

PART 1 - GENERAL REQUIREMENTS

1.01 SUMMARY

- A. This Section includes mechanically joined fittings and valves for distribution piping systems for natural gas, liquid petroleum-gas and manufactured gas within the building and extending from the point of delivery to the connections with gas utilization devices. Piping materials and equipment specified in this Section include:
 - 1. Fittings.
- B. This Section does not apply to liquid petroleum piping; industrial gas applications using such gases as acetylene and acetylenic compounds, hydrogen, ammonia, carbon monoxide, oxygen and nitrogen; gas piping, meters, gas pressure regulators and other appurtenances used by the serving gas supplier in distribution of gas.
- C. Related Sections: The following sections contain requirements that relate to this Section:
 - 1. Division 22 Section "Natural Gas Systems," for valves, hangers, natural gas systems and installation requirements.
- D. Gas pressures for systems specified in this Section are limited to 2 psig.

1.02 SUBMITTALS

- A. Product data for each mechanically joined gas pipe fitting. Include rated capacities of selected models, furnished specialties and accessories, and installation instructions.
- B. Maintenance data for mechanically joined gas pipe fittings, for inclusion in operating and maintenance manual specified in Division 1 and Division 22 Section "General Plumbing Requirements."
- C. Installer qualification certificates, certifying that installers comply with the quality requirements specified under "Quality Assurance" below.
- D. Test reports specified in Part 3 below.

1.03 QUALITY ASSURANCE

- A. Installer Qualifications: Installation of mechanically joined fittings shall be performed only by a qualified installer. The term qualified is defined as experienced in such work (experienced shall mean having a minimum of 5 previous projects similar in size and scope to this project), familiar with precautions required,

and has complied with the requirements of the authority having jurisdiction. Upon request, submit evidence of such qualifications to the Architect.

- B. Local Gas Utility Requirements: Installation of mechanically joined fittings shall comply with local gas utility installation rules and regulations.
- C. Mechanically joined fittings shall be manufactured in plants located in the United States or certified to meet the specified ASTM and ANSI standards.
- D. Obtain training from the mechanically joined fittings manufacturer for all workers that will be installing or handling the mechanically joined fittings.

PART 2 - PRODUCTS AND MATERIALS

2.01 MANUFACTURERS

- A. Manufacturer: Subject to compliance with requirements, provide gas piping system products from one of the following:
 - 1. Mechanically Joined Fittings:
 - a) Viega "Mega-Press G Fittings"
 - b) Apollo "PowerPress"

2.02 FITTINGS

- A. Mechanically Joined Fittings: ½ inch through 4 inch meeting ANSI LC4-2012 /CSA 6.32-2012 2nd Edition with zinc/nickel coating, HNBR sealing element, 420 stainless steel grip ring, 304 stainless steel separator ring, and Smart Connect (SC) Feature that allows the joint to leak if not properly sealed. Fittings shall be for use with IPS schedule 10 thru schedule 40 carbon steel, or galvanized pipe meeting ASTM A53. Fittings shall have temperature and pressure rating of -40F to 180F at a maximum operating pressure of 125 psi.

2.03 VALVES

- A. Mechanically Joined Gas Ball Valves: ½ inch through 2 inch carbon steel body meeting ASTM A216 with full port 316 stainless steel ball meeting ASTM A276, blowout-proof stem, with replaceable "Teflon" or "PTFE" seats and seals, solder ends and vinyl-covered steel handle. Provide with mechanically joined ends meeting ASTM LC4 with HNBR O-ring.
 - 1. Apollo "PowerPress" # 89FHV4 series

PART 3 - EXECUTION

3.01 PIPING INSTALLATION

- A. Install fittings and valves in accordance with manufacturer's installation instructions.

3.02 PREPARATION

- A. Precautions: Before turning off the gas to the premises, or section of piping, turn off all equipment valves. Perform a leakage test as specified in "FIELD QUALITY CONTROL" below, to determine that all equipment is turned off in the piping section to be affected.
- B. Conform with the requirements in NFPA 54, for the prevention of accidental ignition.

3.03 PIPE APPLICATIONS

- A. Install above floor steel pipe with mechanically joined fittings for pipe 1/2 inch and larger up to 4".

3.04 PIPING INSTALLATION

- A. Piping Installation requirements are specified in Division 22 Section "Natural Gas Systems".

3.05 PIPE JOINT CONSTRUCTION

- A. Joint materials and installation requirements are specified in Division 22 Section "Natural Gas Systems".
- B. Joints for Mechanically Joined Fittings: Comply with the manufacturer's installation instructions and Requirements:
 - 1. Cut pipe ends at right angle (square) to the pipe.
 - 2. Ream pipe ends with chamfer.
 - 3. Remove paint, lacquer, grease, oil or dirt from the pipe end with an abrasive cloth, or with the "Ridgid MegaPress" pipe end prep tool.
 - 4. Visually examine the fitting sealing element to ensure there is no damage.
 - 5. Utilize a "Viega MegaPress Insertion Depth Inspection Gauge" to mark the pipe wall, with a felt tip pen, at the appropriate location, or insert the pipe fully into the fitting and mark the pipe wall at the face of the fitting.
 - 6. Verify the pipe is fully inserted into the fitting prior to pressing the joint.
 - 7. Install mechanically joined fittings using "Ridgid" MegaPress Tools.

3.06 VALVE APPLICATIONS

- A. Valves are specified in Division 22 Section "Natural Gas Systems".

- B. Valves can be installed with screwed joints for 2" and smaller and flanged joints for 2-1/2" and larger. Or, valves can be provided with mechanically joined fitting adapters and the joints installed as specified herein.

3.07 VALVE INSTALLATIONS

- A. Valve installation requirements are specified in Division 22 Section "Natural Gas Systems".

3.08 FIELD QUALITY CONTROL

- A. Field quality control requirements are specified in Division 22 Section "Natural Gas Systems".
- B. Installing contractor shall schedule training session with the mechanically joined fittings manufacturer at project site for all workers that will be installing or handling mechanically joined fittings. Submit certification letter along with list of certified attendees to Architect within 30-days of mobilization. Include copy of certification letter with closeout documents. Mechanically joined fittings manufacturer shall provide certification training to the contractor without cost and without additional cost to the Owner.
- C. Piping Tests: Inspect, test, and purge natural gas systems in accordance with NFPA 54, and local utility requirements.
- D. Manufacturer's Piping Test: Provide two-step test process as follows:
 - 1. Pressurize the system between 0.5 psi and 45 psi with air or dry nitrogen.
 - 2. If the system does not hold pressure, walk the system and check for un-pressed fittings.
 - 3. If un-pressed fittings are found, ensure the pipe is fully inserted into the fitting and properly marked prior to pressing the joint.
 - 4. If failed joints are found, cut out the failed fitting and replace with new as specified herein.
 - 5. After appropriate repairs have been made, test the system per local code, not to exceed 200 psig.

END OF SECTION