and distribution systems shall provide a volume of gas at the required flows and pressures to ensure safe, efficient and code compliant operation during periods of peak demand. Piping shall be sized in accordance with referenced codes and standards.
- E. Natural gas pressures shall not exceed five pounds per square inch gauge inside building on customer side of the meter.
- F. Provide readily accessible manual shut-off valve outside of building at service entrance.
- G. Avoid locating gas piping within confined or unventilated spaces where leaking gas might collect.
- H. Do not locate gas piping beneath building slab on grade.
- I. Do not locate gas piping within stairways, electrical or telecommunications rooms.
- J. Main distribution piping risers shall be located exposed within mechanical equipment rooms where possible for vertical routing to multiple floor levels. Where distribution mains cannot be located within mechanical equipment rooms, utilize chases within the building footprint. Natural gas piping installed above ceilings, within chases, within partitions, within spaces utilized as return air plenums, or any non-exposed location shall be encased within a sleeve vented to the exterior of the building.

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- K. Exposed and accessible shut-off valves shall be provided as required for proper operation, servicing and troubleshooting of the distribution system and connected components. Locations shall include but not be limited to the following; at the base of each riser, at each branch connection to risers, at each piece of equipment, where recommended by equipment manufacturer and at strategic locations to allow sectional isolation while limiting disruption of services to large portions of the system.
- L. Exposed and accessible capped valves shall be provided where required for future connections.
- M. Valves, regulators, flanges, unions and similar appurtenances shall be accessible for operation and servicing and not be located above ceilings, within partitions or spaces utilized as return air plenums.
- N. No natural gas line, including service drops shall be smaller than $\frac{3}{4}$ inches inside diameter. Local connections to individual equipment and outlets may be smaller than $\frac{3}{4}$ inches as required for the particular component.
- O. Provide separate sub-meters on the natural gas distribution system for kitchen tenant spaces, boilers, and large domestic water heaters.
- P. Provide a dedicated communication interface as required by the gas utility and coordinate natural gas meter transponder at main gas service entrance to facilitate group purchasing.

2.02 LABORATORY NATURAL GAS DISTRIBUTION

- A. Provide a manual shut-off with an electric powered emergency shut-off valve in each line serving individual laboratory rooms for maintenance and isolation of natural gas serving each room. Room manual isolation valves shall be labeled indicating room being controlled and located accessible to maintenance staff. A manual emergency gas shut-off valve may be provided in lieu of an electric powered valve when approved in writing by the Owner's Project Manager. Manual emergency shut-off valves shall be located exposed on wall at 54 inches above finished floor within each laboratory area adjacent to room exit.

PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

3.01 GENERAL

- A. All piping and valves shall be located and sized on the Contract Drawings.
- B. Include a natural gas system distribution schematic indicating information required to clearly illustrate the intent of system design including, but not limited to, supply source, piping mains, risers, pressure regulating valves, all shut-off valves, branch and individual connection piping to equipment and outlets. Calculated flow rates and developed piping lengths used for system design shall be noted at supply entrance, base of risers, sectional floor valves, branch piping to equipment and outlets, and at each connection to equipment and outlets.

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- C. Include details on the Contract Drawings to clearly identify installation requirements for all natural gas system components included within the Project, including but not limited to; service entrance, gas fired equipment connections, emergency shut-off valves, laboratory zone valves, pressure regulator venting, concealed pipe casing venting termination, roof penetrations, floor and wall penetrations.
- D. Contract Drawings shall clearly identify natural gas system demand, pressures and equipment served.

PART 4 - PRODUCTS

4.01 GENERAL

- A. Refer to Master Construction Specifications.
- B. System design and piping specified for renovation of existing facilities shall be compatible with existing installation.

PART 5 - DOCUMENT REVISION HISTORY

Issue	Date	Revision Description	Reviser
Rev. 1			
Rev. 2			
Rev. 3			
Rev. 4			
Rev. 5			

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END OF ELEMENT D2050