

SECTION 22 0523
GENERAL-DUTY VALVES FOR PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A APPLICATIONS
- B GENERAL REQUIREMENTS
- C BALL VALVES
- D CHECK VALVES

1.02 REFERENCE STANDARDS

- A ASME B16.18 - CAST COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS, 2012
- B ASTM B62 - STANDARD SPECIFICATION FOR COMPOSITION BRONZE OR COINAGE METAL CASTINGS, 2017
- C MSS SP-46 - BYPASS AND DRAIN CONNECTIONS, 2003 (REAFFIRMED 2008)
- D MSS SP-80 - BRONZE GATE, GLOBE, ANGLE AND CHECK VALVES, 2013
- E MSS SP-110 - BALL VALVES THREADED, SOCKET-WELDING, SOLDER JOINT, GROOVED AND FLARED ENDS, 2010
- F NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS, 2017
- G NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT, 2016

1.03 QUALITY ASSURANCE

- A MANUFACTURER
 - 1 OBTAIN VALVES FOR EACH VALVE TYPE FROM SINGLE MANUFACTURER
 - 2 COMPANY MUST SPECIALIZE IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE

1.04 DELIVERY, STORAGE, AND HANDLING

- A PREPARE VALVES FOR SHIPPING AS FOLLOWS
 - 1 MINIMIZE EXPOSURE OF OPERABLE SURFACES BY SETTING PLUG AND BALL VALVES TO OPEN POSITION
 - 2 PROTECT VALVE PARTS EXPOSED TO PIPED MEDIUM AGAINST RUST AND CORROSION
 - 3 PROTECT VALVE PIPING CONNECTIONS SUCH AS GROOVES, WELD ENDS, THREADS, AND FLANGE FACES
 - 4 SECURE CHECK VALVES IN EITHER THE CLOSED POSITION OR OPEN POSITION
- B USE THE FOLLOWING PRECAUTIONS DURING STORAGE
 - 1 MAINTAIN VALVE END PROTECTION AND PROTECT FLANGES AND SPECIALTIES FROM DIRT
 - 2 PROVIDE TEMPORARY INLET AND OUTLET CAPS
 - 3 MAINTAIN CAPS IN PLACE UNTIL INSTALLATION
 - 4 STORE VALVES IN SHIPPING CONTAINERS AND MAINTAIN IN PLACE UNTIL INSTALLATION
- C STORE VALVES INDOORS IN DRY ENVIRONMENT
- D STORE VALVES OFF THE GROUND IN WATER-TIGHT ENCLOSURES WHEN INDOOR STORAGE IS NOT AN OPTION

PART 2 PRODUCTS

2.01 APPLICATIONS

- A PROVIDE THE FOLLOWING VALVES FOR THE APPLICATIONS IF NOT INDICATED ON DRAWINGS
 - 1 SHUTOFF BALL
 - 2 THROTTLING BALL
- B SUBSTITUTIONS OF VALVES WITH HIGHER CWP CLASSES OR SWP RATINGS FOR SAME VALVE TYPES ARE PERMITTED WHEN SPECIFIED CWP RATINGS OR SWP CLASSES ARE NOT AVAILABLE
- C REQUIRED VALVE END CONNECTIONS FOR NON-WAFER TYPES
 - 1 COPPER TUBE
 - 2 2 NPS (50 DN) AND SMALLER THREADED ENDS EXCEPT WHERE SOLDER-JOINT VALVE-END OPTION IS INDICATED IN VALVE SCHEDULES BELOW
 - 3 2-1/2 NPS (65 DN) TO 4 NPS (100 DN) GROOVED OR FLANGED ENDS EXCEPT WHERE THREADED VALVE-END OPTION IS INDICATED IN VALVE SCHEDULES BELOW
 - 4 DOMESTIC, HOT AND COLD WATER VALVES
 - 1 2 NPS (50 DN) AND SMALLER
 - 2 BRONZE PROVIDE WITH SOLDER-JOINT ENDS
 - 3 BALL TWO PIECE FULL PORT, BRONZE WITH STAINLESS-STEEL TRIM

2.02 GENERAL REQUIREMENTS

- A VALVE PRESSURE AND TEMPERATURE RATINGS NO LESS THAN RATING INDICATED, AS REQUIRED FOR SYSTEM PRESSURES AND TEMPERATURES
- B VALVE SIZES MATCH UPSTREAM PIPING UNLESS OTHERWISE INDICATED
- C VALVES IN INSULATED PIPING WITH 2 NPS (50 DN) STEM EXTENSIONS AND THE FOLLOWING FEATURES
 - 1 BALL VALVES EXTENDED OPERATING HANDLE OF NON-THERMAL-CONDUCTIVE MATERIAL, AND PROTECTIVE SLEEVE THAT ALLOWS OPERATION OF VALVE WITHOUT BREAKING THE VAPOR SEAL OR DISTURBING INSULATION
 - 2 MEMORY STOPS FULLY ADJUSTABLE AFTER INSULATION IS INSTALLED
- D VALVE-END CONNECTIONS
 - 1 SOLDER JOINT CONNECTIONS ASME B16.18
- E GENERAL ASME COMPLIANCE
 - 1 SOLDER-JOINT CONNECTIONS ASME B16.18
- F VALVE MATERIALS FOR POTABLE WATER NSF 61 AND NSF 372
- G BRONZE VALVES
 - 1 FABRICATE FROM DEZINCIFICATION RESISTANT MATERIAL
 - 2 COPPER ALLOYS CONTAINING MORE THAN 15 PERCENT ZINC ARE NOT PERMITTED
- H VALVE BYPASS AND DRAIN CONNECTIONS MSS SP-45
 - 1 SOURCE LIMITATIONS OBTAIN EACH VALVE TYPE FROM A SINGLE MANUFACTURER

2.03 BRONZE BALL VALVES

- A TWO PIECE FULL PORT WITH STAINLESS STEEL TRIM
 - 1 COMPLY WITH MSS SP-110
 - 2 SWP RATING 150 PSIG (1035 KPA)
 - 3 CWP RATING 600 PSIG (4140 KPA)
 - 4 BODY LEAD FREE BRONZE
 - 5 ENDS THREADED
 - 6 SEATS PTFE
 - 7 STEM STAINLESS STEEL
 - 8 BALL STAINLESS STEEL, VENTED
 - 9 MANUFACTURERS
- B CRANE
- C NIBCO
- D WATTS

2.04 BRONZE SWING CHECK VALVES

- A CLASS 125 CWP RATING 200 PSIG (1380 KPA)
 - 1 COMPLY WITH MSS SP-80, TYPE 3
 - 2 DESIGN HORIZONTAL FLOW
 - 3 BODY LEAD FREE BRONZE, ASTM B62
 - 4 ENDS THREADED AS INDICATED
 - 5 DISC BRONZE
 - 6 MANUFACTURERS
- B CRANE
- C NIBCO
- D WATTS

PART 3 EXECUTION

3.01 EXAMINATION

- A DISCARD ALL PACKING MATERIALS AND VERIFY THAT VALVE INTERIOR, INCLUDING SEATED AND FLANGES ARE COMPLETELY CLEAN WITHOUT SIGNS OF DAMAGE OR DEGRADATION THAT COULD RESULT IN LEAKAGE
- B VERIFY VALVE PARTS TO BE FULLY OPERATIONAL IN ALL POSITIONS FROM CLOSED TO FULLY OPEN
- C CONFIRM GASKET MATERIAL TO BE SUITABLE FOR THE SERVICE, TYPE OF CORRECT FLANGE, AND WITHOUT DEFECTS THAT COULD COMPROMISE EFFECTIVENESS
- D SHOULD VALVE BE DETERMINED TO BE DEFECTIVE, REPLACE WITH NEW VALVE

3.02 INSTALLATION

- A PROVIDE UNIONS OR FLANGES WITH VALVES TO FACILITATE EQUIPMENT REMOVAL AND MAINTENANCE WHILE MAINTAINING SYSTEM OPERATION AND FULL ACCESSIBILITY FOR SERVICING
- B PROVIDE SEPARATE VALVE SUPPORT AS REQUIRED AND LOCATE VALVE WITH STEM AT OR ABOVE CENTER OF PIPING, MAINTAINING UNIMPEDED STEM MOVEMENT
- C INSTALL CHECK VALVES WHERE NECESSARY TO MAINTAIN DIRECTION OF FLOW AS FOLLOWS
 - 1 LIFT CHECK INSTALL WITH STEM PLUMB AND VERTICAL
 - 2 SWING CHECK INSTALL HORIZONTAL MAINTAINING HINGE PIN LEVEL

A ASTM C177 - STANDARD TEST METHOD FOR STEADY-STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE GUARDED-HOT-PLATE APPARATUS, 2013

B ASTM C449 - STANDARD SPECIFICATION FOR MINERAL FIBER-HYDRAULIC-SETTING THERMAL INSULATING AND FINISHING GEMENT, 2007 (REAPPROVED 2015)

C ASTM C547 - STANDARD SPECIFICATION FOR MINERAL FIBER PIPE INSULATION, 2017

D ASTM C736 - STANDARD SPECIFICATION FOR THERMAL INSULATION FOR USE IN CONTACT WITH AUTISTIC STAINLESS STEEL, 2008 (REAPPROVED 2013)

E ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, 2018

F ASTM E96/E96M - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS, 2016

G UL 723 - STANDARD TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS, CURRENT EDITION, INCLUDING ALL REVISIONS

1.03 QUALITY ASSURANCE

- A MANUFACTURER QUALIFICATIONS COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE
- B APPLICATOR QUALIFICATIONS COMPANY SPECIALIZING IN PERFORMING THE TYPE OF WORK SPECIFIED IN THIS SECTION WITH MINIMUM 3 YEARS OF EXPERIENCE

1.04 DELIVERY, STORAGE, AND HANDLING

- A ACCEPT MATERIALS ON SITE, LABELED WITH MANUFACTURER'S IDENTIFICATION, PRODUCT DENSITY, AND THICKNESS

1.05 FIELD CONDITIONS

- A MAINTAIN AMBIENT CONDITIONS REQUIRED BY MANUFACTURERS OF EACH PRODUCT
- B MAINTAIN TEMPERATURE BEFORE, DURING, AND AFTER INSTALLATION FOR MINIMUM OF 24 HOURS

PART 2 PRODUCTS

2.01 REGULATORY REQUIREMENTS

- A SURFACE BURNING CHARACTERISTICS FLAME SPREAD INDEX/SMOKE DEVELOPED INDEX OF 25/50, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723

2.02 GLASS FIBER

- A MANUFACTURERS
 - 1 CERTAINTEED CORPORATION WWW.CERTAINTEED.COM
 - 2 JOHNS MANVILLE CORPORATION WWW.JM.COM
 - 3 KNAUF INSULATION, EARTHWOOL 1000 DEGREE FIBER INSULATION WWW.KNAUFINSULATION.COM/US/LE
 - 4 OWENS CORNING CORPORATION FIBERGLAS PIPE INSULATION ASJ WWW.OCSBUILDINGSPEC.COM/US/LE
- B INSULATION ASTM C547 AND ASTM C736 SEMI-RIGID, NONCOMBUSTIBLE, END GRAIN ADHERED TO JACKET
 - 1 "K" (KSI) VALUE ASTM C177, 0.24 AT 75 DEGREES F (0.026 AT 24 DEGREES C)
 - 2 MAXIMUM SERVICE TEMPERATURE 650 DEGREES F (343 DEGREES C)
 - 3 MAXIMUM MOISTURE ABSORPTION 0.2 PERCENT BY VOLUME
- C VAPOR BARRIER JACKET WHITE KRAFT PAPER WITH GLASS FIBER YARN BONDED TO ALUMINIZED FILM, MOISTURE VAPOR TRANSMISSION WHEN TESTED IN ACCORDANCE WITH ASTM E96/E96M OF 0.02 PERM-INCHES (0.029 NGPA S M)
- D TIE WIRE 0.048 INCH (1.22 MM) STAINLESS STEEL WITH TWISTED ENDS ON MAXIMUM 12 INCH (300 MM) CENTERS
- E VAPOR BARRIER LAP ADHESIVE COMPATIBLE WITH INSULATION
- F INSULATING GEMENT ASTM C449

PART 3 EXECUTION

3.01 EXAMINATION

- A VERIFY THAT PIPING HAS BEEN TESTED BEFORE APPLYING INSULATION MATERIALS
- B VERIFY THAT SURFACES ARE CLEAN AND DRY, WITH FOREIGN MATERIAL REMOVED

3.02 INSTALLATION

- A INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
- B INSTALL IN ACCORDANCE WITH NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION (NAIMA) NATIONAL INSULATION STANDARDS
- C EXPOSED PIPING LOCATE INSULATION AND COVER SEAMS IN LEAST VISIBLE ASSOCIATIONS
- D INSULATE PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE INSULATE ENTIRE SYSTEM INCLUDING FITTINGS, VALVES, UNIONS, FLANGES, STRAINERS, FLEXIBLE CONNECTIONS, PUMP BODIES, AND EXPANSION JOINTS
- E GLASS FIBER INSULATED PIPES CONVEYING FLUIDS BELOW AMBIENT TEMPERATURE
 - 1 PROVIDE VAPOR BARRIER JACKETS, FACTORY APPLIED OR FIELD APPLIED SECURE WITH SELF-SEALING LONGITUDINAL LAPS AND BUTT STRIPS WITH PRESSURE SENSITIVE ADHESIVE SECURE WITH OUTWARD CLINCH EXPANDING STAPLES AND VAPOR BARRIER MASTIC
 - 2 INSULATE FITTINGS, JOINTS, AND VALVES WITH MOLDED INSULATION OF LIKE MATERIAL AND THICKNESS AS ADJACENT PIPE FINISH WITH GLASS CLOTH AND VAPOR BARRIER ADHESIVE OR PVC FITTING COVERS

3.03 SCHEDULES

- A PLUMBING SYSTEMS
 - 1 DOMESTIC HOT WATER SUPPLY
- A GLASS FIBER INSULATION
 - 1 PIPE SIZE RANGE 1/2 INCH (15 MM) AND UP
 - 2 THICKNESS 1 INCH (25 MM)
 - 2 DOMESTIC COLD WATER
- A GLASS FIBER INSULATION
 - 1 PIPE SIZE RANGE 1/2 INCH (15 MM) AND UP
 - 2 THICKNESS 1 1/2 INCH (40 MM)

SECTION 22 1006
PLUMBING PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A PIPE, PIPE FITTINGS, SPECIALTIES, AND CONNECTIONS FOR PIPING SYSTEMS
 - 1 SANITARY SEWER
 - 2 DOMESTIC WATER
 - 3 PIPE HANGERS AND SUPPORTS
 - 4 MANUFACTURED SLEEVE-SEAL SYSTEMS

1.02 RELATED REQUIREMENTS

- A SECTION 08 3100 - ACCESS DOORS
- B SECTION 22 0516 - EXPANSION JOINTS AND JOINTS FOR PLUMBING PIPING

1.03 REFERENCE STANDARDS

- A ANSI Z21.22 - AMERICAN NATIONAL STANDARD FOR RELIEF VALVES AND AUTOMATIC GAS SHUTOFF DEVICES FOR HOT WATER SUPPLY SYSTEMS, 2016
- B ASME B16.18 - CAST COPPER ALLOY SOLDER JOINT PRESSURE FITTINGS, 2012
- C ASME B16.22 - WROUGHT COPPER AND COPPER ALLOY SOLDER-JOINT PRESSURE FITTINGS, 2013
- D ASME B31.9 - BRASS PIPING SERVICES PIPING, 2014
- E ASTM B308 - STANDARD SPECIFICATION FOR SOLDER METAL, 2008 (REAPPROVED 2014)
- F ASTM B36 - STANDARD SPECIFICATION FOR SEAMLESS COPPER WATER TUBE, 2016
- G ASTM B36M - STANDARD SPECIFICATION FOR SEAMLESS COPPER WATER TUBE (METRIC), 2016
- H ANSI B81.3 - STANDARD SPECIFICATION FOR LIQUID AND PASTE FLUXES FOR SOLDERING OF COPPER AND COPPER ALLOY TUBE, 2016
- I ASTM B221 - STANDARD PRACTICE FOR MAKING CAPILLARY JOINTS BY SOLDERING OF COPPER AND COPPER ALLOY TUBE AND FITTINGS, 2016
- J ASTM D1786 - STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PLASTIC PIPE, SCHEDULES 40, 80, AND 120, 2015, WITH EDITORIAL REVISION (2018)
- K ASTM D2241 - STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PRESSURE-RATED PIPE (SDR SERIES), 2016
- L ASTM D2466 - STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PLASTIC PIPE FITTINGS, SCHEDULE 40, 2017
- M ASTM D2664 - STANDARD SPECIFICATION FOR SOLVENT CEMENTS FOR POLY(VINYL CHLORIDE) (PVC) PLASTIC PIPING SYSTEMS, 2012
- N ASTM D2665 - STANDARD PRACTICE FOR THE TWO-STEP PRIMER & SOLVENT CEMENT METHOD OF JOINING POLY(VINYL CHLORIDE) (PVC) OR CHLORINATED POLY(VINYL CHLORIDE) (CPVC) PIPE AND PIPING COMPONENTS WITH TAPERED SOCKETS, 2016
- O AWWA C651 - DISINFECTING WATER MAINS, 2014
- P CISPI 301 - STANDARD SPECIFICATION FOR HUBLESS CAST IRON SOIL PIPE AND FITTINGS FOR SANITARY AND STORM DRAIN, WASTE AND VENT PIPING APPLICATIONS, 2009 (REVISED 2012)
- Q CISPI 310 - SPECIFICATION FOR COUPLING FOR USE IN CONNECTION WITH HUBLESS CAST IRON SOIL PIPE AND FITTINGS FOR SANITARY AND STORM DRAIN, WASTE, AND VENT PIPING APPLICATIONS, 2011 (REVISED 2012)
- R MSS SP-68 - PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN, MANUFACTURE, SELECTION, APPLICATION, AND INSTALLATION, 2008
- S NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS, 2017
- T NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT, 2016

1.04 QUALITY ASSURANCE

- A PERFORM WORK IN ACCORDANCE WITH APPLICABLE CODES

B VALVES MANUFACTURER'S NAME AND PRESSURE RATING MARKED ON VALVE BODY

C IDENTIFY PIPE WITH MARKING INCLUDING SIZE, ASTM MATERIAL CLASSIFICATION, ASTM SPECIFICATION, POTABLE WATER CERTIFICATION, WATER PRESSURE RATING

1.05 DELIVERY, STORAGE, AND HANDLING

- A PROVIDE TEMPORARY END CAPS AND CLOSURES ON PIPING AND FITTINGS MAINTAIN IN PLACE UNTIL INSTALLATION
- B PROTECT PIPING SYSTEMS FROM ENTRY OF FOREIGN MATERIALS BY TEMPORARY COVERS, COMPLETING SECTIONS OF THE WORK, AND ISOLATING PARTS OF COMPLETED SYSTEM

1.06 FIELD CONDITIONS

- A DO NOT INSTALL UNDERGROUND PIPING WHEN BEDDING IS WET OR FROZEN

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A POTABLE WATER SUPPLY SYSTEMS PROVIDE PIPING, PIPE FITTINGS, AND SOLDER AND FLUX (IF USED), THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT, LABEL PIPE AND FITTINGS

2.02 SANITARY SEWER PIPING, ABOVE GRADE

- A CAST IRON PIPE CISPI 301, HUBLESS, SERVICE WEIGHT
 - 1 FITTINGS CAST IRON
 - 2 JOINTS CISPI 310, NEOPRENE GASKETS AND STAINLESS STEEL CLAMP AND SHIELD ASSEMBLIES
- B PVC PIPE ASTM D1786 SCHEDULE 40, OR ASTM D2241 SDR 26 WITH NOT LESS THAN 150 PSI (1.034 KPA) PRESSURE RATING
 - 1 FITTINGS ASTM D2466, PVC
 - 2 JOINTS SOLVENT WELDED WITH ASTM D2664 SOLVENT CEMENT

2.03 DOMESTIC WATER PIPING, ABOVE GRADE

- A COPPER TUBE ASTM B88 (ASTM B88M), TYPE K (A), DRAWN (H)
 - 1 FITTINGS ASME B16.18, CAST COPPER ALLOY OR ASME B16.22, WROUGHT COPPER AND BRONZE
 - 2 JOINTS ASTM B32, ALLOY SNGS SOLDER

2.04 PIPE HANGERS AND SUPPORTS

- A PROVIDE HANGERS AND SUPPORTS THAT COMPLY WITH MSS SP-68
 - 1 IF TYPE OF HANGER OR SUPPORT FOR A PARTICULAR SITUATION IS NOT INDICATED, SELECT APPROPRIATE TYPE USING MSS SP-68 RECOMMENDATIONS
 - 2 OVERHEAD SUPPORTS INDIVIDUAL STEEL ROD HANGERS ATTACHED TO STRUCTURE OR TO TRAPEZE HANGERS
 - 3 TRAPEZE HANGERS WELDED STEEL CHANNEL FRAMES ATTACHED TO STRUCTURE
 - 4 VERTICAL PIPE SUPPORT STEEL RISER CLAMP
 - 5 FLOOR SUPPORTS CONCRETE PIER OR STEEL PEDESTAL WITH FLOOR FLANGE, FIXTURE ATTACHMENT
- B PLUMBING PIPING - DRAIN, WASTE, AND VENT
 - 1 HANGERS FOR PIPE SIZES 1/2 INCH (15 MM) TO 1-1/2 INCHES (40 MM) MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLI-T RING
 - 2 HANGERS FOR PIPE SIZES 2 INCHES (50 MM) AND OVER CARBON STEEL, ADJUSTABLE, CLEVIS
 - 3 WALL SUPPORT FOR PIPE SIZES TO 3 INCHES (80 MM) CAST IRON HOOK
 - 4 FLOOR SUPPORT CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT
- C PLUMBING PIPING - WATER
 - 1 HANGERS FOR PIPE SIZES 1/2 INCH (15 MM) TO 1-1/2 INCHES (40 MM) MALLEABLE IRON, ADJUSTABLE SWIVEL, SPLI-T RING
 - 2 HANGERS FOR COLD PIPE SIZES 2 INCHES (50 MM) AND OVER CARBON STEEL, ADJUSTABLE, CLEVIS
 - 3 HANGERS FOR HOT PIPE SIZES 2 INCHES (50 MM) TO 4 INCHES (100 MM) CARBON STEEL, ADJUSTABLE, CLEVIS
 - 4 WALL SUPPORT FOR PIPE SIZES TO 3 INCHES (80 MM) CAST IRON HOOK
 - 5 FLOOR SUPPORT FOR COLD PIPE CAST IRON ADJUSTABLE PIPE SADDLE, LOCK NUT, NIPPLE, FLOOR FLANGE, AND CONCRETE PIER OR STEEL SUPPORT

2.05 MANUFACTURED SLEEVE-SEAL SYSTEMS

- A MANUFACTURERS
 - 1 METRAREX COMPANY METRAREX WWW.METRAREX.COM/US/LE
 - 2 MOULNAR MECHANICAL SEAL
- B SYNTHETIC RUBBER INTERLOCKING LINKS CONTINUOUSLY FILL ANNULAR SPACE BETWEEN PIPE WALLS/CASING OPENING
 - 1 JAY R SMITH MANUFACTURING COMPANY WWW.JAYRSMITH.COM
 - 2 JOSAM COMPANY WWW.JOSAM.COM
 - 3 ZURN INDUSTRIES, LLC WWW.ZURN.COM
- C ELASTOMER ELEMENT SIZE AND MATERIAL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS
- D GLASS REINFORCED PLASTIC PRESSURE END PLATES

2.06 RELIEF VALVES

- A PRESSURE
 - 1 MANUFACTURERS
 - 2 AIA VAL CO WWW.AIA-VAL.COM
 - 3 B WATTS REGULATOR COMPANY WWW.WATTSREGULATOR.COM
 - 4 ANSI Z21.22, AGA CERTIFIED BRASS BODY, TEFLON SEAT, STAINLESS STEEL STEM AND SPRINGS, AUTOMATIC DIRECT PRESSURE ACTUATED
- B TEMPERATURE AND PRESSURE
 - 1 MANUFACTURERS
 - 2 AIA VAL CO WWW.AIA-VAL.COM
 - 3 B WATTS REGULATOR COMPANY WWW.WATTSREGULATOR.COM
 - 4 ANSI Z21.22, AGA CERTIFIED BRASS BODY, TEFLON SEAT, STAINLESS STEEL STEM AND SPRINGS, AUTOMATIC DIRECT PRESSURE ACTUATED, TEMPERATURE RELIEF MAXIMUM 210 DEGREES F (99 DEGREES C), CAPACITY ASSE BPCV-C CERTIFIED AND LABELED

PART 3 EXECUTION

3.01 EXAMINATION

- A VERIFY THAT LOCATIONS ARE TO BE REQUIRED GRADE, DRY, AND NOT OVER-EXCAVATED

3.02 PREPARATION

- A REAM PIPING AND PIPE ENDS REMOVE BURRS, BEVEL PLAN END FERROUS PIPE
- B REMOVE SCALE AND DIRT, ON INSIDE AND OUTSIDE, BEFORE ASSEMBLY
- C PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES OR UNIONS

3.03 INSTALLATION

- A INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
- B PROVIDE NON-CONDUCTING DIELECTRIC CONNECTIONS WHEREVER JOINING DISSIMILAR METALS
- C ROUTE PIPING IN ORDERLY MANNER AND MAINTAIN GRADIENT ROUTE PARALLEL AND PERPENDICULAR TO WALLS
- D INSTALL PIPING TO MAINTAIN HEADROOM, CONSERVE SPACE, AND NOT INTERFERE WITH USE OF SPACE
- E GROUP PIPING WHENEVER PRACTICAL AT COMMON ELEVATIONS
- F INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT REFER TO SECTION 22 0516
- G PROVIDE CLEARANCE IN HANGERS AND FROM STRUCTURE AND OTHER EQUIPMENT FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS
- H PROVIDE ACCESS WHERE VALVES AND FITTINGS ARE NOT EXPOSED
 - 1 COORDINATE SIZE AND LOCATION OF ACCESS DOORS WITH SECTION 08 3100
 - 2 INSTALL VENT PIPING PENETRATING ROOFED AREAS TO MAINTAIN INTEGRITY OF ROOF ASSEMBLY
 - 3 PROVIDE SUPPORT FOR UTILITY METERS IN ACCORDANCE WITH REQUIREMENTS OF UTILITY COMPANIES
- I INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED REFER TO SECTION 22 0529
- J COPPER PIPE AND JOINTS MAKE SOLDERED JOINTS IN ACCORDANCE WITH ASTM B828, USING SPECIFIED SOLDER AND FLUX MEETING ASTM B813, IN POTABLE WATER SYSTEMS USE FLUX ALSO COMPLYING WITH NSF 61 AND NSF 372
- K PVC PIPE MAKE SOLVENT-WELDED JOINTS IN ACCORDANCE WITH ASTM D2665
- L SLEEVE PIPES PASSING THROUGH PARTITIONS, WALLS AND FLOORS
- O PIPE HANGERS AND SUPPORTS
 - 1 INSTALL IN ACCORDANCE WITH ASME B31.9
 - 2 PLACE HANGERS WITHIN 12 INCHES (300 MM) OF EACH HORIZONTAL ELBOW
 - 3 WHERE SEVERAL PIPES CAN BE INSTALLED IN PARALLEL AND AT SAME ELEVATION, PROVIDE MULTIPLE OR TRAPEZE HANGERS
- P MANUFACTURED SLEEVE-SEAL SYSTEMS
 - 1 INSTALL MANUFACTURED SLEEVE-SEAL SYSTEMS IN SLEEVES LOCATED IN GRADE SLABS AND EXTERIOR CONCRETE WALLS AT PIPING ENTRANCES INTO BUILDING
 - 2 PROVIDE SEALING ELEMENTS OF THE SIZE, QUANTITY, AND TYPE REQUIRED FOR THE PIPING AND SLEEVE INNER DIAMETER OR PENETRATION DIAMETER
 - 3 LOCATE PIPING IN CENTER OF SLEEVE OR PENETRATION
 - 4 INSTALL FIELD ASSEMBLED SLEEVE-SEAL SYSTEM COMPONENTS IN ANNULAR SPACE BETWEEN SLEEVE AND PIPING
 - 5 TIGHTEN BOLTING FOR A WATER-TIGHT SEAL
 - 6 INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS

3.04 APPLICATION

- A INSTALL UNIONS DOWNSTREAM OF VALVES AND AT EQUIPMENT OR APPARATUS CONNECTIONS
- B INSTALL BRASS MALE ADAPTERS EACH SIDE OF VALVES IN COPPER PIPED SYSTEM SOLDER ADAPTERS TO PIPE
- C INSTALL BALL VALVES FOR SHUT-OFF AND TO ISOLATE EQUIPMENT, PART OF SYSTEMS, OR VERTICAL RISERS

D INSTALL BALL VALVES FOR THROTTLING, BYPASS, OR MANUAL FLOW CONTROL SERVICES

3.05 TOLERANCES

- A DRAINAGE PIPING ESTABLISH INVERT ELEVATIONS WITHIN 1/2 INCH (10 MM) VERTICALLY OF LOCATION INDICATED AND SLOPE TO DRAIN AT MINIMUM OF 1/4 INCH PER FOOT (1/50) SLOPE
- B WATER PIPING SLOPE AT MINIMUM OF 1/32 INCH PER FOOT (1/400) AND ARRANGE TO DRAIN AT LOW POINTS

3.06 DISINFECTION OF DOMESTIC WATER PIPING SYSTEM

- A PRIOR TO STARTING WORK VERIFY SYSTEM IS COMPLETE, FLUSHED AND CLEAN
- B INJECT DISINFECTANT, FREE CHLORINE LIQUID, POWDER, TABLET OR GAS FORM, THROUGHOUT SYSTEM TO OBTAIN 50 TO 80 MG/L RESIDUAL
- C BLEED WATER FROM OUTLETS TO ENSURE DISTRIBUTION AND TEST FOR DISINFECTANT RESIDUAL AT MINIMUM 15 PERCENT OF OUTLETS
- D MAINTAIN DISINFECTANT IN SYSTEM FOR 24 HOURS
- E IF FINAL DISINFECTANT RESIDUAL TESTS LESS THAN 25 MG/L, REPEAT TREATMENT
- F FLUSH DISINFECTANT FROM SYSTEM UNTIL RESIDUAL EQUAL TO THAT OF INCOMING WATER OR 1.0 MG/L
- G TAKE SAMPLES NO SOONER THAN 24 HOURS AFTER FLUSHING, FROM 10 PERCENT OF OUTLETS AND FROM WATER ENTRY, AND ANALYZE IN ACCORDANCE WITH AWWA C651

3.07 SCHEDULES

- A PIPE HANGER SPACING
 - 1 METAL PIPING
 - 2 PIPE SIZE 1/2 INCHES (15 MM) TO 1-1/4 INCHES (32 MM)
 - 1) MAXIMUM HANGER SPACING 6.5 FT (2 M)
 - 2) HANGER ROD DIAMETER 3/8 INCH (9 MM)
 - 3 PIPE SIZE 1-1/2 INCHES (40 MM) TO 2 INCHES (50 MM)
 - 1) MAXIMUM HANGER SPACING 10 FT (3 M)
 - 2) HANGER ROD DIAMETER 3/8 INCH (9 MM)
 - 4 PIPE SIZE 2-1/2 INCHES (65 MM) TO 3 INCHES (75 MM)
 - 1) MAXIMUM HANGER SPACING 10 FT (3 M)
 - 2) HANGER ROD DIAMETER 1/2 INCH (13 MM)
 - 5 PLASTIC PIPING
 - 1) MAXIMUM HANGER SPACING 6 FT (1.8 M)
 - 2) HANGER ROD DIAMETER 3/8 INCH (9 MM)

SECTION 22 1006
PLUMBING PIPING SPECIALTIES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A CLEANOUTS
- B WATER HAMMER ARRESTORS
- C MIXING VALVES

1.02 REFERENCE STANDARDS

- A NSF 61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS, 2017
- B NSF 372 - DRINKING WATER SYSTEM COMPONENTS - LEAD CONTENT, 2016
- C PDI-WH 201 - WATER HAMMER ARRESTERS, 2010

1.03 QUALITY ASSURANCE

- A MANUFACTURER QUALIFICATIONS COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE

1.04 DELIVERY, STORAGE, AND HANDLING

- A ACCEPT SPECIALTIES ON SITE IN ORIGINAL FACTORY PACKAGING INSPECT FOR DAMAGE

PART 2 PRODUCTS

2.01 GENERAL REQUIREMENTS

- A SPECIALTIES IN POTABLE WATER SUPPLY SYSTEMS PROVIDE PRODUCTS THAT COMPLY WITH NSF 61 AND NSF 372 FOR MAXIMUM LEAD CONTENT

2.02 MANUFACTURERS

- 1 JAY R SMITH MANUFACTURING COMPANY WWW.JAYRSMITH.COM
- 2 JOSAM COMPANY WWW.JOSAM.COM
- 3 ZURN INDUSTRIES, LLC WWW.ZURN.COM

2.03 CLEANOUTS AT INTERIOR FINISHED FLOOR AREAS (CO-3)

- 1 LAQUERED CAST IRON BODY WITH ANCHOR FLANGE, REVERSIBLE CLAMPING COLLAR, THREADED TOP ASSEMBLY, AND ROUND GASKETED SOURED COVER IN SERVICE AREAS AND ROUND GASKETED DEPRESSION COVER TO ACCEPT FLOOR FINISH IN FINISHED FLOOR AREAS

2.04 CLEANOUTS AT INTERIOR FINISHED WALL AREAS (CO-4)

- 1 LINE TYPE WITH LAQUERED CAST IRON BODY AND ROUND EPOXY COATED GASKETED COVER AND ROUND STAINLESS STEEL ACCESS COVER SECURED WITH MACHINE SCREW

2.05 CLEANOUTS AT INTERIOR UNFINISHED ACCESSIBLE AREAS (CO-5)

- 1 CALKED OR THREADED TYPE PROVIDE BOLTED STACK CLEANOUTS ON VERTICAL RAINWATER LEADERS

2.06 WATER HAMMER ARRESTORS

- A MANUFACTURERS
 - 1 JAY R SMITH MANUFACTURING COMPANY WWW.JAYRSMITH.COM
 - 2 WATTS REGULATOR COMPANY A PART OF WATTS WATER TECHNOLOGIES WWW.WATTSREGULATOR.COM
 - 3 ZURN INDUSTRIES, LLC WWW.ZURN.COM
- B WATER HAMMER ARRESTORS
 - 1 STAINLESS STEEL CONSTRUCTION BELLOWS TYPE SIZED IN ACCORDANCE WITH PDI-WH 201, PRECHARGED BELLOWS FOR OPERATION IN TEMPERATURE RANGE MINUS 100 TO 300 DEGREES F (MINUS 70 TO 149 DEGREES C) AND MAXIMUM 250 PSI (1700 KPA) WORKING PRESSURE

2.07 MIXING VALVES

- A THERMOSTATIC MIXING VALVES
 - 1 MANUFACTURERS
 - 2 HONEYWELL INTERNATIONAL INC YOUR-HOME-HONEYWELL.COM
 - 3 LEONARD VALVE COMPANY WWW.LEONARDVALVE.COM
- B VALVE CHROME PLATED CAST BRASS BODY, STAINLESS STEEL OR COPPER ALLOY BELLOWS, INTEGRAL TEMPERATURE ADJUSTMENT
- C ACCESSORIES
 - 1 CHECK VALVE ON INLETS
 - 2 VOLUME CONTROL SHUT-OFF VALVE ON OUTLET
 - 3 STEM THERMOMETER ON OUTLET
 - 4 STRAINER STOP CHECKS ON INLETS

PART 3 EXECUTION

3.01 INSTALLATION

- A INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
- B EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE LUBRICATE THREADED CLEANOUT PLUGS WITH MIXTURE OF GRAPHITE AND LINED OIL ENSURE CLEARANCE FOR ROOFING OF DRAIN ASSEMBLY
- C INSTALL FLOOR CLEANOUTS AT ELEVATION TO ACCOMMODATE FINISHED FLOOR

INSTALL APPROVED POTABLE WATER PROTECTION DEVICES ON PLUMBING LINES WHERE CONTAMINATION OF DOMESTIC WATER MAY OCCUR, ON BOILER FEED WATER LINES, JANITOR

A MANUFACTURER QUALIFICATIONS COMPANY SPECIALIZING IN MANUFACTURING THE TYPE OF PRODUCTS SPECIFIED IN THIS SECTION, WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE

1.04 REGULATORY REQUIREMENTS

- A PRODUCTS REQUIRING ELECTRICAL CONNECTION LISTED AND CLASSIFIED BY UNDERWRITERS LABORATORIES INC., AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED

PART 3 EXECUTION

3.01 EXAMINATION

- B VERIFY THAT WALLS AND FLOOR FINISHES ARE PREPARED AND READY FOR INSTALLATION OF FIXTURES
- C VERIFY THAT ELECTRIC POWER IS AVAILABLE AND OF THE CORRECT CHARACTERISTICS

3.02 PREPARATION

- A ROUGH-IN FIXTURE PIPING CONNECTIONS IN ACCORDANCE WITH MINIMUM SIZES INDICATED IN FIXTURE ROUGH-IN SCHEDULE FOR PARTICULAR FIXTURES

3.03 INSTALLATION

- A INSTALL EACH FIXTURE WITH TRAP, EASILY REMOVABLE FOR SERVICING AND CLEANING
- B PROVIDE CHROME PLATED RIGID OR FLEXIBLE SUPPLIES TO FIXTURES WITH LOOSE KEY STOPS, REDUCERS, AND ESCUTCHEONS
- C INSTALL COMPONENTS LEVEL AND PLUMB
- D INSTALL AND SECURE FIXTURES IN PLACE WITH WALL SUPPORTS AND BOLTS
- E SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS LEAD FLANGES NOT INTENDED HOLD FIXTURE IN PLACE

3.04 ADJUSTING

- A ADJUST STOPS OR VALVES FOR INTENDED WATER FLOW RATE, FIXTURES WITHOUT SPINNING, NOISE, OR OVERFLOW

3.05 CLEANING

- A CLEAN PLUMBING FIXTURES AND EQUIPMENT

3.06 PROTECTION

- A PROTECT INSTALLED PRODUCTS FROM DAMAGE DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS
- B DO NOT PERMIT USE OF FIXTURES BY CONSTRUCTION PERSONNEL
- C REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE DATE OF SUBSTANTIAL COMPLETION

HUB/ADA/SSSI/ACO

STORE NUMBER: 02544

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PEACHTREE CITY, GA
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CS PROJECT NUMBER: 138501

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HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED IN MY OFFICE AND UNDER MY SUPERVISION AND THAT TO THE BEST OF MY KNOWLEDGE, THE SAME COMPLY WITH ALL LAWS, RULES, REGULATIONS AND ORDINANCES OF PEACHTREE CITY, GA, RELATING TO STRUCTURES AND BUILDINGS.

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