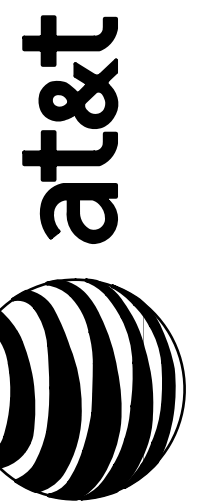




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REVISIONS

HVAC PLAN

SHEET NUMBER

H1.1

GENERAL NOTES:

- 1. PROVIDE FIRE DAMPERS AT ALL DUCT PENETRATIONS THROUGH FIRE-RATED WALLS AND FLOORS.
2. ALL DUCT SIZES ARE CLEAR INSIDE DIMENSIONS.
3. DUCT SMOKE DETECTORS TO BE FURNISHED BY ELECTRICAL CONTRACTOR & INSTALLED BY MECHANICAL CONTRACTOR. CONTROL WIRING TO ANNUNCIATOR PANEL BY E.C. CONTROL WIRING TO HVAC UNITS BY MECHANICAL CONTRACTOR.

DEMOLITION NOTES:

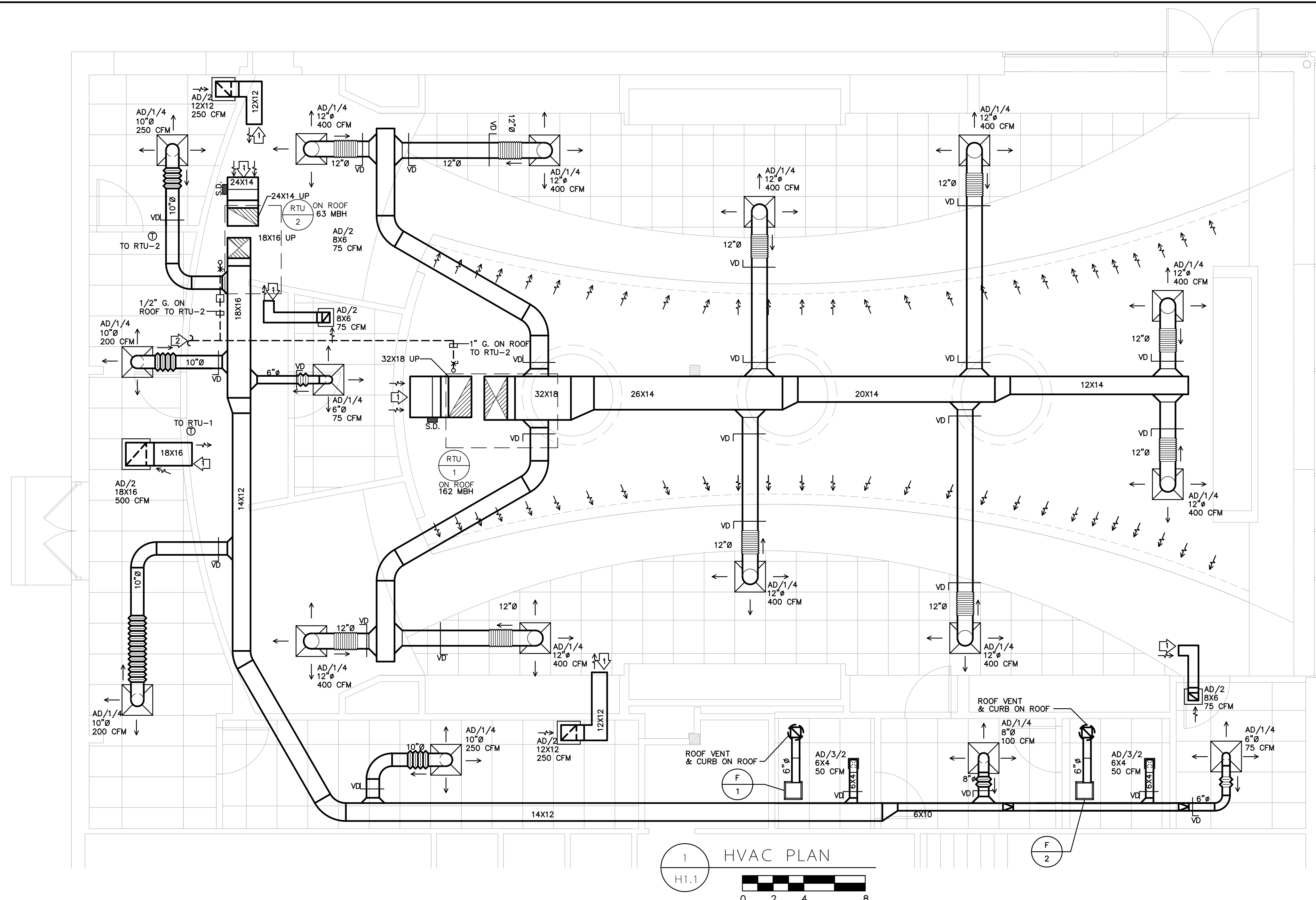
- A. DISCONNECT, DEMOLISH, AND REMOVE HVAC SYSTEMS, EQUIPMENT, DUCTWORK, PIPING MADE OBSOLETE BY THIS PROJECT AND COMPONENTS INDICATED TO BE REMOVED.
1. DRAIN PIPING TO BE ABANDONED IN PLACE, AND CAP OR PLUG PIPING WITH SAME OR COMPATIBLE PIPING MATERIAL.
2. DUCTS TO REMAIN SHALL BE CAPPED BEHIND FINISHED SURFACES WITH SAME OR COMPATIBLE DUCTWORK MATERIAL.
3. IF PIPE, INSULATION, OR EQUIPMENT TO REMAIN IS DAMAGED IN APPEARANCE OR IS UNSERVICEABLE, REMOVE DAMAGED OR UNSERVICEABLE PORTIONS AND REPLACE WITH NEW PRODUCTS OF EQUAL CAPACITY AND QUALITY.

FLAG NOTES:

- 1. OPEN END DUCT WITH BIRD SCREEN.
2. 1-1/4" GAS PIPING: EXTEND APPROXIMATELY 60 FEET ON ROOF AND DOWN TO EXISTING GAS METER.

SEQUENCE OF OPERATIONS:

- 1. ROOFTOP GAS HEAT/ELECTRIC COOLING UNIT
A. PACKAGE UNIT SHALL BE INDEXED TO THE OCCUPIED/UNOCCUPIED MODE THROUGH THE PROGRAMMABLE SPACE SENSOR, SCHEDULE PER OWNERS' DIRECTIONS.
B. OCCUPIED MODE: OUTSIDE AIR DAMPER SHALL OPEN TO PRESET POSITION AND SUPPLY AIR FAN SHALL BE ENERGIZED AND RUN CONTINUOUSLY.
C. UNOCCUPIED MODE: OUTSIDE AIR DAMPER SHALL BE CLOSED, SUPPLY FAN SHALL CYCLE ON CALL FOR HEATING OR COOLING.
D. PROGRAMMABLE SPACE SENSOR SHALL MODULATE THE GAS FURNACES, REFRIGERATION AND ECONOMIZER SYSTEM THROUGH THE UNIT CONTROLS TO MAINTAIN THE FOLLOWING:
HEATING 70 DEG.F OCCUPIED 60 DEG.F UNOCCUPIED
COOLING 76 DEG.F 80 DEG.F
E. SMOKE DETECTORS: DE-ENERGIZE UNIT ON SMOKE DETECTOR ACTIVATION.
2. TOILET EXHAUST FAN
A. TOILET EXHAUST SHALL BE INTERCONNECTED TO THE TOILET LIGHT SWITCH.



1 HVAC PLAN H1.1 0 2 4 8

231123 FACILITY NATURAL-GAS PIPING

- A. SUBMITTALS
1. PRODUCT DATA: FOR EACH TYPE OF THE FOLLOWING:
a. PIPING SPECIALTIES.
b. VALVES. INCLUDE PRESSURE RATING, CAPACITY, SETTINGS, AND ELECTRICAL CONNECTION DATA OF SELECTED MODELS.
c. PRESSURE REGULATORS. INDICATE PRESSURE RATINGS AND CAPACITIES.
2. SITE SURVEY: PLANS, DRAWN TO SCALE, ON WHICH NATURAL-GAS PIPING IS SHOWN AND COORDINATED WITH OTHER SERVICES AND UTILITIES.
B. PROJECT CONDITIONS
1. PERFORM SITE SURVEY, RESEARCH PUBLIC UTILITY RECORDS, AND VERIFY EXISTING UTILITY LOCATIONS. CONTACT UTILITY-LOCATING SERVICE FOR AREA WHERE PROJECT IS LOCATED.
2. INTERRUPTION OF EXISTING NATURAL-GAS SERVICE: DO NOT INTERRUPT NATURAL-GAS SERVICE TO FACILITIES OCCUPIED BY OWNER OR OTHERS UNLESS PERMITTED UNDER THE FOLLOWING CONDITIONS AND THEN ONLY AFTER ARRANGING TO PROVIDE PURGING AND STARTUP OF NATURAL-GAS SUPPLY ACCORDING TO REQUIREMENTS INDICATED:
a. NOTIFY ARCHITECT OR OWNER NO FEWER THAN TWO DAYS IN ADVANCE OF PROPOSED INTERRUPTION OF NATURAL-GAS SERVICE.
b. DO NOT PROCEED WITH INTERRUPTION OF NATURAL-GAS SERVICE WITHOUT ARCHITECT'S OR OWNER'S WRITTEN PERMISSION.
C. PIPES, TUBES, AND FITTINGS
1. STEEL PIPE: ASTM A 53/A 53M, SCHEDULE 40, TYPE E OR S, GRADE B.
a. MALLEABLE-IRON THREADED FITTINGS: ASME B16.3, CLASS 150, STANDARD PATTERN.
b. WROUGHT-STEEL WELDING FITTINGS: ASTM A 234/A 234M FOR BUTT WELDING AND SOCKET WELDING.
c. UNIONS: ASME B16.39, CLASS 150, MALLEABLE IRON WITH BRASS-TO-IRON SEAT, GROUND JOINT, AND THREADED ENDS.
D. JOINING MATERIALS
1. JOINT COMPOUND AND TAPE: SUITABLE FOR NATURAL GAS.
2. WELDING FILLER METALS: COMPLY WITH AWS D10.12/D10.12M FOR WELDING MATERIALS APPROPRIATE FOR WALL THICKNESS AND CHEMICAL ANALYSIS OF STEEL PIPE BEING WELDED.
E. MANUAL GAS SHUTOFF VALVES
1. GENERAL REQUIREMENTS FOR METALLIC VALVES, NPS 2-1/2 (DN 65) AND SMALLER: COMPLY WITH ASME B16.33.
a. CWP RATING: 125 PSIG (862 KPA).
b. THREADED ENDS: COMPLY WITH ASME B1.20.1.
F. PRESSURE REGULATORS
1. GENERAL REQUIREMENTS:
a. SINGLE STAGE AND SUITABLE FOR NATURAL GAS.
b. STEEL JACKET AND CORROSION-RESISTANT COMPONENTS.
c. ELEVATION COMPENSATOR.
d. END CONNECTIONS: THREADED FOR REGULATORS NPS 2 (DN 50) AND SMALLER; FLANGED FOR REGULATORS NPS 2-1/2 (DN 65) AND LARGER.
2. SERVICE PRESSURE REGULATORS: COMPLY WITH ANSI Z21.80.
a. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
1) ACTARIS.
2) AMERICAN METER COMPANY.
3) FISHER CONTROL VALVES AND REGULATORS; DIVISION OF EMERSON PROCESS MANAGEMENT.
4) INVENSYS.
5) RICHARDS INDUSTRIES; JORDAN VALVE DIV.
b. BODY AND DIAPHRAGM CASE: CAST IRON OR DIE-CAST ALUMINUM.
c. SPRINGS: ZINC-PLATED STEEL; INTERCHANGEABLE.
d. DIAPHRAGM PLATE: ZINC-PLATED STEEL.
e. SEAT DISC: NITRILE RUBBER RESISTANT TO GAS IMPURITIES, ABRASION, AND DEFORMATION AT THE VALVE PORT.
f. ORIFICE: ALUMINUM; INTERCHANGEABLE.
g. SEAL PLUG: ULTRAVIOLET-STABILIZED, MINERAL-FILLED NYLON.
h. SINGLE-PORT, SELF-CONTAINED REGULATOR WITH ORIFICE NO LARGER THAN REQUIRED AT MAXIMUM PRESSURE INLET, AND NO PRESSURE SENSING PIPING EXTERNAL TO THE REGULATOR.
i. PRESSURE REGULATOR SHALL MAINTAIN DISCHARGE PRESSURE SETTING DOWNSTREAM, AND NOT EXCEED 150 PERCENT OF DESIGN DISCHARGE PRESSURE AT SHUTOFF.
j. OVERPRESSURE PROTECTION DEVICE: FACTORY MOUNTED ON PRESSURE REGULATOR.
k. ATMOSPHERIC VENT: FACTORY-OR FIELD-INSTALLED, STAINLESS-STEEL SCREEN IN OPENING IF NOT CONNECTED TO VENT PIPING.
3. LINE PRESSURE REGULATORS: COMPLY WITH ANSI Z21.80.
a. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
1) ACTARIS.
2) AMERICAN METER COMPANY.
3) ECLIPSE COMBUSTION, INC.
4) FISHER CONTROL VALVES AND REGULATORS; DIVISION OF EMERSON PROCESS MANAGEMENT.
5) INVENSYS.
6) MAXITROL COMPANY.
7) RICHARDS INDUSTRIES; JORDAN VALVE DIV.
b. BODY AND DIAPHRAGM CASE: CAST IRON OR DIE-CAST ALUMINUM.
c. SPRINGS: ZINC-PLATED STEEL; INTERCHANGEABLE.
d. DIAPHRAGM PLATE: ZINC-PLATED STEEL.
e. SEAT DISC: NITRILE RUBBER RESISTANT TO GAS IMPURITIES, ABRASION, AND DEFORMATION AT THE VALVE PORT.
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J. OVERPRESSURE PROTECTION DEVICE: FACTORY MOUNTED ON PRESSURE REGULATOR.
K. ATMOSPHERIC VENT: FACTORY-OR FIELD-INSTALLED, STAINLESS-STEEL SCREEN IN OPENING IF NOT CONNECTED TO VENT PIPING.
4. APPLIANCE PRESSURE REGULATORS: COMPLY WITH ANSI Z21.18.
a. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
1) CANADIAN METER COMPANY INC.
2) EATON CORPORATION; CONTROLS DIV.
3) HARPER WYMAN CO.
4) MAXITROL COMPANY.
5) SCP, INC.
b. BODY AND DIAPHRAGM CASE: DIE-CAST ALUMINUM.
c. SPRINGS: ZINC-PLATED STEEL; INTERCHANGEABLE.
d. DIAPHRAGM PLATE: ZINC-PLATED STEEL.
e. SEAT DISC: NITRILE RUBBER.
f. SEAL PLUG: ULTRAVIOLET-STABILIZED, MINERAL-FILLED NYLON.
g. FACTORY-APPLIED FINISH: MINIMUM THREE-LAYER POLYESTER AND POLYURETHANE PAINT FINISH.
h. REGULATOR MAY INCLUDE VENT LIMITING DEVICE, INSTEAD OF VENT CONNECTION, IF APPROVED BY AUTHORITIES HAVING JURISDICTION.
G. EXAMINATION
1. EXAMINE ROUGHING-IN FOR NATURAL-GAS PIPING SYSTEM TO VERIFY ACTUAL LOCATIONS OF PIPING CONNECTIONS BEFORE EQUIPMENT INSTALLATION.
2. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
H. PREPARATION
1. CLOSE EQUIPMENT SHUTOFF VALVES BEFORE TURNING OFF NATURAL GAS TO PREMISES OR PIPING SECTION.
2. INSPECT NATURAL-GAS PIPING ACCORDING TO NFPA 54 AND THE INTERNATIONAL FUEL GAS CODE TO DETERMINE THAT NATURAL-GAS UTILIZATION DEVICES ARE TURNED OFF IN PIPING SECTION AFFECTED.
I. OUTDOOR PIPING INSTALLATION
1. COMPLY WITH NFPA 54 AND THE INTERNATIONAL FUEL GAS CODE FOR INSTALLATION AND PURGING OF NATURAL-GAS PIPING.
2. STEEL PIPING WITH PROTECTIVE COATING:
a. APPLY JOINT COVER KITS TO PIPE AFTER JOINING TO COVER, SEAL, AND PROTECT JOINTS.
b. REPAIR DAMAGE TO PE COATING ON PIPE AS RECOMMENDED IN WRITING BY PROTECTIVE COATING MANUFACTURER.
c. REPLACE PIPE HAVING DAMAGED PE COATING WITH NEW PIPE.
3. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS.
J. VALVE INSTALLATION
1. INSTALL MANUAL GAS SHUTOFF VALVE FOR EACH GAS APPLIANCE.
2. INSTALL REGULATORS AND OVERPRESSURE PROTECTION DEVICES WITH MAINTENANCE ACCESS SPACE ADEQUATE FOR SERVICING AND TESTING.
K. PIPING JOINT CONSTRUCTION
1. REAM ENDS OF PIPES AND TUBES AND REMOVE BURRS.
2. REMOVE SCALE, SLAG, DIRT, AND DEBRIS FROM INSIDE AND OUTSIDE OF PIPE AND FITTINGS BEFORE ASSEMBLY.
3. THREADED JOINTS:
a. THREAD PIPE WITH TAPERED PIPE THREADS COMPLYING WITH ASME B1.20.1.
b. CUT THREADS FULL AND CLEAN USING SHARP DIES.
c. REAM THREADED PIPE ENDS TO REMOVE BURRS AND RESTORE FULL INSIDE DIAMETER OF PIPE.
d. APPLY APPROPRIATE TAPE OR THREAD COMPOUND TO EXTERNAL PIPE THREADS UNLESS DRYSEAL THREADING IS SPECIFIED.
e. DAMAGED THREADS: DO NOT USE PIPE OR PIPE FITTINGS WITH THREADS THAT ARE CORRODED OR DAMAGED. DO NOT USE PIPE SECTIONS THAT HAVE CRACKED OR OPEN WELDS.
4. WELDED JOINTS:
a. CONSTRUCT JOINTS ACCORDING TO AWS D10.12/D10.12M, USING QUALIFIED PROCESSES AND WELDING OPERATORS.
b. BEVEL PLAIN ENDS OF STEEL PIPE.
c. PATCH FACTORY-APPLIED PROTECTIVE COATING AS RECOMMENDED BY MANUFACTURER AT FIELD WELDS AND WHERE DAMAGE TO COATING OCCURS DURING CONSTRUCTION.
L. CONNECTIONS
1. CONNECT TO UTILITY'S GAS MAIN ACCORDING TO UTILITY'S PROCEDURES AND REQUIREMENTS.
2. INSTALL NATURAL-GAS PIPING ELECTRICALLY CONTINUOUS, AND BONDED TO GAS APPLIANCE EQUIPMENT GROUNDING CONDUCTOR OF THE CIRCUIT POWERING THE APPLIANCE ACCORDING TO NFPA 70.
3. INSTALL PIPING ADJACENT TO APPLIANCES TO ALLOW SERVICE AND MAINTENANCE OF APPLIANCES.
4. CONNECT PIPING TO APPLIANCES USING MANUAL GAS SHUTOFF VALVES AND UNIONS. INSTALL VALVE WITHIN 72 INCHES (1800 MM) OF EACH GAS-FIRED APPLIANCE AND EQUIPMENT. INSTALL UNION BETWEEN VALVE AND APPLIANCES OR EQUIPMENT.
5. SEDIMENT TRAPS: INSTALL TEE FITTING WITH CAPPED NIPPLE IN BOTTOM TO FORM DRIP, AS CLOSE AS PRACTICAL TO INLET OF EACH APPLIANCE.
M. FIELD QUALITY CONTROL
1. PERFORM TESTS AND INSPECTIONS.
2. TESTS AND INSPECTIONS:
a. TEST, INSPECT, AND PURGE NATURAL GAS ACCORDING TO NFPA 54 AND THE INTERNATIONAL FUEL GAS CODE AND AUTHORITIES HAVING JURISDICTION.
3. NATURAL-GAS PIPING WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
4. PREPARE TEST AND INSPECTION REPORTS.