

FIRE PROTECTION NOTES AND SPECIFICATIONS

GENERAL

- CONTRACTOR SHALL PERFORM ALL WORK AS TO CONFORM TO LOCAL, STATE AND NATIONAL CODES AND THE REQUIREMENTS OF LOCAL AUTHORITIES HAVING JURISDICTION.
- CONTRACTOR TO EXAMINE THE SITE TO DETERMINE THE EXACT CONDITIONS EFFECTING THE FIRE PROTECTION WORK.
- DRAWINGS INDICATE THE GENERAL SCHEME OF THE INSTALLATION AND ARE DIAGRAMMATIC IN SCOPE. THE ENGINEER RESERVES THE RIGHT TO CHANGE THE LOCATION OF HEADS, VALVES, NOZZLES, APPARATUS, ETC. TO A REASONABLE EXTENT AS THE FOLLOWING CONDITIONS MAY INDICATE FROM THEIR INSTALLATION WITHOUT EXTRA COST TO THE OWNER.
- DETAILS OF CONSTRUCTION AND OF WORKMANSHIP NOT SPECIFICALLY DESCRIBED HEREON OR INDICATED ON THE DRAWINGS SHALL BE SUBJECT TO THE ENGINEER'S APPROVAL. IT IS THE INTENT OF THESE SPECIFICATIONS TO PROVIDE COMPLETE SYSTEMS LEFT READY FOR WORKING ORDER READY FOR OPERATION.
- SCAFF AND SKELETS, EXCEPT AS OTHERWISE SPECIFIED, SHALL BE REMOVED FROM THE SITE AND DEPOSED OF BY THIS CONTRACTOR.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR START-UP OF THE SYSTEM.
- ALL WORK SHALL BE DONE WITH A MINIMUM OF DUST AND NOISE. PROVIDE SUFFICIENT PROOFROOF TARPING AND COVER ALL EQUIPMENT IN WORK AREA WITH SAVING DRIVING WORK OPERATIONS.
- CONTRACTOR SHALL FURNISH SHOP DRAWINGS AND EQUIPMENT CUTOFFS TO THE ARCHITECT FOR APPROVAL (MINIMUM 3 COPIES).
- COORDINATE CONNECTIONS TO STREET WITH LOCAL UTILITY COMPANIES.
- CONTRACTOR SHALL FILE, SECURE AND PAY FOR ALL NECESSARY APPROVALS, PERMITS AND INSPECTIONS.
- ALL WORK SHALL BE GUARANTEED TO BE FREE FROM DEFECT FOR ONE YEAR AFTER ACCEPTANCE OF WORK.
- ALL WORK SHALL BE IN STRICT CONFORMANCE WITH THE STATE OF NEW JERSEY FIREWORK FIRE CODE (N.J.A.C. 10-40) AND THE STATE OF NEW JERSEY FIRE PREVENTION CODE.
- FIRE PROTECTION SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE STATE OF NEW JERSEY FIRE PREVENTION CODE AND APPLICABLE NFPA CODES. CONTRACTOR TO COORDINATE TESTS WITH LOCAL OFFICIALS.
- WHERE DEVICES REQUIRING ACCESS (INSPECTORS TEST VALVES, ETC.) HOLD OTHERWISE BE RENDERED INACCESSIBLE BY BUILDING CONSTRUCTION, PROVIDE FRAMED ACCESS DOORS. ACCESS DOORS FINISH SHALL BE CONFORM WITH NFPA 701. IN GENERAL, ACCESS DOORS SHALL BE FINISH PAINTABLE STEEL WHEN LOCATED IN DRYWALL CONSTRUCTION. ACCESSIBLE TO STEEL ROOMS THE FINISH SHALL BE STAINLESS STEEL. ACCESS DOORS IN EXTERIOR WALLS SHALL BE PROVIDED WITH MOUNTED DOORS. ACCESS DOORS IN GULLY ENCLOSURES ON FIRE RESISTIVE WALLS SHALL BE FIRE RATED IN ACCORDANCE WITH INTERNATIONAL BUILDING CODE.

SCOPE OF WORK

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FURNISHING AND INSTALLATION OF ALL EQUIPMENT MATERIALS AND COMPONENTS REQUIRED FOR A COMPLETE AND OPERATIONALLY FUNCTIONAL SYSTEM. SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO:
 - CUTTING OF PAVEMENT OR CONCRETE SURFACES AS REQUIRED.
 - EXCAVATION.
 - SHIELDING.
 - RESTORATION OF EXISTING SURFACES, INCLUDING PAVEMENT, CONCRETE, FINISHING, SEEDING, ETC.
 - FURNISHING AND INSTALLATION OF PRIVATE FIRE SERVICE MAINS, INCLUDING GARDIANS AND CONNECTIONS TO EXISTING MAINS AND STREET.
 - FURNISHING AND INSTALLATION OF BACKFLOW PREVENTERS, INCLUDING OSHA TYPE SOLUTION VALVES.
 - CONNECTIONS TO PRIVATE FIRE SERVICE MAIN.
 - FURNISHING AND INSTALLATION OF WET ALARM VALVE, INCLUDING RETARDING GASKETS, PRESSURE SWITCH AND ASSOCIATED VALVES.
 - FURNISHING AND INSTALLATION OF FIRE DEPARTMENT CONNECTION AND CHECK VALVE.
 - FURNISHING AND INSTALLATION OF ALL FIRE PROTECTION PIPING, FITTINGS, HANGERS, SUPPORTS, SHAY BRACKING AND APPURTENANCES.
 - FURNISHING AND INSTALLATION OF SPRINKLER HEADS AS SPECIFIED, INCLUDING UPRIGHT, PENDENT, SIDEWALL, AND DRY HEADS AS REQUIRED.
 - FURNISHING AND INSTALLATION OF INSPECTORS TEST CONNECTIONS.
 - FURNISHING AND INSTALLATION OF FIRE PROTECTION SYSTEM SIZES AS SPECIFIED AND REQUIRED.
 - FURNISHING OF SHOP DRAWINGS AND HYDRAULIC CALCULATIONS.
 - SYSTEM FLUSHING.
 - HYDROSTATIC AND OPERATIONAL TESTING.
 - CUTTING AND PAINTING AS REQUIRED.
 - PERMITS, INSPECTIONS, APPROVALS AND CERTIFICATES, INCLUDING FEES.
 - GUARANTEE.

SEISMIC PROTECTION

- SEISMIC PROTECTION FOR FIRE PROTECTION SYSTEMS SHALL BE IN ACCORDANCE WITH NFPA 804.5.4.3.
- PROVIDE ALL LISTED, GROOVED END, FLEXIBLE COUPLERS IN ALL LINES 3/4" UP AND LARGER AT THE FOLLOWING LOCATIONS:
 - WITHIN 24" OF THE TOP AND BOTTOM OF ALL RISERS IN EXCESS OF 7'-0".
 - CENTER OF ALL RISERS LONGER THAN 3'-0" BUT LESS THAN 7'-0".
 - WITHIN 4" ABOVE OR BELOW EACH FLOOR ELEVATION MULTI-STORY BUILDINGS.
 - ON ONE SIDE OF EACH CONCRETE OR MASONRY WALL WITHIN 3' OF WALL.
- PROVIDE ALL LISTED, GROOVED END, FLEXIBLE COUPLERS IN ALL LINES, REGARDLESS OF SIZE, AS FOLLOWS:
 - WITHIN 2'-0" OF CEILING AT THE TOP OF DROPS TO HOSE LINES, RACK, SPRINKLER MECHANISMS, ETC.
 - WITHIN 2'-0" OF CEILING AT THE TOP OF DROPS EXCEEDING 6'-0" TO MORE THAN ONE SPRINKLER.
- SEISMIC SEPARATION ASSEMBLIES SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 80, APPENDIX A PARAGRAPH A-5.4.3.3 WHERE SPRINKLER PIPING CROSSES A BUILDING SEISMIC SEPARATION JOINT ABOVE GRADE.
- PROVIDE CLEARANCES AS FOLLOWS FOR PIPING PENETRATING CONCRETE, MASONRY OR STEEL CONSTRUCTION:

FITTING	STANDARD
1. PENETRATION DIAMETER SHALL BE 2" LARGER THAN NOMINAL PIPE SIZE FOR ALL PIPING 3/4" AND LESS IN DIAMETER.	ANSI/RM-4
2. PENETRATION DIAMETER SHALL BE 4" LARGER THAN NOMINAL PIPE SIZE FOR ALL PIPING 4" AND LARGER.	ANSI/RM-3
	ANSI/RM-4

IN ADDITION TO THE ABOVE, VICTALINK CG, STYLE 11 AND FULL FLOOR FITTINGS SHALL BE PERMITTED.
- ALL THREADED PIPE SHALL BE REAMED SMOOTH BEFORE BEING INSTALLED. PIPE SHALL NOT BE SPLIT, BENT, FLATTENED NOR OTHERWISE INJURED EITHER BEFORE OR DURING THE INSTALLATION.
- ALL THREADED FITTINGS AND PIPE SHALL BE THREADED IN ACCORDANCE WITH ANSI/HWY 802.01. CARE SHOULD BE TAKEN TO INSURE THAT THE THREADED CONNECTION DOES NOT DAMAGE OR THE FITTING SUFFICIENTLY TO REDUCE THE WATERWAY.
- DRY SPRINKLER SYSTEMS SHALL BE SUBJECT TO A PERMANENT TEST AT 40 PSI OVER A 24 HOUR PERIOD. LEAKAGE SHALL NOT EXCEED 1/2 PSI OVER THE 24 HOUR PERIOD. PROVIDE TEST GAGES AS REQUIRED.
- DRY SPRINKLER SYSTEMS SHALL BE OPERATIONALLY TESTED BY OPENING OF THE INSPECTORS TEST CONNECTION AND MEASURING THE TRIP AND WATER DELIVERY RATES.
- NET SYSTEM SHALL BE OPERATIONALLY TESTED BY OPENING THE INSPECTORS TEST CONNECTION AND MEASURING THE TRIP TIME.
- MAIN DRAIN SHALL BE TESTED BY FULLY OPENING THE MAIN DRAIN VALVE AND FLOWING WATER UNTIL SYSTEM PRESSURE STABILIZES. RECORD NORMAL PRESSURE AND FLOWING PRESSURE. PROVIDE TEST GAGES AS REQUIRED.
- CONTRACTOR SHALL COMPLETE CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR ABOVE GROUND PIPING IN ACCORDANCE WITH NFPA 803 AND SUBMIT TO AUTHORITY HAVING JURISDICTION.
- ALL FLUSHING AND TESTING OPERATIONS SHALL BE IN ACCORDANCE WITH NFPA 803 AND NFPA 804.

SPRINKLER SYSTEMS

- SPRINKLER SYSTEM SHALL BE INSTALLED IN STRICT CONFORMANCE WITH NFPA 803 FOR RETAIL, GARAGE AND RESIDENTIAL, LOW RISE AREAS. SPRINKLER SYSTEM WITH RESIDENTIAL UNITS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH NFPA 803.
- ALL SPRINKLER SYSTEM COMPONENTS, INCLUDING HEADS, FITTINGS, PIPING, VALVES, HANGERS, ETC. SHALL BE U.S. FACTORY MINTED LISTED FOR FIRE PROTECTION SERVICE AND FOR THE SPECIFIC APPLICATION.
- ALL SPRINKLER SYSTEM COMPONENTS SHALL BE NEW AND SHALL BE DESIGNED FOR A WORKING PRESSURE OF NOT LESS THAN 15 PSI.
- PROVIDE A 1" INSPECTORS TEST CONNECTION FROM THE END OF THE MOST REMOTE BRANCH LINE SERVED FROM THE ALARM VALVE. TEST CONNECTION SHALL DISCHARGE TO OUTDOORS THROUGH AN INSULATED CONCRESSION RESISTANT TEST ORIFICE AND SHALL BE IN ACCORDANCE WITH NFPA 804.6.4.
- PROVIDE A 1" INSPECTORS TEST CONNECTION FROM THE TOP OF THE MOST REMOTE BRANCH LINE IN THE HIGHEST STORY. PROVIDE INSPECTORS TEST VALVE WITH BRASS PIPE PLUG IN OUTLET. TEST CONNECTION SHALL DISCHARGE TO OUTDOORS VIA A REMOVABLE 1" NIPPLE WITH NOUN AND A SMOOTH BORE CONCRESSION RESISTANT TEST ORIFICE AND SHALL BE IN ACCORDANCE WITH NFPA 804.6.4.
- ALL VALVES IN WATER SUPPLIES TO SPRINKLERS SHALL BE OUTSIDE SCREEN AND YOKE (OS&Y) TYPE, GATE VALVE WITH MINIMUM TRIP WORKING PRESSURE. VALVES SHALL BE MARKED FULLY APPROVED AND SHALL NOT CLOSE IN LESS THAN 30 SECONDS WHEN OPERATED AT MAXIMUM FIGURE 84-03 THROUGH 2" SIZE AND IRON BODY STOCKHAM FIGURE 84-04 1/2" UP TO 2" AND LARGER.
- DRAIN AND TEST VALVES MAY BE BALL OR GLOBE TYPE WITH MINIMUM TRIP WORKING PRESSURE.
- CHECK VALVES SHALL BE U.S. LISTED/ETD APPROVED AND SHALL BE INSTALLED HORIZONTALLY OR VERTICALLY IN ACCORDANCE WITH THEIR LISTING.
- ALL VALVES IN WATER SUPPLIES TO SPRINKLERS SHALL BE SUPERVISED FOR "OPEN POSITION" BY THE ALARM SYSTEM. PROVIDE WARNERS SWITCHES ON ALL VALVES, SWITCHES TO OTHER TRADES. MARK BETWEEN THESE SWITCHES AND THE FIRE ALARM SYSTEM SHALL BE FINISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- FINISH AND INSTALL A CHECK VALVE IN THE WATER SUPPLY TO FIRE PROTECTION SYSTEM. CHECK VALVE SHALL BE U.S. LISTED AND APPROVED AND SHALL BE STOCKHAM FIGURE 84-04.

SPRINKLER HEADS

- SPRINKLER HEADS SHALL BE 1/2" ORIFICE, AUTOMATIC TYPE, UNLESS OTHERWISE NOTED AND SHALL BE AS MANUFACTURED BY RELIABLE, VIKING OR APPROVED EQUAL. LOCATIONS, TYPE, FINISH AND MODELS SHALL BE AS FOLLOWS:

LOCATION	TYPE	FINISH	MODEL
EXPOSED, NO CEILING	UPRIGHT	BRONZE	VIKING MODEL "V-302"
CONCEALED, HALL	CONCEALED	CHROME PLATED	VIKING MODEL "V-401"
CONCEALED, CEILING	CONCEALED	WHITE	VIKING MODEL "V-302"

- ALL SIDEWALL AND PENDENT HEADS SHALL BE FINISHED COMPLETE WITH ADJUSTABLE ESCUTCHEON. ESCUTCHEON FINISH SHALL MATCH HEAD FINISH.
- UNLESS OTHERWISE NOTED, SPRINKLER HEADS SHALL BE "ORDINARY" TEMPERATURE RATING. WHERE REQUIRED BY CEILING TEMPERATURES, INSTALL HEADS WITH GREATER TEMPERATURE RATINGS AS REQUIRED.
- SPRINKLER HEADS LOCATED LESS THAN 2'-4" ABOVE OR LESS THAN 1'-0" TO THE SIDE OR BELOW A HEATING GRID SHALL BE "INTERMEDIATE" TEMPERATURE RATING.
- SPRINKLER HEADS LOCATED WITHIN 1'-0" HORIZONTALLY OF DOWNDRAFT DISCHARGE DEFUSER FROM 1'-0" BELOW TO 2'-4" ABOVE DEFUSER SHALL BE "INTERMEDIATE" TEMPERATURE RATING.
- SPRINKLER HEADS LOCATED WITHIN 2'-4" RADIALLY OF A HORIZONTAL DISCHARGE DEFUSER FROM 1'-0" TO 2'-4" ABOVE DEFUSER SHALL BE "INTERMEDIATE" TEMPERATURE RATING.
- SPRINKLER HEADS LOCATED WITHIN 7'-0" RADIALLY OF A HORIZONTAL DISCHARGE UNIT HEATER FROM 2'-0" BELOW TO 7'-0" ABOVE UNIT HEATER SHALL BE "HIGH" TEMPERATURE RATING. SPRINKLER MORE THAN 7'-0" ABOVE THE 7'-0" RADIAL ZONE SHALL BE "INTERMEDIATE" TEMPERATURE RATING.
- POSITION OF UPRIGHT, PENDENT AND SIDEWALL HEADS WITH RESPECT TO CONSTRUCTION AND CONTENTS SHALL BE IN ACCORDANCE WITH NFPA 804.4.3.
- COORDINATE SPRINKLER HEAD LOCATIONS WITH ELECTRICAL AND HVAC WORK.
- SPRINKLER HEADS SHALL NOT BE FIELD PANTED.

SPRINKLER PIPING & FITTINGS

- PIPING FOR SPRINKLER SYSTEMS SHALL BE HELDED OR SEAMLESS STEEL PIPE IN ACCORDANCE WITH ASTM/A500 OR ASTM/A53 AND DESIGNED FOR A WORKING PRESSURE OF 15 PSI.
- SPRINKLER PIPING AND FITTINGS CONSISTING OF CALORIMATED POLYVINYL CHLORIDE (CPVC) SHALL BE ACCEPTABLE WHEN INSTALLED IN ACCORDANCE WITH NFPA 13 SECTION 6.3.6 AND WITH BARRIERS OF THE ASTM STANDARDS SPECIFIED IN TABLE 3.6.1. THIS APPLY TO FIRE PROTECTION SYSTEMS.
- STEEL PIPE SHALL BE MINIMUM SCHEDULE 40 WALL THICKNESS FOR PRESSURES UP TO 3000 HORN JOINED BY WELDING OR ROLLED GROOVE CONNECTION.
- STEEL PIPE JOINED BY THREADED FITTINGS OR GUT GROOVE CONNECTIONS FOR PRESSURE UP TO 3000 SHALL BE MINIMUM SCHEDULE 40 WALL THICKNESS IN PIPE SIZES 8" AND LARGER AND SCHEDULE 40 FOR PIPE SIZES SMALLER THAN 8".
- FITTINGS FOR FIRE PROTECTION PIPING SHALL BE CAST IRON OR MALLEABLE IRON IN ACCORDANCE WITH ANSI STANDARDS AS FOLLOWS:

FITTING	STANDARD
1. CAST IRON - THREADED	ANSI/RM-4
2. CAST IRON - FLANGED	ANSI/RM-1
3. MALLEABLE IRON - THREADED	ANSI/RM-3
4. STEEL - FLANGED	ANSI/RM-3
5. STEEL - HELDED	ANSI/RM-4

IN ADDITION TO THE ABOVE, VICTALINK CG, STYLE 11 AND FULL FLOOR FITTINGS SHALL BE PERMITTED.
- ALL THREADED PIPE SHALL BE REAMED SMOOTH BEFORE BEING INSTALLED. PIPE SHALL NOT BE SPLIT, BENT, FLATTENED NOR OTHERWISE INJURED EITHER BEFORE OR DURING THE INSTALLATION.
- ALL THREADED FITTINGS AND PIPE SHALL BE THREADED IN ACCORDANCE WITH ANSI/HWY 802.01. CARE SHOULD BE TAKEN TO INSURE THAT THE THREADED CONNECTION DOES NOT DAMAGE OR THE FITTING SUFFICIENTLY TO REDUCE THE WATERWAY.
- DRY SPRINKLER SYSTEMS SHALL BE SUBJECT TO A PERMANENT TEST AT 40 PSI OVER A 24 HOUR PERIOD. LEAKAGE SHALL NOT EXCEED 1/2 PSI OVER THE 24 HOUR PERIOD. PROVIDE TEST GAGES AS REQUIRED.
- DRY SPRINKLER SYSTEMS SHALL BE OPERATIONALLY TESTED BY OPENING OF THE INSPECTORS TEST CONNECTION AND MEASURING THE TRIP AND WATER DELIVERY RATES.
- NET SYSTEM SHALL BE OPERATIONALLY TESTED BY OPENING THE INSPECTORS TEST CONNECTION AND MEASURING THE TRIP TIME.
- MAIN DRAIN SHALL BE TESTED BY FULLY OPENING THE MAIN DRAIN VALVE AND FLOWING WATER UNTIL SYSTEM PRESSURE STABILIZES. RECORD NORMAL PRESSURE AND FLOWING PRESSURE. PROVIDE TEST GAGES AS REQUIRED.
- CONTRACTOR SHALL COMPLETE CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR ABOVE GROUND PIPING IN ACCORDANCE WITH NFPA 803 AND SUBMIT TO AUTHORITY HAVING JURISDICTION.
- ALL FLUSHING AND TESTING OPERATIONS SHALL BE IN ACCORDANCE WITH NFPA 803 AND NFPA 804.

SPRINKLER HANGERS & SUPPORTS

- HANGERS AND INSTALLATION METHODS SHALL BE IN ACCORDANCE WITH NFPA 803-2.6 AND 804-5.2.
- HANGERS SHALL BE FABRICATED OF FERROUS MATERIALS. COMPONENTS OF HANGER SYSTEMS ATTACHED DIRECTLY TO THE PIPE OR TO THE BULK STRUCTURE SHALL BE LISTED.
- HANGER ASSEMBLIES SHALL BE RATED FOR THE WEIGHT OF WATER FILLED PIPING PLUS 250% APPLIED AT THE POINT OF HANGER ATTACHMENT.
- WHERE BRASS HANGERS ARE EMPLOYED TO SUPPLY BELM DUCTS OR BELMEL UNITS OR PIPING, ETC., STEEL ANGLES SHALL BE SIZED IN ACCORDANCE WITH NFPA 803-2.6.4.
- HANGER THREADED ROOFS SHALL BE THE SAME SIZE AS THAT APPROVED FOR THE ASSEMBLY BUT NOT LESS THAN 3/8" FOR LINES UP TO AND INCLUDING 4", 1/2" FOR 5", 6" AND 7" LINES AND 1/2" FOR 1/4", 1/2" AND 3/4" LINES.
- MAXIMUM DISTANCE BETWEEN HANGERS FOR HEAVY WALL PIPES SHALL NOT EXCEED 12' FOR LINES SMALLER THAN 1/2" AND 8' FOR LINES 1/2" AND LARGER.
- MAXIMUM DISTANCE BETWEEN HANGERS FOR THREADED LIGHT WEIGHT STEEL PIPE SHALL NOT EXCEED 12' FOR LINES 2" AND SMALLER.
- PROVIDE A MINIMUM OF ONE HANGER FOR EACH LENGTH OF BRANCH LINE PIPING.
- HANGERS SHALL NOT BE LOCATED WITHIN 3" OF THE CENTERLINE OF AN UPRIGHT SPRINKLER.
- THE MAXIMUM UNSUPPORTED LENGTH AT THE END OF A BRANCH LINE SHALL BE 30' FOR UPRIGHT HEADS AND 12' FOR PENDENT HEADS.
- HANGERS AT THE END OF BRANCH LINES SERVING PENDENT HEADS SHALL BE OF THE TYPE WHICH RESIST UPWARD MOVEMENT OF PIPING SUCH AS "ADJUSTABLE CLIP TYPE", ETC.
- THE LENGTH OF AN UNSUPPORTED HANGER TO A SPRINKLER SHALL NOT EXCEED 24' FOR STEEL PIPE OR 2' FOR COPPER PIPE.
- YANG SHALL BE SUPPORTED BY AT LEAST ONE HANGER BETWEEN EACH TWO BRANCH LINES.
- FIRE PROTECTION PIPING SHALL NOT BE SUPPORTED FROM DUCTWORK OR THE PIPING OF OTHER TRADES.
- THE CONTRACTOR MAY COORDINATE WITH CONTRACTORS OF OTHER TRADES TO USE COMMON MEANS OF SUPPORT. SUBMIT FOR APPROVAL ALL PERTINENT DESIGN DATA RELATING TO THE SUPPORT AS WELL AS SPECIFICATION OF THE RESPONSIBILITY FOR THE SUPPORT.
- SUPPORT HANGERS FROM APPROVED CONCRETE INSERTS WHERE SLABS ARE AVAILABLE.
- WHERE HANGERS ARE REQUIRED TO BE MADE FROM OTHER THAN CONCRETE SLABS, SUCH AS PRECAST OR METAL DECKING, SUBMIT PROPOSED METHOD OF SUPPORT TO THE STRUCTURAL ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

WELDING

- WELDING METHODS FOR FIRE PROTECTION PIPING SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) STANDARD K80.1 LEVEL B.5.
- WELDING INSIDE NEW BUILDINGS UNDER CONSTRUCTION SHALL BE PERMITTED ONLY WHEN THE STRUCTURE AND CONTENTS ARE NON-COMBUSTIBLE AND WHEN PROCEDURES COMPLY WITH NFPA 804.
- WELDING IS PERMITTED AT THE CONTRACTORS SHOP OR IN DESIGNATED AREAS ON SITE.
- WELDING IS NOT PERMITTED WITHIN EXISTING BUILDINGS.
- ALL WELDED FITTINGS, EXCEPT PIPE BENT JOINTS, SHALL BE U.S. LISTED.
- WELDING SHALL NOT BE PERMITTED IF THERE IS IMPROBATION OF RAIN, SNOW SLEET OR HIGH WINDS ON THE WELD AREA.
- LIMITATIONS ON WELDING PROCEDURES LISTED IN NFPA 803-5.2.5 AND APPENDIX "A" SHALL APPLY.
- WELDING SHALL BE PERFORMED ONLY BY WELDERS QUALIFIED IN CONNECTION WITH AWS K80.1. WRITTEN WELDING PROCEDURES AND QUALITY ASSURANCE PROCEDURES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS K80.1 AND SHALL BE MAINTAINED ON SITE, AVAILABLE TO THE AUTHORITY HAVING JURISDICTION.
- EACH WELD SHALL BE IMPRINTED ON THE PIPE, ADJACENT TO THE WELD WITH THE WELDERS IDENTIFICATION STAMP.
- MAINTAIN JACOBE WELDING RECORDS IN ACCORDANCE WITH NFPA 803-5.2.4 AVAILABLE FOR INSPECTION BY AUTHORITY HAVING JURISDICTION.

FLUSHING AND TESTING

- FLUSHING OF NEW SPRINKLER SYSTEMS SHALL NOT BE PERFORMED PRIOR TO INDEPENDENT FLUSHING OF THE PRIVATE FIRE SERVICE MAIN AND LEAD-IN PIPING.
- WHERE AN EXISTING PRIVATE FIRE SERVICE MAIN SUPPLIES NEW OR MODIFIED SPRINKLER SYSTEMS, FLUSH MAIN VIA THE FIRE DEPARTMENT CONNECTION PRIOR TO FLUSHING THE SPRINKLER SYSTEM. REMOVE ALARM VALVE, CHECK VALVE AND GASKETS AND INSTALL INDICATING TEST BLANKS AS REQUIRED FOR FLUSHING. REMOVE TEST BLANKS AND REINSTALL CLAMPERS IMMEDIATELY AFTER FLUSHING.
- WHERE FLUSHING REVEALS THAT A LINE SECTION IS SEVERELY OBSTRUCTED WITH PACKED MATERIALS, OPEN PIPING AND CLEAN BY ROODING OR OTHER POSITIVE MEANS.
- WATER SHOULD BE ADMITTED TO DRY SPRINKLER SYSTEM SEVERAL DAYS BEFORE FLUSHING TO SOFTEN SCALE, ETC. PRECAUTIONS SHOULD BE TAKEN TO PREVENT FREEZING.
- ALL NEW WET AND DRY SPRINKLER SYSTEMS OR MODIFIED PORTIONS OF EXISTING SYSTEMS SHALL BE HYDROSTATICALLY TESTED AT NOT LESS THAN 200% OR MAXIMUM WORKING PRESSURE PLUS 50% WHICHEVER IS GREATER. TEST DURATION SHALL BE 2 HOURS. PROVIDE TEST GAGES AS REQUIRED.
- NO VISIBLE LEAKAGE SHALL BE PERMITTED DURING HYDROSTATIC TEST PERIOD OTHER THAN MINOR BEADING WHICH DOES NOT RESULT IN DROPPING.
- ALL HYDROSTATIC TESTS SHALL BE WITNESSED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
- ADDITIONS AND CORROSIVE CHEMICALS, SODIUM SILICATE, OR DERIVATIVES OF SODIUM SILICATE, BRINE OR OTHER CHEMICALS SHALL NOT BE USED FOR TESTING SYSTEMS OR SEALING LEAKS.
- DRY PIPE TEST VALVE CLAMPERS SHALL BE REMOVED OR LIFTED FROM ITS SEAT DURING ALL TESTS INVOLVING PRESSURES OVER 500 PSI.
- DRY SPRINKLER SYSTEMS SHALL BE SUBJECT TO A PERMANENT TEST AT 40 PSI OVER A 24 HOUR PERIOD. LEAKAGE SHALL NOT EXCEED 1/2 PSI OVER THE 24 HOUR PERIOD. PROVIDE TEST GAGES AS REQUIRED.
- DRY SPRINKLER SYSTEMS SHALL BE OPERATIONALLY TESTED BY OPENING OF THE INSPECTORS TEST CONNECTION AND MEASURING THE TRIP AND WATER DELIVERY RATES.
- NET SYSTEM SHALL BE OPERATIONALLY TESTED BY OPENING THE INSPECTORS TEST CONNECTION AND MEASURING THE TRIP TIME.
- MAIN DRAIN SHALL BE TESTED BY FULLY OPENING THE MAIN DRAIN VALVE AND FLOWING WATER UNTIL SYSTEM PRESSURE STABILIZES. RECORD NORMAL PRESSURE AND FLOWING PRESSURE. PROVIDE TEST GAGES AS REQUIRED.
- CONTRACTOR SHALL COMPLETE CONTRACTORS MATERIAL AND TEST CERTIFICATE FOR ABOVE GROUND PIPING IN ACCORDANCE WITH NFPA 803 AND SUBMIT TO AUTHORITY HAVING JURISDICTION.
- ALL FLUSHING AND TESTING OPERATIONS SHALL BE IN ACCORDANCE WITH NFPA 803 AND NFPA 804.

FIRE PROTECTION SYMBOLS

PIPING

- PROVIDE A SIGN AT SPRINKLER AND/OR STANDPIPE VALVE ROOM DOOR INDICATING "SPRINKLER CONTROL VALVE AND/OR STANDPIPE CONTROL VALVES AS APPROPRIATE IN ACCORDANCE WITH BOCA CODES. LETTERS SHALL BE 2" CONFORMING COLOR AND BE AT LEAST 4" HIGH.
- WHEN CONTROL VALVES FOR A COMBINED STANDPIPE/SPRINKLER SYSTEM ARE LOCATED IN A SEPARATE ROOM PROVIDE A DOOR SIGN INDICATING STANDPIPE CONTROL VALVES OTHERWISE PROVIDE A 2" X 4" GIAN HAND SIGN AT CONTROL VALVE PROTRUDERS MINOR 1/8" OR APPROVED EQUAL.
- SEE "FIRE DEPARTMENT CONNECTIONS" FOR ESCUTCHEON REQUIREMENTS.
- PROVIDE A FRAMED INVERTED T ADJACENT TO VALVE HANGER FOR HYDRAULICALLY DESIGNED SYSTEMS. MARKETS SHALL BE IN ACCORDANCE WITH NFPA 804.2.5.
- ALL VALVES SHALL BE TAGGED IN ACCORDANCE WITH NFPA 803-2.8 AND BOCA 1000A.4.

SHOP DRAWINGS

- CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARATION OF SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASE OR FABRICATION OF MATERIALS, EQUIPMENT, ETC.
- SHOP DRAWINGS FOR HYDRAULICALLY DESIGNED SYSTEMS SHALL BE PREPARED IN ACCORDANCE WITH NFPA 803, CHAPTER 6. AS A MINIMUM, SHOP DRAWINGS SHALL INCLUDE:
 - HAZARD CLASSIFICATION.
 - SPRINKLER SYSTEM WATER REQUIREMENTS, INCLUDING INSIDE HOSE AND OUTSIDE HYDRANT ALLOWANCES.
 - WATER SUPPLY CHARACTERISTICS.
 - SPRINKLER PLAN WITH HYDRAULIC REFERENCE POINTS, PIPING SIZES AND LENGTHS, ETC.
 - DESCRIPTION OF SPRINKLERS USED.
 - ELEVATION INFORMATION.
 - HYDRAULIC CALCULATIONS.
 - SPRINKLER SYSTEMS INCLUDING OTHER THAN 1/2" ORIFICE SPRINKLERS.
 - PIPING SPECIFICATIONS.
- THE FOLLOWING SYSTEMS SHALL BE HYDRAULICALLY DESIGNED:
 - SYSTEMS HAVING STANDPIPES IN BUILDINGS WHICH ARE NOT COMPLETELY SPRINKLERED.
 - SYSTEMS WITH OPEN SPRINKLERS OR DRUDGE SYSTEMS.
 - SYSTEMS WITH COMBINED SPRINKLER AND HOSE STREAM OR HYDRANT ALLOWANCES.
 - SPRINKLER SYSTEMS INCLUDING OTHER THAN 1/2" ORIFICE SPRINKLERS.
 - SYSTEMS HAVING UNSUAL PIPING REQUIREMENTS.

VALVES

- OS & Y GATE VALVE
- GATE VALVE (NORMALLY OPEN)
- GATE VALVE (NORMALLY CLOSED)
- CHECK VALVE
- BALL VALVE
- GLOBE PETCOCK
- UNKNOWN DRAIN CONNECTION
- WET ALARM VALVE
- DRY VALVE

SPRINKLER HEADS/NOZZLES

- DOUBLE CHECK VALVE ASSEMBLY
- PENDANT SPRINKLER HEAD
- UPRIGHT SPRINKLER HEAD
- PENDANT SPRINKLER HEAD (PROTECTION ABOVE 4' BELOW G.L.O.)
- DRY PENDANT SPRINKLER HEAD (LENGTH AS REQ'D.)
- SIDEWALL SPRINKLER HEAD
- DRY SIDEWALL SPRINKLER HEAD

BACKFLOW PREVENTERS

- DOUBLE CHECK VALVE ASSEMBLY (ULFM APPROVED)

FIRE DEPARTMENT CONNECTIONS

- MALL WTD. 5/8" INCH CONNECTION (ESGUTCHEON)
- GARDIANS SURFACE MTD. OR FLUSH-SEE SPEC.)
- RED LIGHT & FIRE DEPT. CONNECTION (WEATHERPROOF)

ALARM DEVICES

- WATER MOTOR BONG
- PRESSURE SWITCH
- FLOW SWITCH
- TAMPER SWITCH

MISCELLANEOUS

- UTILITY WATER METER
- PRESSURE GAUGE (0-3000)
- FILL GIP OR DRIP GIP
- AN COMPRESSOR PRESSURE RELIEF VALVE FOR DRY PIPE VALVE

ABBREVIATIONS

APP	ABOVE FINISHED FLOOR	T	TEE
CL6	CEILING	VIF	VERIFY IN FIELD
CO	CORNER	VFV	VALVE
CFT	CUBIC FEET	W	WITH
CV	CURB VALVE	WTR	WATER
DN	DOWN		
EL	ELBOW		
ELEC	ELECTRIC		
ELEV	ELEVATION		
FPS	FEET PER SECOND		
FT.	FEET		
GAL	GALLONS		
GPM	GALLONS PER MINUTE		
HP	HEAD		
HP	HORSEPOWER		
IN	INCHES		
IN	INTERNATIONAL PIPE SIZE		
IPS	LINEAR FEET		
LF	FOOT		
MTD	MOUNTED		
NTS	NOT TO SCALE		
OD	OUTSIDE DIAMETER		
OS&Y	OUTSIDE STEM & YOKER		
PV	POST INDICATOR VALVE		
PSI	POUNDS PER SQUARE INCH		
RN	RISER NIPPLE		

Revisions

Date	Issue	Description
03-06-15	1	ISSUED FOR DCA FILING
03-18-15	2	ISSUED FOR BIDDING

Consultants

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Project

INTERIOR RENOVATIONS
AT THE
HOLLY - C RESIDENCE

RAMAPO COLLEGE
OF NEW JERSEY
505 Ramapo Valley Road
Mahwah, New Jersey 07430-1680

Client

RAMAPO COLLEGE
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Cert./Lic. No.	
Date	02-03-15 Scale AS NOTED
Drawn By	MD Checked By gg

FIRE PROTECTION NOTES AND SYMBOLS

Work Order No. Dwg. No.

4698C FP001