HAZARD CLASSIFICATION SCHEDULE

ALL AREAS ARE LIGHT HAZARD UNLESS NOTED OTHERWISE

(01) ORDINARY HAZARD – GROUP 1

GENERAL INFORMATION:

SPRINKLER SYSTEM SHALL BE DESIGNED IN ACCORDANCE WITH NFPA 13R (2013), GA FIRE CODE 120-3-3, INTERNATIONAL BUILDING CODE AND SPECIFICATIONS. PROVIDE SHOP DRAWINGS AND EQUIPMENT SUBMITTALS FOR REVIEW BY ENGINEER, AHJ AND OWNER.

EXACT LOCATIONS AND ROUGHING REQUIREMENTS FOR PIPING AND EQUIPMENT SHALL BE DETERMINED FROM ARCHITECTURAL DRAWINGS, LARGE SCALE DETAILS AND APPROVED MANUFACTURER'S SHOP DRAWINGS. PARTICULAR ATTENTION SHALL BE DIRECTED TO EQUIPMENT AND FIXTURES FURNISHED UNDER OTHER DIVISIONS.

EXACT LOCATION OF PIPING SHALL BE DETERMINED BY JOB CONDITIONS. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF HIS WORK WITH THAT OF OTHER TRADES AND ARRANGE PIPING TO CLEAR STRUCTURAL MEMBERS AND DUCTWORK.

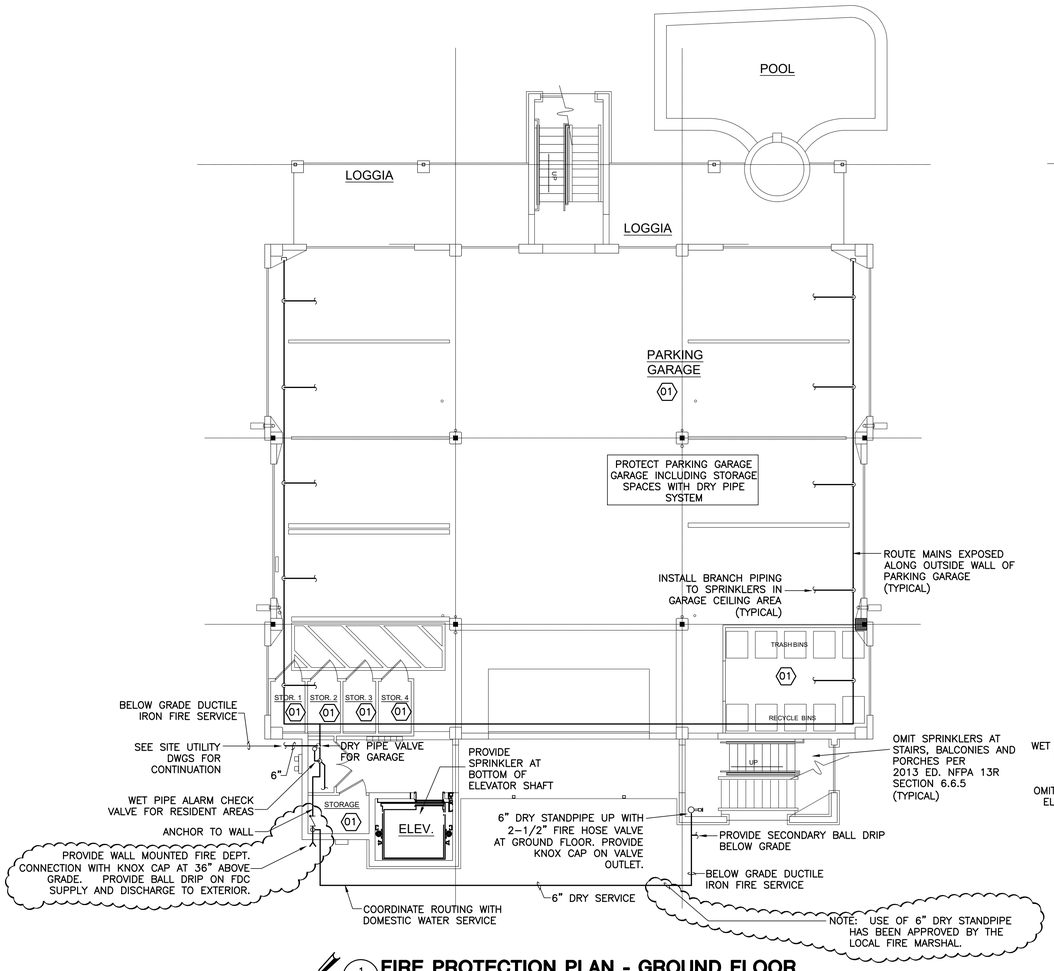
IN FIRE WALLS, PACK ANNULAR SPACE BETWEEN PIPE AND WALL WITH FIRESTOP COMPOUND IN ACCORDANCE WITH ITS U.L. LISTING.

PROVIDE WHITE CONCEALED RESIDENTIAL SPRINKLERS IN INTERIOR TENANT SPACES.

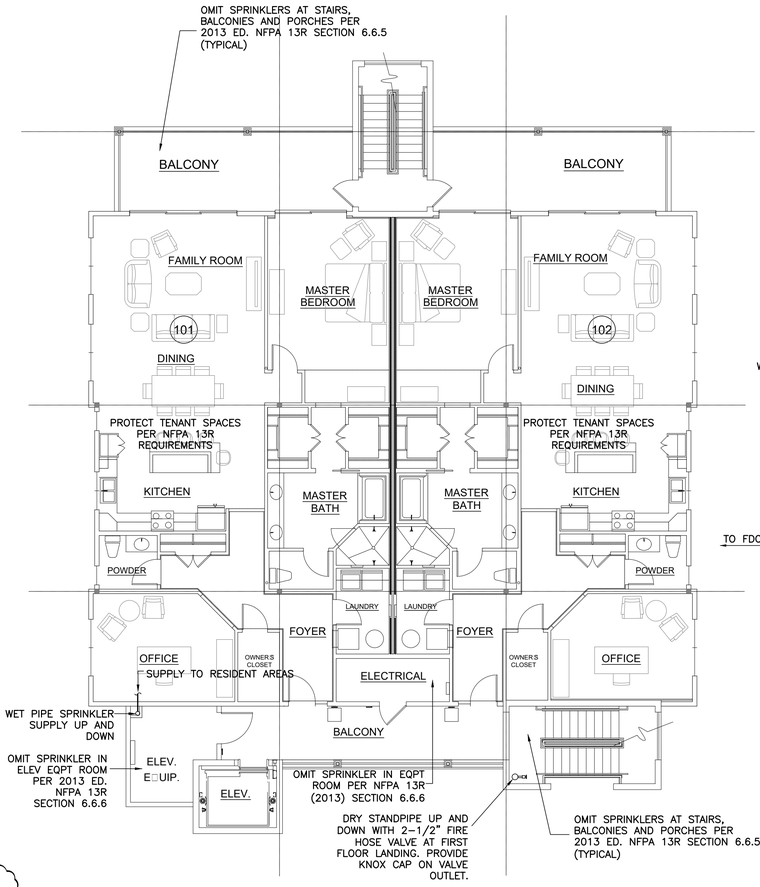
SPRINKLERS PROTECTING EXTERIOR EXPOSURES SHALL HAVE A ELECTROLESS NICKEL TEFLON FINISH WITH A STAINLESS STEEL ESCUTCHEON.

FLOW TEST DATA

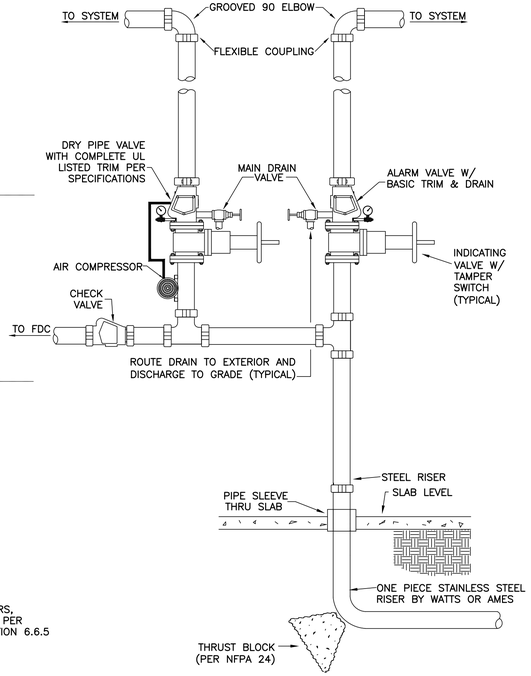
DATE OF FLOW TEST: 06/16/2017
FLOW TEST PROVIDED FOR INFORMATION ONLY AND PERFORMED BY GLYNN COUNTY FIRE DEPT.
STATIC PRESSURE: 62 PSI
RESIDUAL PRESSURE: 30 PSI
FLOW: 1022 GPM
LOCATION: HYDRANT 2256 AT CORNER OF MYRTLE & BEACHVIEW



1 FP1.1 **FIRE PROTECTION PLAN - GROUND FLOOR**
SCALE: 1/8" = 1'-0"



2 FP1.1 **FIRE PROTECTION PLAN - FIRST FLOOR**
SCALE: 1/8" = 1'-0"



3 FP1.1 **FIRE SPRINKLER RISER**
NOT TO SCALE

USSERY/RULE ARCHITECTS P.C.
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ST. SIMONS ISLAND, GA.

1515	
08-23-17	
06-08-18	

FP1.1

1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 06/12/18
FILENAME: 17039FP1
BASESHT:
PLOT SCALE: 1 = 96
JCP

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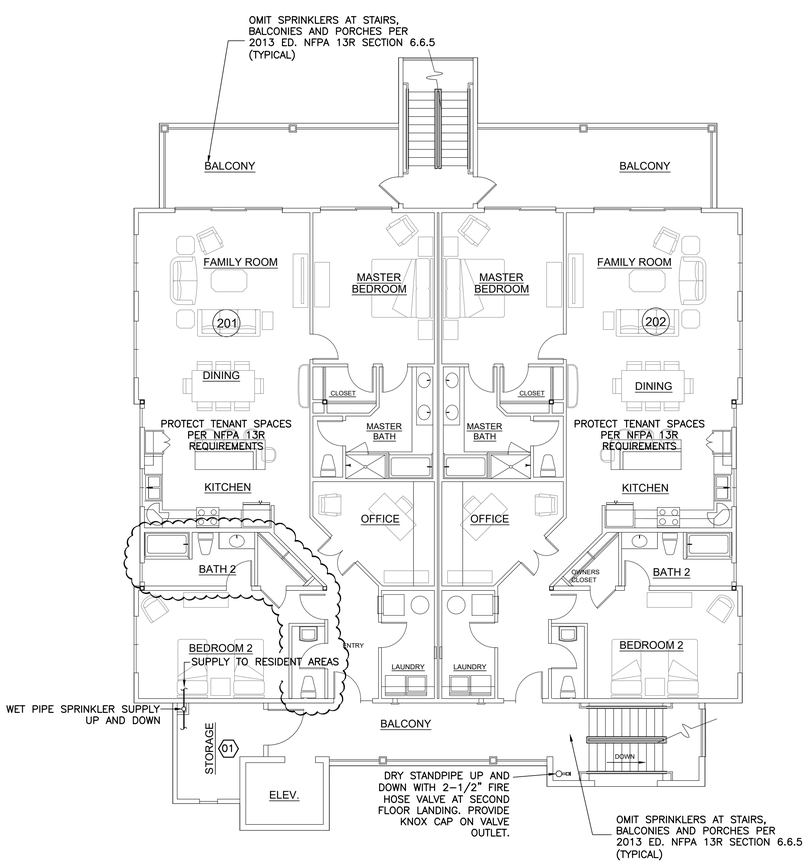
AUGUSTA, GA 30901 (706) 722-3959

HAZARD CLASSIFICATION SCHEDULE

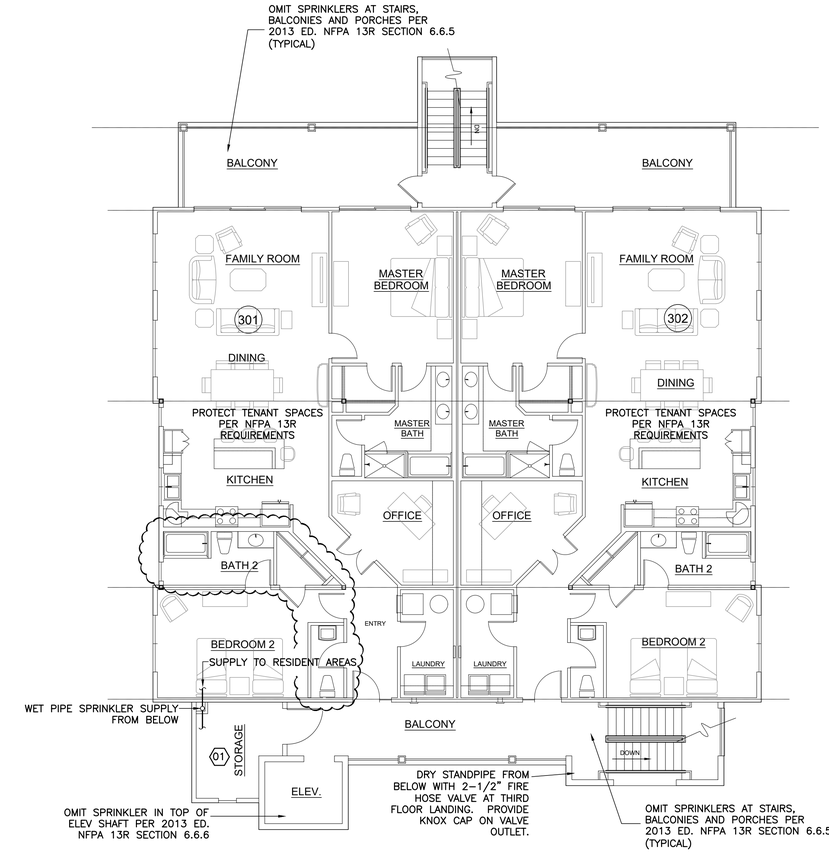
ALL AREAS ARE LIGHT HAZARD UNLESS NOTED OTHERWISE

(01) ORDINARY HAZARD – GROUP 1



1 FP1.2 **FIRE PROTECTION PLAN - SECOND FLOOR**

SCALE: 1/8" = 1'-0"



2 FP1.2 **FIRE PROTECTION PLAN - THIRD FLOOR**

SCALE: 1/8" = 1'-0"

1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 06/12/18
FILENAME: 17039FP1
BASESHT:
PLOT SCALE: 1 = 96
JCP

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06-08-18	

FP1.2

FIRE PROTECTION SPECIFICATIONS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT APPLY TO THIS SECTION.

1.2 SUMMARY

A. THIS SECTION INCLUDES FIRE-SUPPRESSION PIPING AND EQUIPMENT FOR THE FOLLOWING BUILDING SYSTEMS:

1. DRY-TYPE, CLASS I, FIRE-SUPPRESSION STANDPIPES.
2. WET-PIPE, FIRE-SUPPRESSION SPRINKLERS, INCLUDING PIPING, VALVES, SPECIALTIES, AND AUTOMATIC SPRINKLERS.
3. DRY-PIPE, FIRE-SUPPRESSION SPRINKLERS, INCLUDING PIPING, VALVES, SPECIALTIES, AUTOMATIC SPRINKLERS, AIR COMPRESSOR, AND ACCESSORIES.

1.3 DEFINITIONS

A. HOSE CONNECTION: VALVE WITH THREADED OUTLET MATCHING FIRE HOSE COUPLING THREAD FOR ATTACHING FIRE HOSE.

B. HOSE STATION: HOSE CONNECTION, FIRE HOSE RACK, AND FIRE HOSE.

C. WORKING PLANS: DOCUMENTS, INCLUDING DRAWINGS, CALCULATIONS, AND MATERIAL SPECIFICATIONS PREPARED ACCORDING TO NFPA 13, NFPA 13R AND NFPA 14 FOR OBTAINING APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

D. Q.R.: QUICK RESPONSE.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

A. DESIGN STANDPIPES AND SPRINKLERS AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

B. DESIGN SPRINKLER PIPING ACCORDING TO THE FOLLOWING AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION:

1. INCLUDE 10 PSI MARGIN OF SAFETY FOR AVAILABLE WATER PRESSURE.
2. INCLUDE LOSSES THROUGH WATER-SERVICE PIPING, VALVES, AND BACKFLOW PREVENTERS.
3. SPRINKLER OCCUPANCY HAZARD CLASSIFICATIONS: AS FOLLOWS:
   a. BUILDING SERVICE AREAS: ORDINARY HAZARD, GROUP 1.
   b. RESIDENTIAL LIVING AREAS: LIGHT HAZARD PER NFPA 13R.
4. MINIMUM DENSITY FOR AUTOMATIC-SPRINKLER PIPING DESIGN: AS FOLLOWS:
   a. LIGHT-HAZARD OCCUPANCY: 0.10 GPM OVER 1500-SQ. FT. (6.3 ML/S OVER 139-SQ. M) AREA. AREA MAY BE REDUCED AS PERMITTED BY NFPA 13.
   b. ORDINARY-HAZARD, GROUP 1 OCCUPANCY: 0.15 GPM OVER 1500- SQ. FT. (9.5 ML/S OVER 139-SQ. M) AREA. AREA MAY BE REDUCED AS PERMITTED BY NFPA 13.

C. COMPONENTS AND INSTALLATION: CAPABLE OF PRODUCING PIPING SYSTEMS WITH 175-PSIG (1200-KPA) MINIMUM WORKING-PRESSURE RATING, UNLESS OTHERWISE INDICATED.

1.5 SUBMITTALS

A. PRODUCT DATA: FOR THE FOLLOWING:

1. PIPE AND FITTING MATERIALS AND METHODS OF JOINING FOR STANDPIPE PIPING.
2. PIPE AND FITTING MATERIALS AND METHODS OF JOINING FOR SPRINKLER PIPING.
3. PIPE HANGERS AND SUPPORTS.
4. VALVES, INCLUDING SPECIALTY VALVES, ACCESSORIES, AND DEVICES.
5. ALARM DEVICES. INCLUDE ELECTRICAL DATA.
6. AIR COMPRESSORS. INCLUDE ELECTRICAL DATA.
7. HOSE CONNECTIONS. INCLUDE SIZE, TYPE, AND FINISH.
8. SPRINKLERS, ESCUTCHEONS, AND GUARDS. INCLUDE SPRINKLER FLOW CHARACTERISTICS, MOUNTING, FINISH, AND OTHER PERTINENT DATA.

B. FIRE-HYDRANT FLOW TEST REPORT: AS SPECIFIED IN "PREPARATION" ARTICLE.

C. APPROVED SPRINKLER PIPING DRAWINGS: WORKING PLANS, PREPARED ACCORDING TO NFPA 13, THAT HAVE BEEN APPROVED BY AUTHORITIES HAVING JURISDICTION. INCLUDE HYDRAULIC CALCULATIONS, IF APPLICABLE.

D. FIELD TEST REPORTS AND CERTIFICATES: INDICATE AND INTERPRET TEST RESULTS FOR COMPLIANCE WITH PERFORMANCE REQUIREMENTS AND AS DESCRIBED IN NFPA 13 AND NFPA 14. INCLUDE "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR ABOVEGROUND PIPING" AND "CONTRACTOR'S MATERIAL AND TEST CERTIFICATE FOR UNDERGROUND PIPING."

E. MAINTENANCE DATA: FOR EACH TYPE OF STANDPIPE AND SPRINKLER SPECIALTY TO INCLUDE IN MAINTENANCE MANUAL.

1.6 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO HAS DESIGNED AND INSTALLED FIRE-SUPPRESSION PIPING SIMILAR TO THAT INDICATED FOR THIS PROJECT AND OBTAINED DESIGN APPROVAL AND INSPECTION APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

B. MANUFACTURER QUALIFICATIONS: FIRMS WHOSE EQUIPMENT, SPECIALTIES, AND ACCESSORIES ARE LISTED BY PRODUCT NAME AND MANUFACTURER IN UL'S "FIRE PROTECTION EQUIPMENT DIRECTORY" AND FM'S "FIRE PROTECTION APPROVAL GUIDE" AND THAT COMPLY WITH OTHER REQUIREMENTS INDICATED.

C. STANDPIPE AND SPRINKLER COMPONENTS: LISTING/APPROVAL STAMP, LABEL, OR OTHER MARKING BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

D. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

E. NFPA STANDARDS: EQUIPMENT, SPECIALTIES, ACCESSORIES, INSTALLATION, AND TESTING COMPLYING WITH THE FOLLOWING:

REVISE SUBPARAGRAPHS BELOW TO SUIT PROJECT.

1. NFPA 13, "INSTALLATION OF SPRINKLER SYSTEMS."
2. NFPA 13R, "INSTALLATION OF SPRINKLER SYSTEMS IN LOW-RISE RESIDENTIAL OCCUPANCIES."
3. NFPA 14, "STANDPIPE AND HOSE SYSTEMS."

1.7 EXTRA MATERIALS

A. FURNISH EXTRA MATERIALS DESCRIBED BELOW THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.

1. SPRINKLER CABINETS: FINISHED, WALL-MOUNTING STEEL CABINET AND HINGED COVER, WITH SPACE FOR A MINIMUM OF SIX SPARE SPRINKLERS PLUS SPRINKLER WRENCH. INCLUDE THE NUMBER OF SPRINKLERS REQUIRED BY NFPA 13 AND WRENCH FOR SPRINKLERS. INCLUDE SEPARATE CABINET WITH SPRINKLERS AND WRENCH FOR EACH TYPE OF SPRINKLER ON PROJECT.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. REFER TO PART 3 "PIPING APPLICATIONS" ARTICLE FOR APPLICATIONS OF PIPE, TUBE, FITTING, AND JOINING MATERIALS.

2.2 PIPES AND TUBES

A. STAINLESS STEEL RISER: ONE-PIECE TYPE 304 STAINLESS STEEL RISER; UL/FM APPROVED; AWWA C900 INLET/DIP, AWWA C900 INLET/DIP; AWWA C606 OUTLET; WITH TEST CAP AND COUPLER.

B. DUCTILE-IRON PIPE: AWWA C151, MECHANICAL-JOINT TYPE; WITH CEMENT-MORTAR LINING AND SEAL COAT ACCORDING TO AWWA C104. INCLUDE GLAND, RUBBER GASKET, AND BOLTS AND NUTS ACCORDING TO AWWA C111.

C. STANDARD-WEIGHT STEEL PIPE: ASTM A 53, ASTM A 135, OR ASTM A 795; SCHEDULE 40 IN NPS 2 (DN150) AND SMALLER.

D. SCHEDULE 10 STEEL PIPE: ASTM A 135 OR ASTM A 795, SCHEDULE 10 IN NPS 2-1/2 AND LARGER.

E. STAINLESS STEEL TUBING: UL LISTED, ONE PIECE FLEXIBLE TUBING SYSTEM. SYSTEM ASSEMBLY SHALL INCLUDE COUPLINGS AND CEILING GRID MOUNTING HARDWARE; PIPING ASSEMBLY SHALL BE DESIGNED FOR CONNECTING BRANCH PIPING TO SPRINKLERS AND MOUNTING SPRINKLERS IN CEILING.

2.3 PIPE AND TUBE FITTINGS

A. DUCTILE-IRON FITTINGS: AWWA C110, DUCTILE-IRON OR CAST-IRON TYPE; OR AWWA C153, DUCTILE-IRON, COMPACT MECHANICAL-JOINT TYPE. INCLUDE CEMENT-MORTAR LINING AND SEAL COAT ACCORDING TO AWWA C104 AND GLANDS, RUBBER GASKETS, AND BOLTS AND NUTS ACCORDING TO AWWA C111.

B. CAST-IRON THREADED FLANGES: ASME B16.1.

C. CAST-IRON THREADED FITTINGS: ASME B16.4.

D. MALLEABLE-IRON THREADED FITTINGS: ASME B16.3.

E. STEEL, THREADED COUPLINGS: ASTM A 865.

F. STEEL WELDING FITTINGS: ASTM A 234/A 234M, ASME B16.9, OR ASME B16.11.

G. STEEL FLANGES AND FLANGED FITTINGS: ASME B16.5.

H. STEEL, GROOVED-END FITTINGS: UL-LISTED AND FM-APPROVED, ASTM A 47 (ASTM A 47M), MALLEABLE IRON OR ASTM A 536, DUCTILE IRON; WITH DIMENSIONS MATCHING STEEL PIPE AND ENDS FACTORY GROOVED ACCORDING TO AWWA C606.

2.4 JOINING MATERIALS

A. DUCTILE-IRON, KEYED COUPLINGS: UL 213 AND AWWA C606, FOR DUCTILE-IRON PIPE DIMENSIONS. INCLUDE ASTM A 536, DUCTILE-IRON HOUSING, RUBBER GASKETS, AND STEEL BOLTS AND NUTS.

B. DUCTILE-IRON, FLANGED JOINTS: AWWA C115, DUCTILE-IRON OR GRAY-IRON PIPE FLANGES, RUBBER GASKETS, AND STEEL BOLTS AND NUTS.

C. STEEL, KEYED COUPLINGS: UL 213 AND AWWA C606, FOR STEEL-PIPE DIMENSIONS. INCLUDE ASTM A 536, DUCTILE-IRON HOUSING, RUBBER GASKETS, AND STEEL BOLTS AND NUTS. INCLUDE LISTING FOR DRY-PIPE SERVICE FOR COUPLINGS FOR DRY PIPING.

D. TRANSITION COUPLINGS: AWWA C219, SLEEVE TYPE, OR OTHER MANUFACTURED FITTING THE SAME SIZE AS, WITH PRESSURE RATING AT LEAST EQUAL TO, AND WITH ENDS COMPATIBLE WITH PIPING TO BE JOINED.

2.5 FIRE-PROTECTION-SERVICE VALVES

A. GENERAL: UL LISTED AND FM APPROVED, WITH MINIMUM 175-PSIG (1200-KPA) NONSHOCK WORKING-PRESSURE RATING. VALVES FOR GROOVED-END PIPING MAY BE FURNISHED WITH GROOVED ENDS INSTEAD OF TYPE OF ENDS SPECIFIED.

B. GATE VALVES, NPS 2 (DN50) AND SMALLER: UL 262; CAST-BRONZE, THREADED ENDS; SOLID WEDGE; OS&Y; AND RISING STEM.

C. GATE VALVES, NPS 2-1/2 (DN65) AND LARGER: UL 262, IRON BODY, BRONZE MOUNTED, TAPER WEDGE, OS&Y, AND RISING STEM. INCLUDE REPLACEABLE, BRONZE, WEDGE FACING RINGS AND FLANGED ENDS.

D. SWING CHECK VALVES, NPS 2 (DN50) AND SMALLER: UL 312 OR MSS SP-80, CLASS 150; BRONZE BODY WITH BRONZE DISC AND THREADED ENDS.

E. SWING CHECK VALVES, NPS 2-1/2 (DN65) AND LARGER: UL 312, CAST-IRON BODY AND BOLTED CAP, WITH BRONZE DISC OR CAST-IRON DISC WITH BRONZE-DISC RING AND FLANGED ENDS.

2.6 SPECIALTY VALVES

A. ALARM CHECK VALVES: UL 193, 175-PSIG (1200-KPA) WORKING PRESSURE; DESIGNED FOR HORIZONTAL OR VERTICAL INSTALLATION, WITH CAST-IRON FLANGED INLET AND OUTLET, BRONZE GROOVED SEAT WITH O-RING SEALS, AND SINGLE-HINGE PIN AND LATCH DESIGN. INCLUDE TRIM SETS FOR BYPASS, DRAIN, ELECTRIC SPRINKLER ALARM SWITCH, PRESSURE GAGES, RETARDING CHAMBER, AND FILL-LINE ATTACHMENT WITH STRAINER.

1. OPTION: GROOVED-END CONNECTIONS FOR USE WITH KEYED COUPLINGS.
2. DRIP CUP ASSEMBLY: PIPE DRAIN WITHOUT VALVES, AND SEPARATE FROM MAIN DRAIN PIPING.

B. DRY-PIPE VALVES: UL 260; DIFFERENTIAL TYPE; 175-PSIG (1200-KPA) WORKING PRESSURE; WITH CAST-IRON FLANGED INLET AND OUTLET, BRONZE SEAT WITH O-RING SEALS, AND SINGLE-HINGE PIN AND LATCH DESIGN. INCLUDE UL 1486, QUICK-OPENING DEVICES, TRIM SETS FOR AIR SUPPLY, DRAIN, PRIMING LEVEL, ALARM CONNECTIONS, BALL DRIP VALVES, PRESSURE GAGES, HIGH-LOW PRESSURE SWITCH, PRIMING CHAMBER ATTACHMENT, AND FILL-LINE ATTACHMENT.

1. OPTION: GROOVED-END CONNECTIONS FOR USE WITH KEYED COUPLINGS.
2. AIR-PRESSURE MAINTENANCE DEVICES: AUTOMATIC DEVICE TO MAINTAIN CORRECT AIR PRESSURE IN PIPING. INCLUDE SHUTOFF VALVES TO PERMIT SERVICING WITHOUT SHUTTING DOWN SPRINKLER PIPING, BYPASS VALVE FOR QUICK FILLING, PRESSURE REGULATOR OR SWITCH TO MAINTAIN PRESSURE, STRAINER, PRESSURE RATINGS WITH 14- TO 60-PSIG (95- TO 410-KPA) ADJUSTABLE RANGE, AND 175-PSIG (1200-KPA) MAXIMUM INLET PRESSURE.
3. AIR COMPRESSOR: FRACTIONAL HORSEPOWER, 120-V AC, 60 HZ, SINGLE PHASE.

C. BALL DRIP VALVES: UL 1726, AUTOMATIC DRAIN VALVE, NPS 3/4 (DN20), BALL CHECK DEVICE WITH THREADED ENDS.

2.7 SPRINKLERS

A. AUTOMATIC SPRINKLERS: WITH HEAT-RESPONSIVE ELEMENT COMPLYING WITH THE FOLLOWING:

1. UL 1626 FOR RESIDENTIAL SPRINKLERS.
2. UL 199 FOR QUICK RESPONSE SPRINKLERS.

B. SPRINKLER TYPES AND CATEGORIES: NOMINAL 1/2-INCH (12.7-MM) ORIFICE FOR "ORDINARY" TEMPERATURE CLASSIFICATION RATING, UNLESS OTHERWISE INDICATED OR REQUIRED BY APPLICATION.

C. SPRINKLER TYPES, FEATURES, AND OPTIONS INCLUDE THE FOLLOWING:

1. CONCEALED RESIDENTIAL CEILING SPRINKLERS, INCLUDING COVER PLATE.
2. PENDENT, DRY-TYPE SPRINKLERS.
3. QUICK-RESPONSE SPRINKLERS.
4. SIDEWALL SPRINKLERS.
5. SIDEWALL, DRY-TYPE SPRINKLERS.
6. UPRIGHT SPRINKLERS.

D. CORROSION-RESISTANT COATING WHERE SPRINKLER IS EXPOSED ON EXTERIOR:

1. ELECTRO-LESS NICKEL TEFLON WITH STAINLESS STEEL ESCUTCHEON.

E. SPRINKLER GUARDS: WIRE-CAGE TYPE, INCLUDING FASTENING DEVICE FOR ATTACHING TO SPRINKLER.

2.8 SPECIALTY SPRINKLER FITTINGS

A. SPECIALTY FITTINGS: UL LISTED AND FM APPROVED; MADE OF STEEL, DUCTILE IRON, OR OTHER MATERIALS COMPATIBLE WITH PIPING.

B. DRY-PIPE-SYSTEM FITTINGS: UL LISTED FOR DRY-PIPE SERVICE.

C. MECHANICAL-T FITTINGS: UL 213, DUCTILE-IRON HOUSING WITH PRESSURE-RESPONSIVE GASKET, BOLTS, AND THREADED OR LOCKING-LUG OUTLET.

D. MECHANICAL-CROSS FITTINGS: UL 213, DUCTILE-IRON HOUSING WITH PRESSURE-RESPONSIVE GASKETS, BOLTS, AND THREADED OR LOCKING-LUG OUTLETS.

E. DROP-NIPPLE FITTINGS: UL 1474, WITH THREADED INLET, THREADED OUTLET, AND SEALS; ADJUSTABLE.

F. SPRINKLER, DRAIN AND ALARM TEST FITTINGS: UL-LISTED, CAST- OR DUCTILE-IRON BODY; WITH THREADED INLET AND OUTLET, TEST VALVE, AND ORIFICE AND SIGHT GLASS.

G. SPRINKLER, BRANCH-LINE TEST FITTINGS: UL-LISTED, BRASS BODY; WITH THREADED INLET AND CAPPED DRAIN OUTLET AND THREADED OUTLET FOR SPRINKLER.

H. SPRINKLER, INSPECTOR'S TEST FITTINGS: UL-LISTED, CAST- OR DUCTILE-IRON HOUSING; WITH THREADED INLET AND DRAIN OUTLET AND SIGHT GLASS.

2.9 ALARM DEVICES

A. GENERAL: TYPES MATCHING PIPING AND EQUIPMENT CONNECTIONS.

B. WATER-FLOW INDICATORS: UL 346; ELECTRICAL-SUPERVISION, VANE-TYPE WATER-FLOW DETECTOR; WITH 250-PSIG (1725-KPA) PRESSURE RATING; AND DESIGNED FOR HORIZONTAL OR VERTICAL INSTALLATION. INCLUDE TWO SINGLE-POLE, DOUBLE-THROW, CIRCUIT SWITCHES FOR ISOLATED ALARM AND AUXILIARY CONTACTS, 7 A, 125-V AC AND 0.25 A, 24-V DC; COMPLETE WITH FACTORY-SET, FIELD-ADJUSTABLE RETARD ELEMENT TO PREVENT FALSE SIGNALS AND TAMPERPROOF COVER THAT SENDS SIGNAL IF REMOVED.

C. HIGH-LOW PRESSURE SWITCHES: UL LISTED; FM APPROVED; ELECTRICAL-SUPERVISION-TYPE, HIGH-LOW PRESSURE SWITCH. INCLUDE SINGLE-POLE, DOUBLE-THROW, NORMALLY CLOSED CONTACTS AND THAT SIGNALS ON HIGH OR LOW PRESSURE.

D. PRESSURE SWITCHES: UL 753; ELECTRICAL-SUPERVISION-TYPE, WATER-FLOW SWITCH WITH RETARD FEATURE. INCLUDE SINGLE-POLE, DOUBLE-THROW, NORMALLY CLOSED CONTACTS AND DESIGN THAT OPERATES ON RISING PRESSURE AND SIGNALS WATER FLOW.

2.10 PRESSURE GAGES

A. PRESSURE GAGES: UL 393, 3-1/2- TO 4-1/2-INCH- (90- TO 115-MM-) DIAMETER DIAL WITH DIAL RANGE OF 0 TO 250 PSIG (0 TO 1725 KPA).

2.11 HOSE CONNECTIONS

A. DESCRIPTION: UL 668, 300-PSIG (2070-KPA) MINIMUM PRESSURE RATING, BRASS, HOSE VALVE FOR CONNECTING FIRE HOSE. TWO WAY FLUSH MOUNTED; FEMALE NPS INLET AND MALE HOSE OUTLET; AND LUGGED CAP, GASKET, AND CHAIN. INCLUDE HOSE VALVE THREADS ACCORDING TO NFPA 1963 AND MATCHING LOCAL FIRE DEPARTMENT THREADS.

1. FINISH: CAST BRASS.
2. PROVIDE KNOX CAPS ON OUTLETS.
3. PROVIDE 18"X12" 0.063 THICK REFLECTIVE ALUMINUM SIGN WITH RED BACKGROUND AND WHITE LETTERS ABOVE EACH FDC DENOTING THE TYPE OF FDC.

PART 3 - EXECUTION

3.1 PREPARATION

A. PERFORM FIRE-HYDRANT FLOW TEST ACCORDING TO NFPA 13 AND NFPA 291. USE RESULTS FOR SYSTEM DESIGN CALCULATIONS REQUIRED IN "QUALITY ASSURANCE" ARTICLE IN PART 1 OF THIS SECTION.

B. REPORT TEST RESULTS PROMPTLY AND IN WRITING.

3.2 EXAMINATION

A. EXAMINE ROUGHING-IN FOR HOSE CONNECTIONS AND STATIONS TO VERIFY ACTUAL LOCATIONS OF PIPING CONNECTIONS BEFORE INSTALLATION.

B. EXAMINE WALLS AND PARTITIONS FOR SUITABLE THICKNESS, FIRE- AND SMOKE-RATED CONSTRUCTION, FRAMING FOR HOSE-STATION CABINETS, AND OTHER CONDITIONS WHERE HOSE CONNECTIONS AND STATIONS ARE TO BE INSTALLED.

C. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.3 PIPING APPLICATIONS

A. DO NOT USE WELDED JOINTS WITH GALVANIZED STEEL PIPE.

B. FLANGES, UNIONS, AND TRANSITION AND SPECIAL FITTINGS WITH PRESSURE RATINGS THE SAME AS OR HIGHER THAN SYSTEM'S PRESSURE RATING MAY BE USED IN ABOVEGROUND APPLICATIONS, UNLESS OTHERWISE INDICATED.

C. UNDERGROUND SERVICE-ENTRANCE PIPING: USE DUCTILE-IRON, MECHANICAL-JOINT PIPE AND FITTINGS AND RESTRAINED JOINTS.

D. STANDPIPES: USE THE FOLLOWING:

1. NPS 10 (DN100) AND SMALLER: SCHEDULE 10 GALVANIZED STEEL PIPE WITH ROLL-GROOVED ENDS; STEEL, GROOVED-END FITTINGS; AND GROOVED JOINTS.

E. WET-PIPE SPRINKLERS: USE THE FOLLOWING:

1. NPS 2 (DN40) AND SMALLER: STANDARD-WEIGHT STEEL PIPE WITH THREADED ENDS, CAST- OR MALLEABLE-IRON THREADED FITTINGS, AND THREADED JOINTS.
2. NPS 2-1/2 AND LARGER (DN65 TO DN90): SCHEDULE 10 STEEL PIPE WITH ROLL-GROOVED ENDS; STEEL, GROOVED-END FITTINGS; AND GROOVED JOINTS.
3. NPS 2-1/2 AND LARGER (DN65 TO DN90): SCHEDULE 10 STEEL PIPE WITH PLAIN ENDS, STEEL WELDING FITTINGS, AND WELDED JOINTS.

F. DRY-PIPE SPRINKLERS: USE THE FOLLOWING:

1. NPS 2 (DN40) AND SMALLER: GALVANIZED, STANDARD-WEIGHT STEEL PIPE WITH THREADED ENDS; CAST- OR MALLEABLE-IRON THREADED FITTINGS; AND THREADED JOINTS.
2. NPS 2 (DN40) AND SMALLER: GALVANIZED, STANDARD-WEIGHT STEEL PIPE WITH PLAIN ENDS; LOCKING-LUG FITTINGS; AND TWIST-LOCKED JOINTS.
3. NPS 2-1/2 TO NPS 6 (DN65 TO DN100): GALVANIZED, STANDARD-WEIGHT STEEL PIPE WITH THREADED ENDS; CAST- OR MALLEABLE-IRON THREADED FITTINGS; AND THREADED JOINTS.
4. NPS 2-1/2 TO NPS 6 (DN65 TO DN100): GALVANIZED, STANDARD-WEIGHT STEEL PIPE WITH GROOVED ENDS; STEEL, GROOVED-END FITTINGS; STEEL, KEYED COUPLINGS; AND GROOVED JOINTS.

3.4 VALVE APPLICATIONS

A. DRAWINGS INDICATE VALVE TYPES TO BE USED. WHERE SPECIFIC VALVE TYPES ARE NOT INDICATED, THE FOLLOWING REQUIREMENTS APPLY:

1. FIRE-PROTECTION-SERVICE VALVES: UL LISTED AND FM APPROVED FOR APPLICATIONS WHERE REQUIRED BY NFPA 13 AND NFPA 14.
   a. SHUTOFF DUTY: USE GATE VALVES.
2. GENERAL-DUTY VALVES: FOR APPLICATIONS WHERE UL-LISTED AND FM-APPROVED VALVES ARE NOT REQUIRED BY NFPA 13 AND NFPA 14.
   a. SHUTOFF DUTY: USE GATE, BALL, OR BUTTERFLY VALVES.
   b. THROTTLING DUTY: USE GLOBE, BALL, OR BUTTERFLY VALVES.

3.5 JOINT CONSTRUCTION

A. STEEL-PIPING, GROOVED JOINTS: USE SCHEDULE 40 STEEL PIPE WITH CUT OR ROLL-GROOVED ENDS AND SCHEDULE 30 OR THINNER STEEL PIPE WITH ROLL-GROOVED ENDS; STEEL, GROOVED-END FITTINGS; AND STEEL, KEYED COUPLINGS. ASSEMBLE JOINTS WITH COUPLINGS, GASKETS, LUBRICANT, AND BOLTS ACCORDING TO COUPLING MANUFACTURER'S WRITTEN INSTRUCTIONS. USE GASKETS LISTED FOR DRY-PIPE SERVICE FOR DRY PIPING.

B. DISSIMILAR-PIPING-MATERIAL JOINTS: CONSTRUCT JOINTS USING ADAPTERS OR COUPLINGS COMPATIBLE WITH BOTH PIPING MATERIALS. USE DIELECTRIC FITTINGS IF BOTH PIPING MATERIALS ARE METAL.

3.6 SERVICE-ENTRANCE PIPING

A. CONNECT STANDPIPE AND SPRINKLER PIPING TO WATER-SERVICE PIPING OF SIZE AND IN LOCATION INDICATED FOR SERVICE ENTRANCE TO BUILDING.

B. INSTALL SHUTOFF VALVE, CHECK VALVE, PRESSURE GAGE, DRAIN, AND OTHER ACCESSORIES AT CONNECTION TO WATER SERVICE.

A. CONNECTION TO THE INTERIOR SPRINKLER SYSTEM IS TO BE DONE AFTER THE UNDERGROUND FIRE SERVICE MAINS HAVE BEEN FLUSHED AND TESTED IN ACCORDANCE WITH NFPA -24.

3.7 PIPING INSTALLATION

A. LOCATIONS AND ARRANGEMENTS: DRAWING PLANS, SCHEMATICS, AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF PIPING. INSTALL PIPING AS INDICATED, AS FAR AS PRACTICAL.

1. DEVIATIONS FROM APPROVED WORKING PLANS FOR PIPING REQUIRE WRITTEN APPROVAL FROM AUTHORITIES HAVING JURISDICTION. FILE WRITTEN APPROVAL WITH DESIGN PROFESSIONAL BEFORE DEVIATING FROM APPROVED WORKING PLANS.

B. INSTALL UNDERGROUND SERVICE-ENTRANCE PIPING ACCORDING TO NFPA 24 AND WITH RESTRAINED JOINTS.

C. USE APPROVED FITTINGS TO MAKE CHANGES IN DIRECTION, BRANCH TAKEOFFS FROM MAINS, AND REDUCTIONS IN PIPE SIZES.

D. INSTALL UNIONS ADJACENT TO EACH VALVE IN PIPES NPS 2 (DN50) AND SMALLER. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES OR IN PIPING INSTALLATIONS USING GROOVED JOINTS.

E. INSTALL FLANGES OR FLANGE ADAPTERS ON VALVES, APPARATUS, AND EQUIPMENT HAVING NPS 2-1/2 (DN65) AND LARGER CONNECTIONS.

F. INSTALL "INSPECTOR'S TEST CONNECTIONS" IN SPRINKLER PIPING, COMPLETE WITH SHUTOFF VALVE, SIZED AND LOCATED ACCORDING TO NFPA 13.

G. INSTALL SPRINKLER PIPING WITH DRAINS FOR COMPLETE SYSTEM DRAINAGE.

H. INSTALL DRAIN VALVES ON STANDPIPES.

I. INSTALL ALARM DEVICES IN PIPING SYSTEMS.

J. HANGERS AND SUPPORTS: COMPLY WITH NFPA 13 FOR HANGER MATERIALS. INSTALL ACCORDING TO NFPA 13 FOR SPRINKLER PIPING AND TO NFPA 14 FOR STANDPIPES.

K. INSTALL PIPING WITH GROOVED JOINTS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. CONSTRUCT RIGID PIPING JOINTS, UNLESS OTHERWISE INDICATED.

L. INSTALL FLEXIBLE STAINLESS STEEL TUBING SYSTEMS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

M. INSTALL PRESSURE GAGES ON RISER OR FEED MAIN AND AT EACH SPRINKLER TEST CONNECTION. INCLUDE PRESSURE GAGES WITH CONNECTION NOT LESS THAN NPS 1/4 (DN8) AND WITH SOFT METAL SEATED GLOBE VALVE, ARRANGED FOR DRAINING PIPE BETWEEN GAGE AND VALVE. INSTALL GAGES TO PERMIT REMOVAL, AND INSTALL WHERE THEY WILL NOT BE SUBJECT TO FREEZING.

3.8 SPECIALTY SPRINKLER FITTING INSTALLATION

A. INSTALL SPECIALTY SPRINKLER FITTINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.9 VALVE INSTALLATION

A. INSTALL FIRE-PROTECTION SPECIALTY VALVES, TRIM, FITTINGS, CONTROLS, AND SPECIALTIES ACCORDING TO NFPA 13 AND NFPA 14, MANUFACTURER'S WRITTEN INSTRUCTIONS, AND AUTHORITIES HAVING JURISDICTION.

B. GATE VALVES: INSTALL FIRE-PROTECTION-SERVICE VALVES SUPERVISED-OPEN, LOCATED TO CONTROL SOURCES OF WATER SUPPLY EXCEPT FROM FIRE DEPARTMENT CONNECTIONS. PROVIDE PERMANENT IDENTIFICATION SIGNS INDICATING PORTION OF SYSTEM CONTROLLED BY EACH VALVE.

C. INSTALL CHECK VALVE IN EACH WATER-SUPPLY CONNECTION.

D. ALARM CHECK VALVES: INSTALL VALVES IN VERTICAL POSITION FOR PROPER DIRECTION OF FLOW, INCLUDING BYPASS CHECK VALVE AND RETARD CHAMBER DRAIN-LINE CONNECTION.

E. DRY-PIPE VALVES: INSTALL TRIM SETS FOR AIR SUPPLY, DRAIN, PRIMING LEVEL, ALARM CONNECTIONS, BALL DRIP VALVES, PRESSURE GAGES, PRIMING CHAMBER ATTACHMENT, AND FILL-LINE ATTACHMENT.

1. AIR-PRESSURE MAINTENANCE DEVICES FOR DRY-PIPE SYSTEMS: INSTALL SHUTOFF VALVES TO PERMIT SERVICING WITHOUT SHUTTING DOWN SPRINKLER SYSTEM; BYPASS VALVE FOR QUICK SYSTEM FILLING; PRESSURE REGULATOR OR SWITCH TO MAINTAIN SYSTEM PRESSURE; STRAINER; PRESSURE RATINGS WITH 14- TO 60-PSIG (95- TO 410-KPA) ADJUSTABLE RANGE; AND 175-PSIG (1200-KPA) MAXIMUM INLET PRESSURE.
2. INSTALL AIR COMPRESSOR AND COMPRESSED-AIR SUPPLY PIPING.

3.12 SPRINKLER APPLICATIONS

A. GENERAL: USE SPRINKLERS ACCORDING TO THE FOLLOWING APPLICATIONS:

1. ROOMS WITHOUT CEILINGS: Q.R. UPRIGHT SPRINKLERS.
2. ROOMS WITH SUSPENDED CEILINGS: Q.R. CONCEALED SPRINKLERS.
3. WALL MOUNTING: Q.R. SIDEWALL SPRINKLERS.
4. SPACES SUBJECT TO FREEZING: UPRIGHT; PENDENT, DRY-TYPE; AND SIDEWALL, DRY-TYPE SPRINKLERS.
5. SPECIAL APPLICATIONS: USE EXTENDED-COVERAGE, SPRINKLERS WHERE INDICATED.

B. SPRINKLER FINISHES: USE SPRINKLERS WITH THE FOLLOWING FINISHES:

1. UPRIGHT, PENDENT, AND SIDEWALL SPRINKLERS: WHITE IN FINISHED SPACES EXPOSED TO VIEW; ROUGH BRONZE IN UNFINISHED SPACES NOT EXPOSED TO VIEW; CORROSION RESISTANT FINISH WHERE INSTALLED AT EXTERIOR APPLICATIONS. PROVIDE STAINLESS STEEL ESCUTCHEONS AT EXTERIOR APPLICATIONS.
2. CONCEALED SPRINKLERS: ROUGH BRASS, WITH FACTORY-PAINTED WHITE COVER PLATE.

3.13 SPRINKLER INSTALLATION

A. DO NOT INSTALL PENDENT OR SIDEWALL, WET-TYPE SPRINKLERS IN AREAS SUBJECT TO FREEZING. USE DRY-TYPE SPRINKLERS WITH WATER SUPPLY FROM HEATED SPACE.

3.14 HOSE-CONNECTION INSTALLATION

A. INSTALL 2-1/2" HOSE CONNECTIONS ADJACENT TO STANDPIPES, UNLESS OTHERWISE INDICATED.

B. INSTALL FREESTANDING HOSE CONNECTIONS FOR ACCESS AND MINIMUM PASSAGE RESTRICTION.

3.15 CONNECTIONS

A. CONNECT WATER SUPPLIES TO STANDPIPES AND SPRINKLERS.

B. CONNECT PIPING TO SPECIALTY VALVES, HOSE VALVES, SPECIALTIES AND ACCESSORIES.

C. ELECTRICAL CONNECTIONS: COORDINATE WITH ELECTRICAL CONTRACTOR AND FIRE ALARM CONTRACTOR.

D. CONNECT ALARM DEVICES TO FIRE ALARM.

E. CONNECT COMPRESSED-AIR SUPPLY TO DRY-PIPE SPRINKLER PIPING.

F. CONNECT AIR COMPRESSOR TO THE FOLLOWING PIPING AND WIRING:

1. PRESSURE GAGES AND CONTROLS.
2. ELECTRICAL POWER SYSTEM.
3. FIRE ALARM SYSTEM DEVICES, INCLUDING LOW-PRESSURE ALARM.

3.16 LABELING AND IDENTIFICATION

A. INSTALL LABELING AND PIPE MARKERS ON EQUIPMENT AND PIPING ACCORDING TO REQUIREMENTS IN NFPA 13 AND NFPA 14.

3.17 FIELD QUALITY CONTROL

A. FLUSH, TEST, AND INSPECT SPRINKLER PIPING ACCORDING TO NFPA 13, "SYSTEM ACCEPTANCE" CHAPTER.

B. FLUSH, TEST, AND INSPECT STANDPIPES ACCORDING TO NFPA 14, "TESTS AND INSPECTION" CHAPTER.

C. REPLACE PIPING SYSTEM COMPONENTS THAT DO NOT PASS TEST PROCEDURES AND RETEST TO DEMONSTRATE COMPLIANCE. REPEAT PROCEDURE UNTIL SATISFACTORY RESULTS ARE OBTAINED.

D. REPORT TEST RESULTS PROMPTLY AND IN WRITING TO DESIGN PROFESSIONAL AND AUTHORITIES HAVING JURISDICTION.

3.18 CLEANING

A. CLEAN DIRT AND DEBRIS FROM SPRINKLERS. WHERE ADHESIVE MATERIALS SUCH AS PAINT AND DRYWALL MUD HAVE ADHERED TO SPRINKLERS, THEY SHALL BE REPLACED ENTIRELY.

B. REMOVE AND REPLACE SPRINKLERS HAVING PAINT OTHER THAN FACTORY FINISH.

3.19 PROTECTION

A. PROTECT SPRINKLERS FROM DAMAGE UNTIL MATERIAL COMPLETION.

3.20 COMMISSIONING

A. VERIFY THAT SPECIALTY VALVES, TRIM, FITTINGS, CONTROLS, AND ACCESSORIES ARE INSTALLED AND OPERATE CORRECTLY.

B. VERIFY THAT AIR COMPRESSORS AND THEIR ACCESSORIES ARE INSTALLED AND OPERATE CORRECTLY.

C. VERIFY THAT SPECIFIED TESTS OF PIPING ARE COMPLETE.

D. VERIFY THAT DAMAGED SPRINKLERS AND SPRINKLERS WITH PAINT OR COATING NOT SPECIFIED ARE REPLACED WITH NEW, CORRECT TYPE.

E. VERIFY THAT SPRINKLERS ARE CORRECT TYPES, HAVE CORRECT FINISHES AND TEMPERATURE RATINGS, AND HAVE GUARDS AS REQUIRED FOR EACH APPLICATION.

F. DRAIN DRY-PIPE SPRINKLER PIPING.

G. PRESSURIZE AND CHECK DRY-PIPE SPRINKLER PIPING AIR-PRESSURE MAINTENANCE DEVICES AND AIR COMPRESSORS.

H. VERIFY THAT HOSE CONNECTIONS HAVE THREADS COMPATIBLE WITH LOCAL FIRE DEPARTMENT EQUIPMENT.

I. FILL WET-PIPE SPRINKLER PIPING WITH WATER.

J. DRAIN STANDPIPES AFTER PRESSURE TESTING.

K. VERIFY THAT HOSE CONNECTIONS ARE CORRECT TYPE AND SIZE.

L. ENERGIZE CIRCUITS TO ELECTRICAL EQUIPMENT AND DEVICES.

M. START AND RUN AIR COMPRESSORS.

N. ADJUST OPERATING CONTROLS AND PRESSURE SETTINGS.

O. COORDINATE WITH FIRE ALARM TESTS. OPERATE AS REQUIRED.

3.21 DEMONSTRATION

A. DEMONSTRATE EQUIPMENT, SPECIALTIES, AND ACCESSORIES. REVIEW OPERATING AND MAINTENANCE INFORMATION.

B. SCHEDULE DEMONSTRATION WITH OWNER WITH AT LEAST SEVEN DAYS' ADVANCE NOTICE.

1/4 1/2 3/4 1" REFERENCE SCALE

PLOT DATE: 08/23/17
FILENAME: 17039FP1
BASESHT:
PLOT SCALE: 1 = 96
JCP

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