SECTION 15485

NATURAL GAS SYSTEM

PART 1 - GENERAL

1.01 SUMMARY

A. Section Includes:

1. Natural gas piping.
2. Gas solenoid safety valves.
4. Gas valve control panel.
5. Flexible connectors and quick couplers.

B. Related Sections:

1. Section 15010 - Basic Mechanical Requirements.
2. Section 15050 - Basic Mechanical Materials and Methods: Valves, pipe hangers, supports and accessories.
3. Section 15450 - Plumbing Equipment: Gas supply and run-out with drip leg and gas cock or valve to water heater connection points.
4. Section 15460 - Special Plumbing Equipment Systems: Gas supply and run-out with drip leg and gas valve to connection points on all kitchen and laboratory equipment, headers or modules.

1.02 REFERENCES

B. American National Standards Institute (ANSI).
C. National Fire Protection Association (NFPA).

1.03 SYSTEM DESCRIPTION

A. Design Requirements:

1. Natural Gas Piping:
   a. Utility Company will run gas service up to and including the meter.
   b. All gas piping on house side of meter will be furnished and installed under Division 15.
c. Design system in accordance with the following code and standards:
   2) NFPA 54 (ANSI Z223.1) - National Fuel Gas Code.
   3) ANSI Z 223.1a - Supplement to National Fuel Gas Code
   4) NSI B31.2 - Fuel Gas Piping

d. Use tapered couplings. Do not use thread protectors provided with piping.
e. Engineer shall review all existing and new gas requirements to verify adequacy of gas supply (pressure, pipe size and meter size). Engineer shall indicate them on drawings.

2. Gas Solenoid Safety Valves:
   a. Provide in kitchens.
   b. Kitchen valve de-energized when fire suppression system is activated.
   c. Reset of kitchen valve only possible after fire suppression system has been reset, re-charged and in "ready" mode.
   d. Not in plenums.

3. Flexible Hose Gas Connectors and Quick Couplers:
   a. Provide flexible stainless steel connectors with full size quick coupler for all kitchen and heavy movable gas appliance equipment.
   b. Connectors of lengths required to displace equipment for complete cleaning under and around gas appliance.
   c. Provide valve at service connection on equipment branch and quick coupler at service end of flexible hose connector.
   d. Provide union connection on appliance or manifold end of hose connection.

4. Gas isolation valves:
   a. Provide isolation valves at all floors and branches.

PART 2 - PRODUCTS

2.01 PIPING MATERIALS

A. Interior Exposed or Accessible:

1. Size 1/2" thru 1-1/2":
   Pipe: Schedule 40, ASTM A120.
   Fittings: Threaded malleable iron.
Joint Seal: Rector seal or teflon paste.
Unions: Black malleable iron ground joint, bronze to iron seat, 150 lb. class, ANSI B2.1 and ASTM A197.

2. Size 2" and over:
Pipe: Schedule 40, ASTM A53, Type S Grade B.
Fitting: Butt weld ASTM A234.
Unions: 150 lb. forged steel weld neck flange, ANSI/B16.5 and ASTM A105.

B. Interior concealed non accessible and air plenums:
1. All pipe and fittings shall be welded.
2. No gas piping may be installed in air plenums per the IFGC.

2.02 GAS SOLENOID SAFETY VALVES
A. Manufacturer:
1. Automatic Switch Company (ASCO).

2.03 GAS SAFETY VALVE CABINETS
A. Manufacturer:
1. Croker Model 9100 modified for valve depth.
B. Cabinet:
1. #4 stainless steel finish fully recessed, Series S construction, Style K stainless steel door with cylinder lock, four keys each cabinet, all cabinets keyed alike.
2. Modify cabinets for 6" maximum depth for valve sizes 1/2" thru 1-1/2", and 8" maximum depth for valve size 2" thru 3".

2.04 FLEXIBLE HOSE GAS CONNECTORS AND QUICK COUPLERS
A. Manufacturers:

Flexible Connector: Thermo-Tech Products Co.
Quick Coupler: Hansen Manufacturing Co. "Gas Mate".

B. Description:

Flexible Connector: Corrugated type 304 stainless steel flexible pipe with stainless steel braid and heavy flexible armor shield.
C. Quick Coupler: One way quick coupler with gas rating in cubic feet per hour equal to equivalent gas appliance rating.

PART 3 - EXECUTION

3.01 INSTALLATION

A. In general, for project specifications, remove "Design Requirements" sub-paragraph A in Part 1, paragraph 1.03 "System Description" of this Design Guide and use list to expand on specific requirements of installation for each product specified.

B. All branches from mains shall have isolation valves.

3.02 QUALITY CONTROL

A. Welder certification is required, and welder shall pass approval by local inspector for visual quality.

END OF SECTION 15485