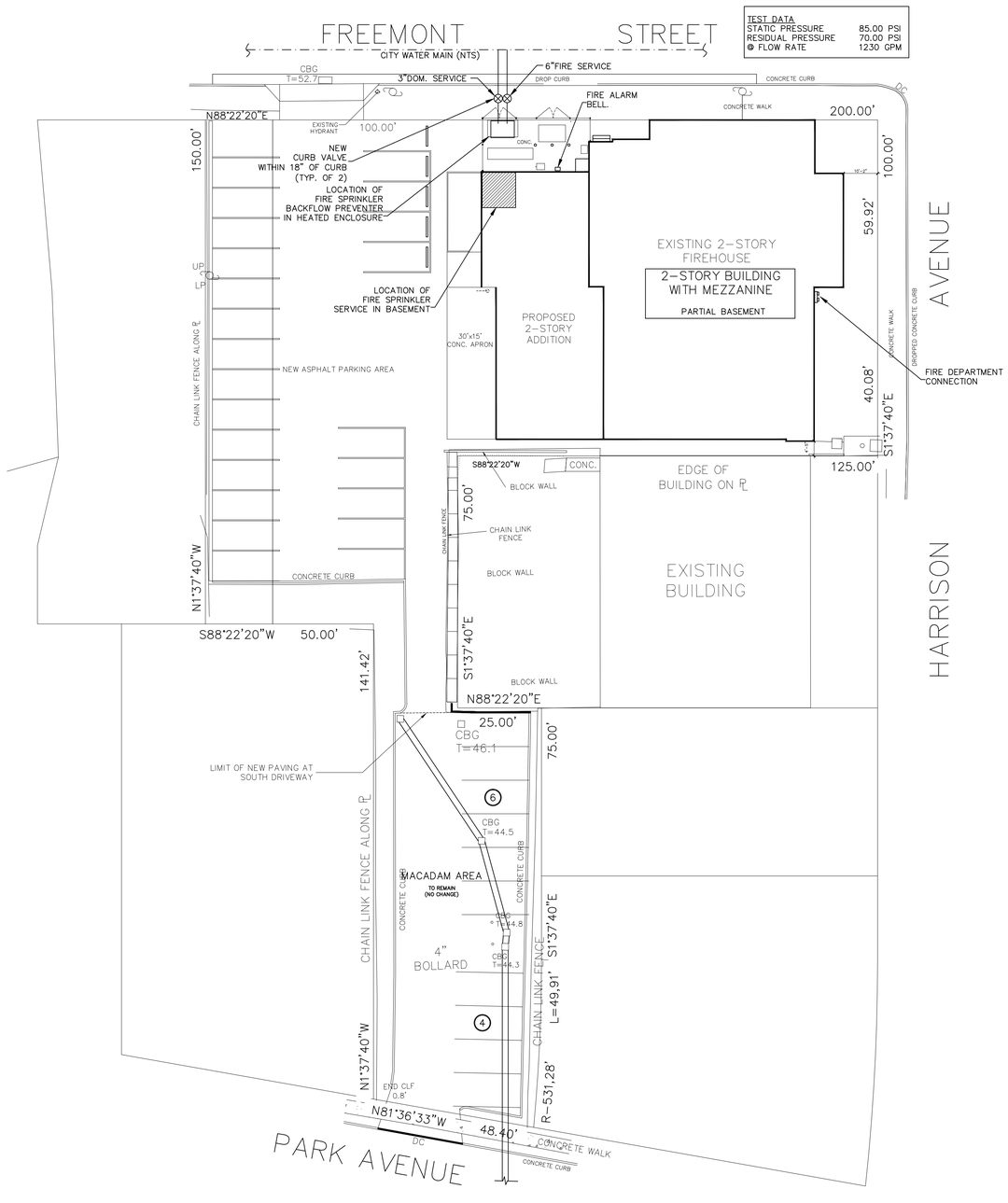

1 FS-1 FIRE SPRINKLER SYSTEM PLOT PLAN

3/16" = 1'-0"

1/32"=1'-0" 25' 0 25 50

PROJECT SCOPE OF WORK:
THE PROJECT WILL CONSIST OF:

1. THE INSTALLATION OF A NEW WET & DRY FIRE SPRINKLER SYSTEM.
2. PROVIDE AN ADD/ALT PRICING FOR THE ATTIC DRY SPRINKLER SYSTEM.
3. SYSTEMS SHALL INCLUDE ALL MATERIALS AND LABOR TO PROVIDE A BUILDING DEPARTMENT, FIRE MARSHAL APPROVED AND CODE COMPLIANT FIRE SPRINKLER WET & DRY PIPE SYSTEMS.
4. ALL AREAS OF THE BUILDING SHALL REQUIRE SPRINKLER COVERAGE UNLESS SPECIFICALLY NOTED AS NOT REQUIRED.
5. COMPLY WITH THE CURRENT NYS BUILDING AND FIRE CODES. THIS SHALL INCLUDE THE REQUIREMENTS SET FORTH IN NFPA 13 FIRE SPRINKLERS SYSTEMS AND TOWN REQUIREMENTS.
6. THE CONNECTION FROM THE STREET MUNICIPAL WATER SYSTEM UP TO AND INCLUDING THE BUILDINGS HOUSE CONTROL VALVE SHALL BE BY THE PLUMBING CONTRACTOR.

FIRE SERVICE DESIGN NOTES

1. FIRE SERVICE FOR SPRINKLER SERVICE SHALL BE IN ACCORDANCE WITH NFPA 24 "STANDARD FOR THE INSTALLATION OF PRIVATE SERVICE MAINS AND THEIR APPURTENANCES"AND NEW YORK STATE UNIFORM FIRE CODE

2. ALL FIRE SERVICE PIPING AND EQUIPMENT SHALL CONFORM TO ALL LOCAL AND NEW YORK STATE DEPARTMENT OF HEALTH REGULATIONS TO PREVENT POSSIBLE CONTAMINATION OF THE PUBLIC WATER SYSTEM AND INSTALL A BACKFLOW PREVENTION DEVICE LISTED FOR FIRE SERVICE.

3. UNDERGROUND FIRE SERVICE PIPING, FITTINGS, AND JOINTS, SHALL BE IN ACCORDANCE WITH NFPA 24 CHAPTER 10, TABLE 10.1.1 AND TABLE 10 2.1 (a) DUCTILE IRON CEMENT MORTAR LINED PIPING AND FITTINGS AWWA C104, OR DUCTILE IRON POLYETHYLENE ENCASED PIPE AND FITTINGS AWWA C105. OR POLYVINYL CHLORIDE (PVC) PRESSURE PIPE AWWAC 900,AND CHLORINATED POLYVINYL CHLORIDE SCHEDULE 80 THREADED FITTINGS ASTM F 437.

4. THE BURIAL DEPTH OF THE FIRE SERVICE SHALL BE DETERMINED BY THE MAXIMUM DEPTH OF FROST PENETRATION IN THE LOCALITY WHERE THE PIPE WILL BE INSTALLED, THE TOP OF THE PIPE SHALL BE BURIED NOT LESS THAN 12 INCHES BELOW THE FROST LINE OF THAT LOCALITY, PER NFPA 10.4.1 – 10.4.2

5. BACKFILL SHALL BE TAMPED IN LAYERS OR PUDDLED UNDER AND AROUND PIPES TO PREVENT SETTLEMENT OF LATERAL MOVEMENT AND SHALL CONTAIN NO ASHES, CINDERS, REFUSE, ORGANIC MATTER OR OTHER CORROSIVE MATERIALS. FROZEN EARTH SHALL NOT BE USED OR ROCKS PLACED IN TRENCHES. TRENCHES CUT THROUGH ROCK, TAMPED BACKFILL SHALL BE USED FOR A MINIMUM OF 6 INCHES UNDER OR AROUND PIPE,AND FOR AT LEAST 2 FEET ABOVE THE PIPE PER NFPA 24 10.9.1 – 10.9.4

6. IN ADDITION TO A BACKFLOW PREVENTION DEVICE THE WATER SUPPLIES SHALL BE DESIGNED IN ACCORDANCE WITH THE FOLLOWING:
A. VALVES SHALL NOT BE INSTALLED BETWEEN THE DOMESTIC WATER RISER CONTROL VALVE AND THE SPRINKLERS/STANDPIPE WITH THE EXCEPTION TO AN APPROVED INDICATING CONTROL VALVE SUPERVISED IN THE OPEN POSITION IN ACCORDANCE WITH NEW YORK STATE UNIFORM FIRE CODE SECTION 903.4.

7.ALL TEES, PLUGS, CAPS, BENDS, REDUCERS, VALVES AND HYDRANT BRANCHES SHALL BE RESTRAINED AGAINST MOVEMENT BY USING THRUST BLOCKS IN ACCORDANCE WITH NFPA 24 10.8.2, OR RESTRAINED JOINT SYSTEMS IN ACCORDANCE WITH 10.8.3.

8. THRUST BLOCKS SHALL BE CONSIDERED SATISFACTORY WHERE SOIL IS SUITABLE FOR THERE USE, THRUST BLOCK CONSTRUCTION SHALL BE A CONCRETE MIX NOT LEANER THAN ONE PART CEMENT, TWO AND ONE HALF PARTS SAND, AND FIVE PARTS STONE. PER NFPA 24 10.8.2.1 – 10.8.2.2

9.THRUST BLOCKS SHALL BE PLACED BETWEEN UNDISTURBED EARTH AND THE FITTING TO BE RESTRAINED AND SHALL BE CAPABLE OF SUCH BEARING TO ENSURE ADEQUATE RESISTANCE TO THE THRUST TO BE ENCOUNTERED. PER

10. UNDERGROUND FIRE SERVICE PIPING FROM THE WATER SUPPLY TO SYSTEM RISER, AND LEAD-IN CONNECTIONS TO SYSTEM RISER SHALL BE COMPLETELY FLUSHED BEFORE CONNECTION IS MADE TO DOWNSTREAM FIRE PROTECTION PIPING THE MINIMUM FLOW RATE OF FLOW SHALL NOT BE LESS THAN 10 FT/SEC. VELOCITY. PER NFPA 24 10.10.2.1 – 10.10.2.1.3

11. ALL UNDERGROUND FIRE SERVICE PIPING SHALL BE DESIGNED TO WITHSTAND A SYSTEM WORKING PRESSURE OF 150 PSI, CORROSION FROM SOIL CONDITIONS, FIRE RESISTANCE, DEPTH, AND EXTERNAL LOADS INCLUDING EARTH LOADS INSTALLATION BENEATH BUILDINGS AND TRAFFIC OR VEHICLE LOADS PER NFPA 24 10.1.4 – 10.1.5

12. THE FIRE SERVICE MAIN SHALL BE PROVIDED WITH A LISTED POST INDICATOR VALVE LOCATED TO CONTROL ALL SOURCES OF WATER SUPPLY, THE AUTHORITY HAVING JURISDICTION SHALL BE PERMITTED TO WAIVE THE REQUIREMENT FOR THE POST INDICATOR VALVE WHERE A PROVISION TO INSTALL A LISTED NON-INDICATING UNDERGROUND GATE VALVE (CURB VALVE) WITH AN APPROVED ROADWAY BOX, COMPLETE WITH "T" WRENCH PER NFPA 24 6.3.1 – 6.3.2 AND 6.1.5 CONTRACTOR SHALL VERIFY WITH LOCAL AUTHORITY.

13. UNDERGROUND DOMESTIC WATER SUPPLY PIPING RUNNING HORIZONTAL AND PARALLEL TO WALLS SHALL BE LOCATED A MINIMUM OF 3' – 0" FROM FOOTINGS OR BEARING WALLS, WHERE PIPING IS INSTALLED PARALLEL TO AND DEEPER THAN FOOTINGS IT SHALL BE NO DEEPER THAN 3' – 0" EXCEPT WHERE A GREATER DEPTH TO DISTANCE RATIO IS DEEMED MORE SAFE. PER NEW YORK STATE UNIFORM PLUMBING CODE SECTION 305.5

14. UNDERGROUND DOMESTIC WATER SUPPLY PIPING SHALL NOT BE INSTALLED WITHIN 5' – 0" HORIZONTALLY OF, BUILDING SEWER. DOMESTIC WATER SHALL NOT BE LOCATED IN, UNDER OR ABOVE CESSPOOLS, SEPTIC TANKS, SEPTIC TANK DRAINAGE FIELDS, OR SEEPAGE PITS. THE BOTTOM OF THE DOMESTIC WATER SUPPLY PIPING WHEN CROSSING SEWAGE LINES SHALL BE AT LEAST 12" ABOVE THE TOP OF THE SEWAGE PIPING HIGH GROUNDWATER, & CONTAMINATED SOIL PER NEW YORK STATE UNIFORM PLUMBING CODE SECTIONS 603.2, 603.2.1, & 605.2

N

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HARRISON FIRE DEPT.
PROPOSED ADDITION
206 HARRISON AVE
HARRISON, NY 10528

FIRE SPRINKLER SYSTEM PLOT PLAN

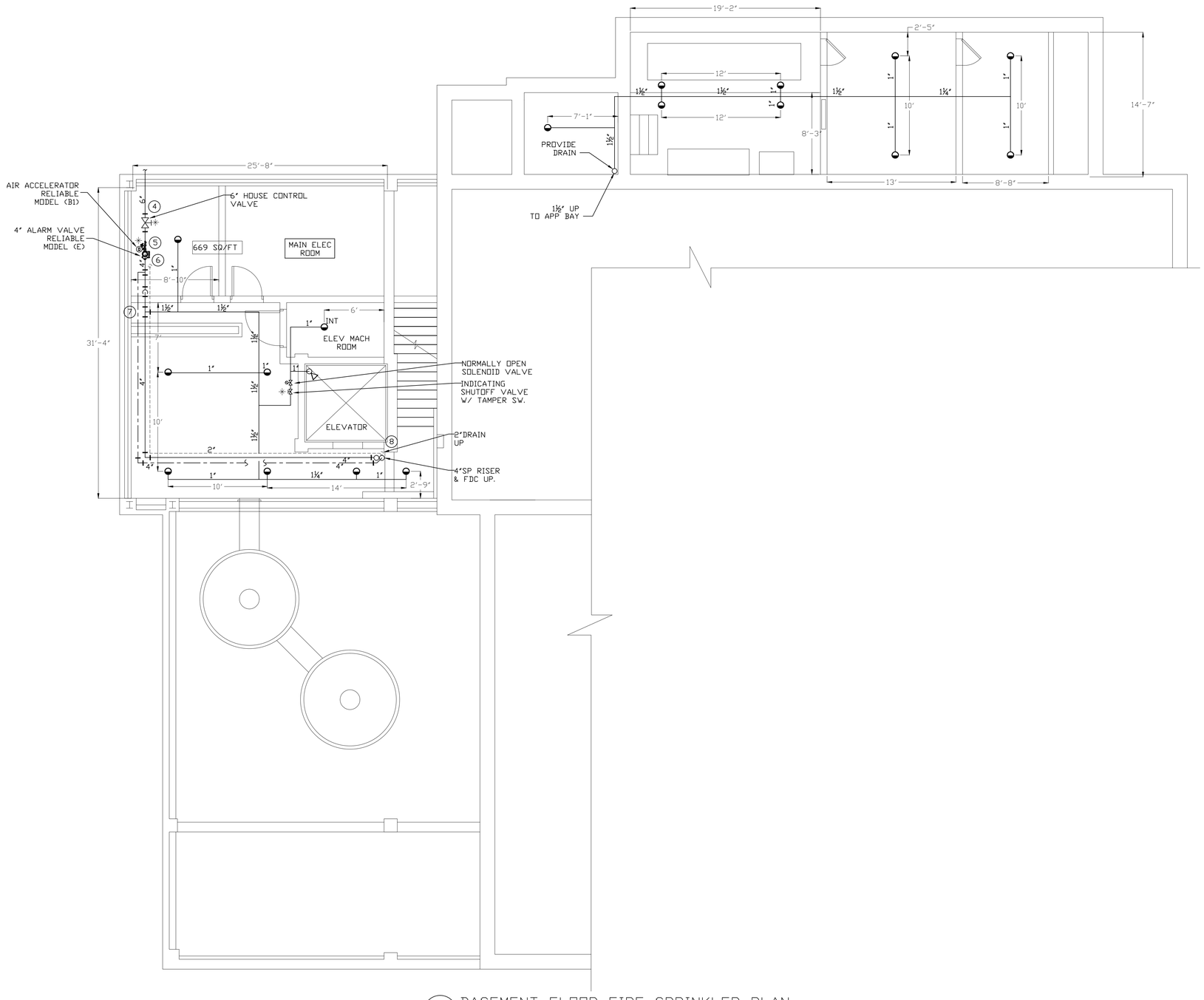
PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: F/2020/HFD 2020-04

DRAWING#:

FS-1



1 FS-2 BASEMENT FLOOR FIRE SPRINKLER PLAN

3/16" = 1'-0"

3/16"=1'-0" 5' 0 5 10

18 SPRINKLER HEADS

ORDINARY HAZARD OCCUPANCY
DESIGN DENSITY 0.15 GPM/SQ. FT.

LEGEND

◉	UPRIGHT SPRINKLER (DRY SYS)
⊠	CONCEALED PENDANT SPRINKLERS
◇	CONCEALED SPACE SPRINKLER
▽	SIDEWALL SPRINKLER
◒	UPRIGHT SPRINKLER ON SPRIG
EC	EXTENDED COVERAGE SPRINKLER
INT	INTERMEDIATE TEMPERATURE
(8)	NODE
———	SPRINKLER PIPING
- - - - -	SPRINKLER DRAIN
—— - ——	FIRE DEPT CONNECTION PIPING

PLAN NOTES:

1. HEADS SHALL BE LOCATED AND SPACED AS PER NFPA 13 AND NYS FIRE CODE REQUIREMENTS. VERIFY LOCATIONS PRIOR TO INSTALLATION. HEADS SHALL BE SPACED AS PER NFPA 13 AND THE MANUFACTURER'S REQUIREMENTS.
2. ALL PIPING SHALL BE CAPABLE OF BEING DRAINED. PROVIDE DRAINS AND PIPING AT ANY TRAPPED LOCATIONS.
3. ALL PIPING SUPPORTS SHALL HAVE SEISMIC RESTRAINT. TYPICAL OF ALL. SEE NOTES PERTAINING TO RESTRAINT.
4. COORDINATE HEAD LOCATIONS WITH OTHER TRADES PRIOR TO PLACEMENT.

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BASEMENT
FIRE SPRINKLER PLAN

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: F/2020/HFD 2020-04

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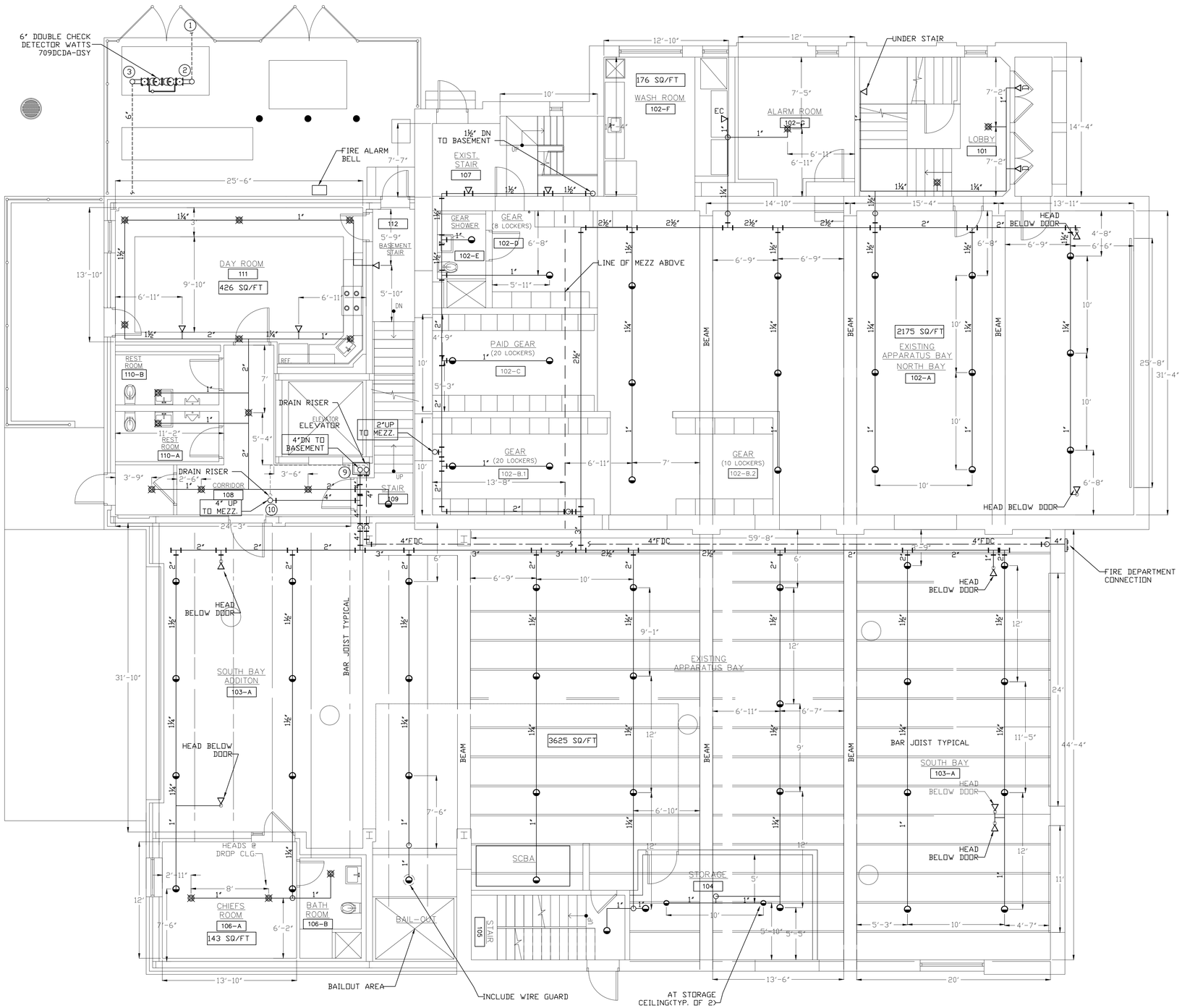
FS-2



1 / FS-3 FIRST FLOOR FIRE SPRINKLERE PLAN

3/16" = 1'-0"

3/16"=1'-0" 5' 0 5 10

91 SPRINKLER HEADS

ORDINARY HAZARD OCCUPANCY
DESIGN DENSITY 0.15 GPM/SQ. FT.

LEGEND

◉	UPRIGHT SPRINKLER (DRY SYS)
⊠	CONCEALED PENDANT SPRINKLERS
◇	CONCEALED SPACE SPRINKLER
▽	SIDEWALL SPRINKLER
◒	UPRIGHT SPRINKLER ON SPRIG
EC	EXTENDED COVERAGE SPRINKLER
INT	INTERMEDIATE TEMPERATURE
⑧	NODE
———	SPRINKLER PIPING
- - - -	SPRINKLER DRAIN
———	FIRE DEPT CONNECTION PIPING

PLAN NOTES:

1. HEADS SHALL BE LOCATED AND SPACED AS PER NFPA 13 AND NYS FIRE CODE REQUIREMENTS. VERIFY LOCATIONS PRIOR TO INSTALLATION. HEADS SHALL BE SPACED AS PER NFPA 13 AND THE MANUFACTURER'S REQUIREMENTS.
2. ALL PIPING SHALL BE CAPABLE OF BEING DRAINED. PROVIDE DRAINS AND PIPING AT ANY TRAPPED LOCATIONS.
3. ALL PIPING SUPPORTS SHALL HAVE SEISMIC RESTRAINT. TYPICAL OF ALL. SEE NOTES PERTAINING TO RESTRAINT.
4. FIRE DEPARTMENT CONNECTION PIPING SHALL BE INSTALLED AS PER NFPA 13, SIAMESE LOCATION SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION.
5. COORDINATE HEAD LOCATIONS WITH OTHER TRADES PRIOR TO PLACEMENT.
6. PROVIDE SPRINKLER PROTECTION UNDER APPARATUS BAY DOORS. WHEN DOORS ARE OPEN HEADS SHALL PROTECT THESE AREAS. STANDARD HEADS SHALL BE USED IN ALL ROOMS WITHIN APPARATUS BAY AREAS UON.
7. THE FIRE ALARM BELL LOCATION SHALL BE APPROVED BY THE AUTHORITY HAVING JURISDICTION PRIOR TO PLACEMENT.

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FIRST FLOOR
FIRE SPRINKLER PLAN

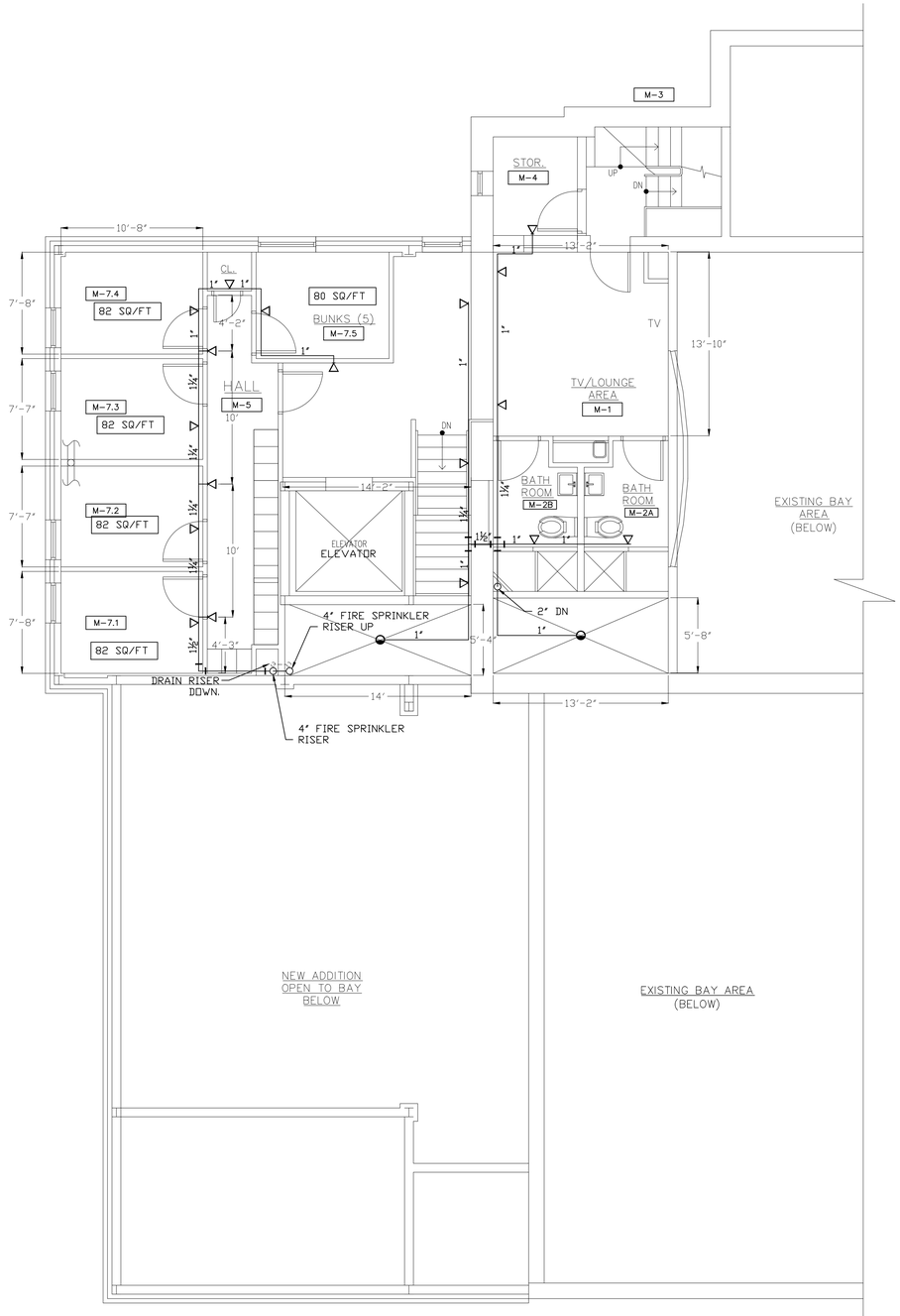
PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: F/2020/HFD 2020-04

DRAWING#:

FS-3



1 FS-4 MEZZANINE FIRE SPRINKLER PLAN

3/16" = 1'-0"

3/16"=1'-0" 5' 0 5 10

N

20 SPRINKLER HEADS

LIGHT HAZARD OCCUPANCY
DESIGN DENSITY 0.10 GPM/SQ. FT.

LEGEND

◉	UPRIGHT SPRINKLER (DRY SYS)
⊠	CONCEALED PENDANT SPRINKLERS
◇	CONCEALED SPACE SPRINKLER
▽	SIDEWALL SPRINKLER
◒	UPRIGHT SPRINKLER ON SPRIG
EC	EXTENDED COVERAGE SPRINKLER
INT	INTERMEDIATE TEMPERATURE
(8)	NODE
———	SPRINKLER PIPING
- - - - -	SPRINKLER DRAIN
—— - ——	FIRE DEPT CONNECTION PIPING

PLAN NOTES:

1. HEADS SHALL BE LOCATED AND SPACED AS PER NFPA 13 AND NYS FIRE CODE REQUIREMENTS. VERIFY LOCATIONS PRIOR TO INSTALLATION. HEADS SHALL BE SPACED AS PER NFPA 13 AND THE MANUFACTURER'S REQUIREMENTS.
2. ALL PIPING SHALL BE CAPABLE OF BEING DRAINED. PROVIDE DRAINS AND PIPING AT ANY TRAPPED LOCATIONS.
3. ALL PIPING SUPPORTS SHALL HAVE SEISMIC RESTRAINT. TYPICAL OF ALL. SEE NOTES PERTAINING TO RESTRAINT.
4. COORDINATE HEAD LOCATIONS WITH OTHER TRADES PRIOR TO PLACEMENT.

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MEZZANINE
FIRE SPRINKLER PLAN

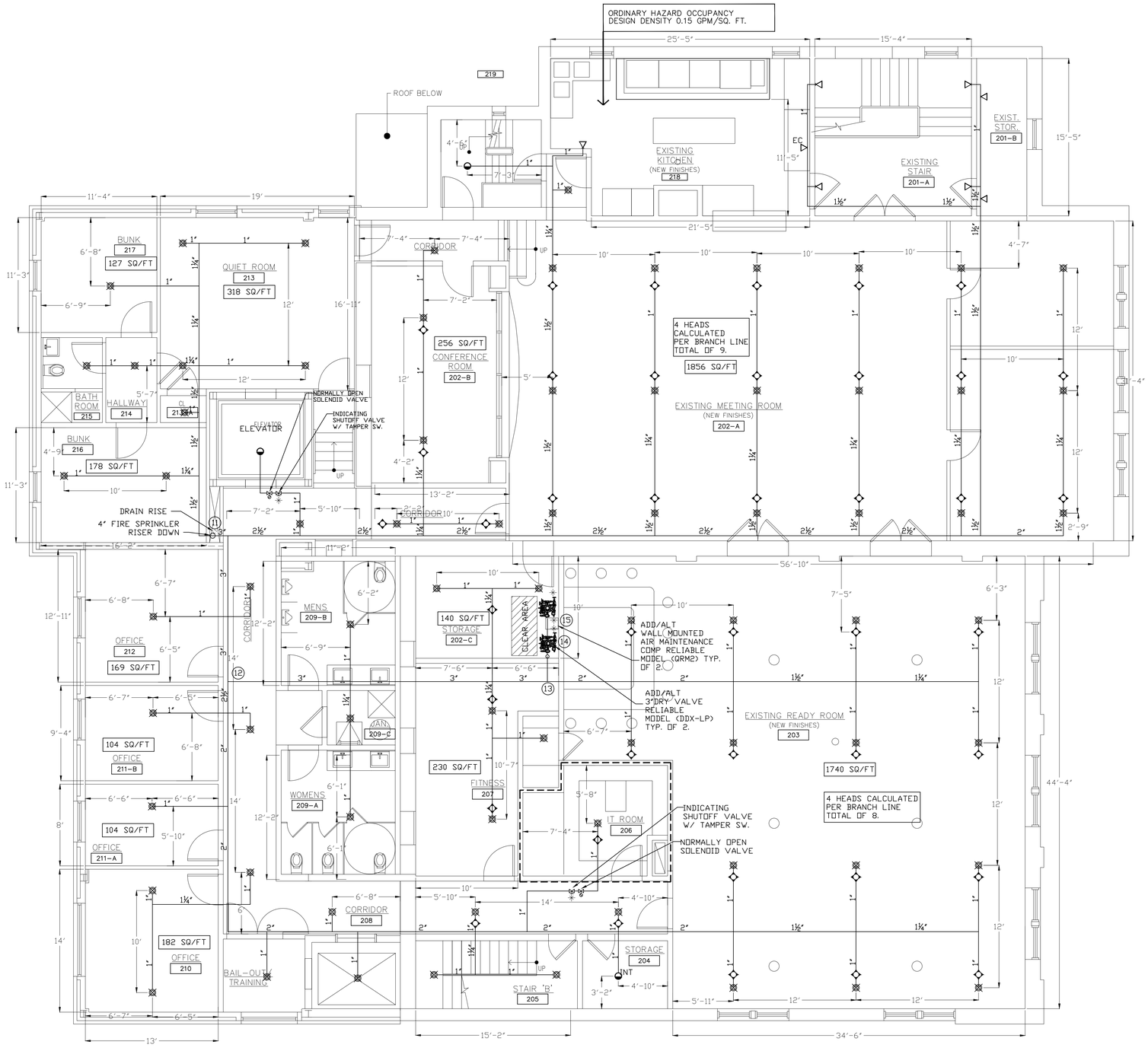
PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: F/2020/HFD 2020-04

DRAWING#:

FS-4



1 FS-5 SECOND FLOOR FIRE SPRINKLER PLAN

3/16" = 1'-0"

3/16"=1'-0" 5' 0 5 10

N

124 SPRINKLER HEADS

LIGHT HAZARD OCCUPANCY
DESIGN DENSITY 0.10 GPM/SQ. FT.

LEGEND

◉	UPRIGHT SPRINKLER (DRY SYS)
⊠	CONCEALED PENDANT SPRINKLERS
◇	CONCEALED SPACE SPRINKLER
▽	SIDEWALL SPRINKLER
◒	UPRIGHT SPRINKLER ON SPRIG
EC	EXTENDED COVERAGE SPRINKLER
INT	INTERMEDIATE TEMPERATURE
⑧	NODE
———	SPRINKLER PIPING
- - - - -	SPRINKLER DRAIN
—— ——	FIRE DEPT CONNECTION PIPING

PLAN NOTES:

1. HEADS SHALL BE LOCATED AND SPACED AS PER NFPA 13 AND NYS FIRE CODE REQUIREMENTS. VERIFY LOCATIONS PRIOR TO INSTALLATION. HEADS SHALL BE SPACED AS PER NFPA 13 AND THE MANUFACTURER'S REQUIREMENTS.
2. ALL PIPING SHALL BE CAPABLE OF BEING DRAINED. PROVIDE DRAINS AND PIPING AT ANY TRAPPED LOCATIONS.
3. ALL PIPING SUPPORTS SHALL HAVE SEISMIC RESTRAINT. TYPICAL OF ALL. SEE NOTES PERTAINING TO RESTRAINT.
4. COORDINATE HEAD LOCATIONS WITH OTHER TRADES PRIOR TO PLACEMENT.
5. SPRINKLERS LOCATED NEAR COOKLINE SHALL BE OF THE INTERMEDIATE TEMPERATURE RATING.

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PROPOSED ADDITION
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SECOND FLOOR
FIRE SPRINKLER PLAN

PROJECT #: 2020-04

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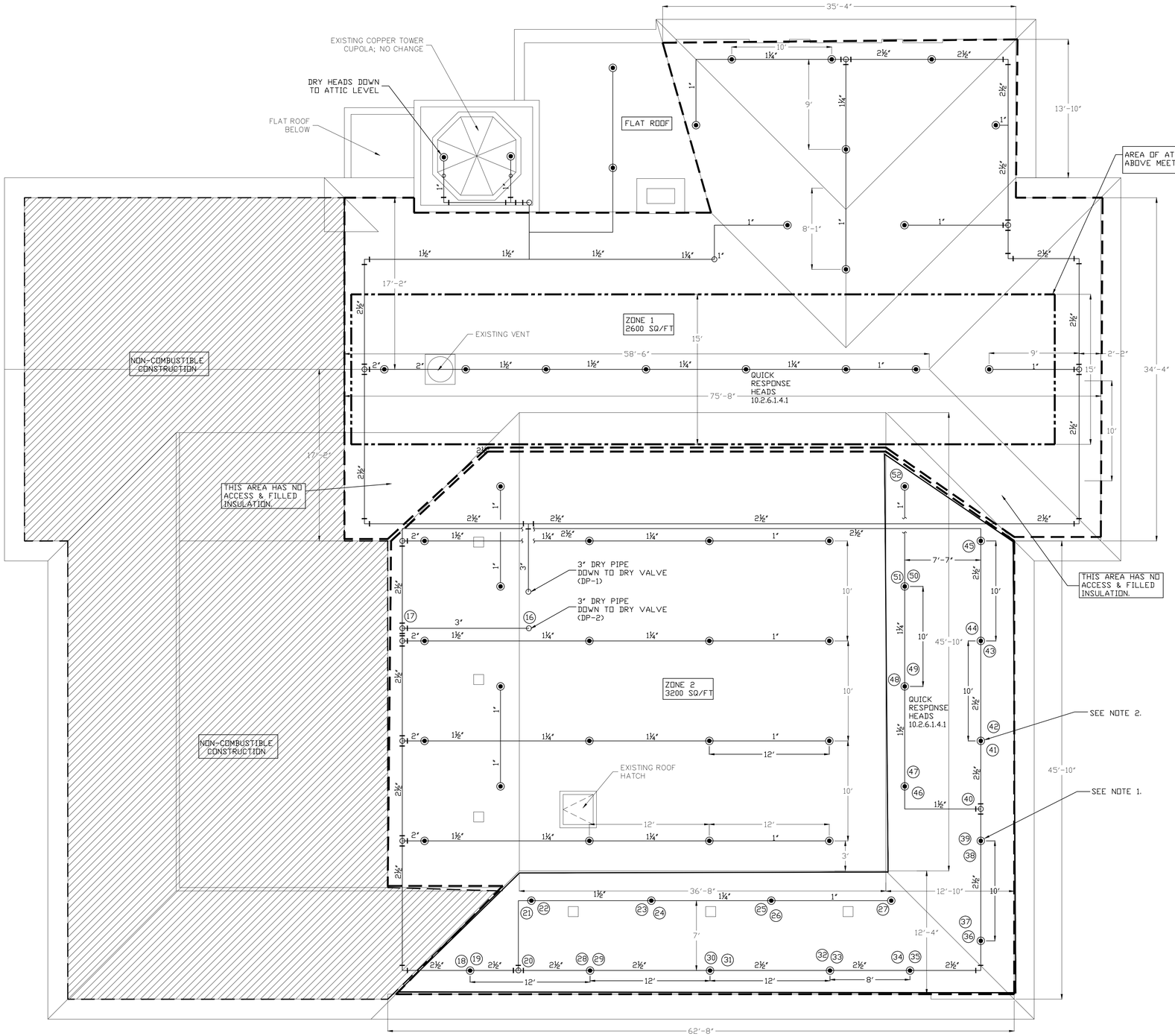
FS-5



59 SPRINKLER HEADS
5,800 SQ/FT ATTIC AREA

DESIGN AREA	
1500 SQ/FT ATTIC FL AREA	
+450 SQ/FT 30% DRY SYS.	19.3.3.2.5
+450 SQ/FT 30% SLOPED CLG.	19.3.3.2.4
TOTAL CALCULATED AREA OF=2400 SQ/FT	

LIGHT HAZARD OCCUPANCY
DESIGN DENSITY 0.10 GPM/SQ. FT.

LEGEND

◉	UPRIGHT SPRINKLER (DRY SYS)
⊠	CONCEALED PENDANT SPRINKLERS
◇	CONCEALED SPACE SPRINKLER
▽	SIDEWALL SPRINKLER
◒	UPRIGHT SPRINKLER ON SPRIG
EC	EXTENDED COVERAGE SPRINKLER
INT	INTERMEDIATE TEMPERATURE
⊛	NODE
———	SPRINKLER PIPING
- - - - -	SPRINKLER DRAIN
——— — ———	FIRE DEPT CONNECTION PIPING

PLAN NOTES:
1. DRY HEADS SHALL BE LOCATED A MIN. OF 5'-0" FROM EAVE AND JOIST INTERSECTION AS PER SECTION 8.6.4.1.4.3 (TYPICAL).
2. WHERE SPRINKLER SPACING EXCEEDS 8 FEET PERPENDICULAR TO THE SLOPE SPRINKLER DISCHARGE PRESS SHALL BE 20 PSI. NFPA 13 19.4.3.4.2
3. ALL DRY SYSTEM PIPING SHALL BE CAPABLE OF BEING DRAINED. PITCHED TO PROVIDE SLOPE BACK TO DRY VALVE.
4. INCLUDE DRUM DRIP AUXILIARY DRAINS AS INDICATED WITHIN THE DRY SYSTEM.
5. ALL PIPING IN ATTIC SHALL BE SCHEDULE 40 STEEL.

N

1 / FS-6 (ADD/ALTERNATE) ATTIC FIRE SPRINKLER/STANDPIPE PLAN
3/16" = 1'-0"

3/16"=1'-0" 5' 0 5 10

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(ADD/ALTERNATE) ATTIC
FIRE SPRINKLER PLAN

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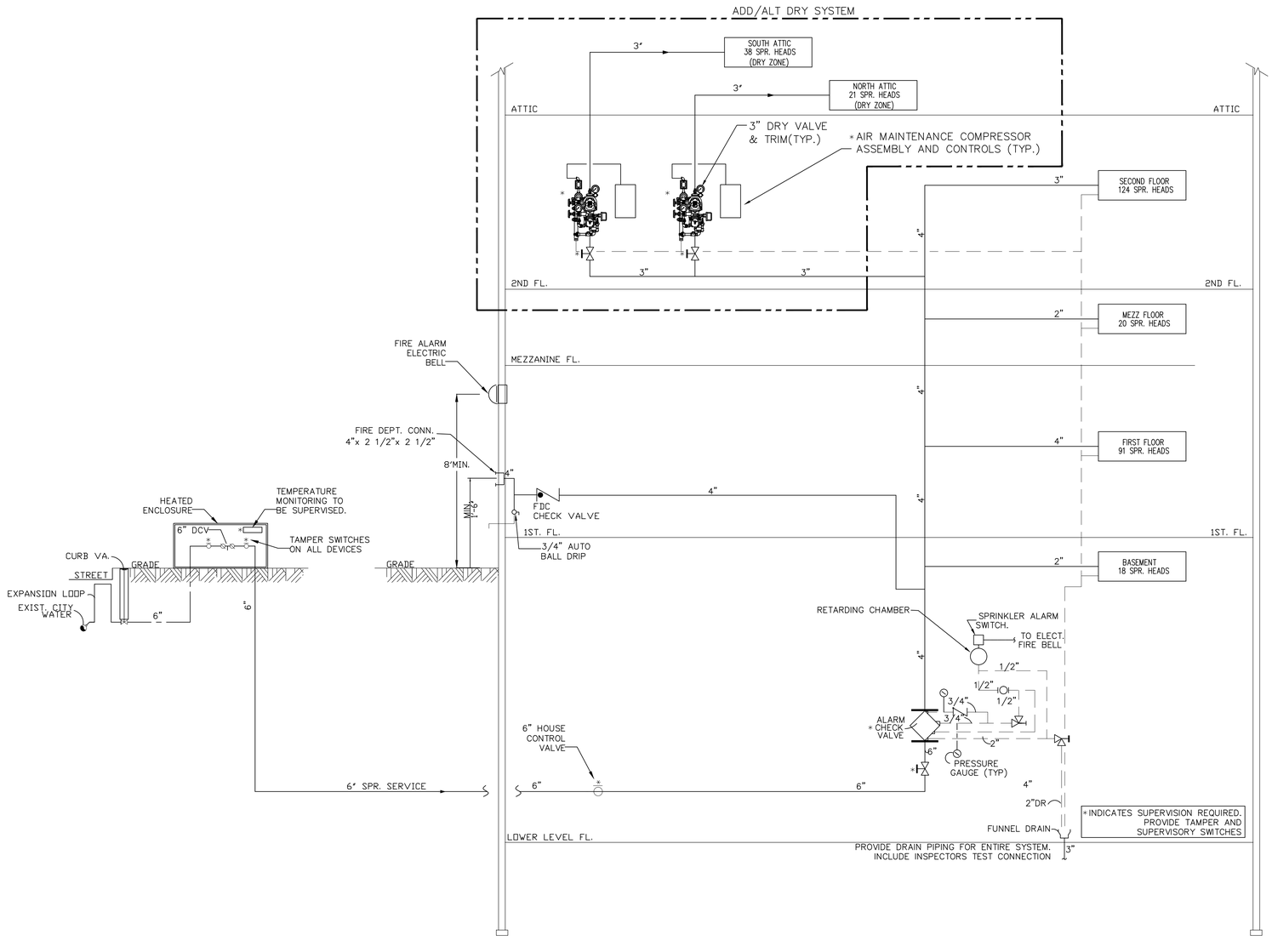
FS-6



1 FS-7 FIRE SPRINKLER RISER DIAGRAM

N.T.S.

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FIRE SPRINKLER
RISER DIAGRAM

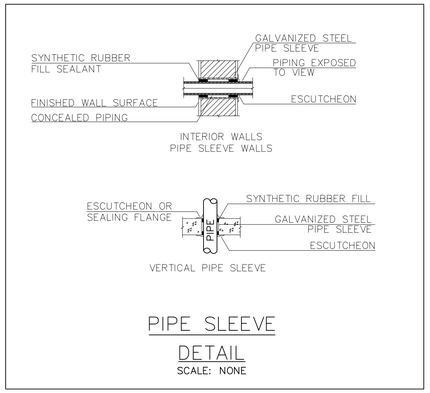
PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD
2020-04

DRAWING#:

FS-7



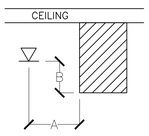
PIPE SLEEVE DETAIL

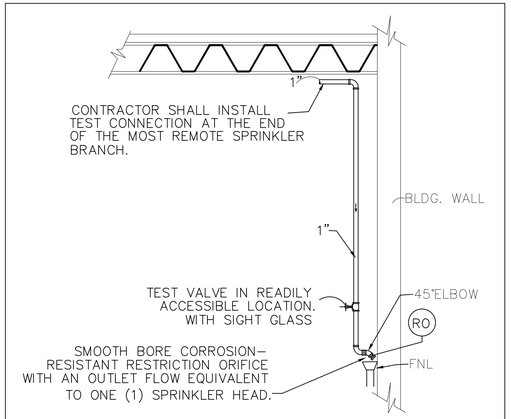
SCALE: NONE

Table 9.2.2.1(a) Maximum Distance Between Hangers (ft-in.)

	Nominal Pipe Size (in.)											
	¾	1	1¼	1½	2	2½	3	3½	4	5	6	8
Steel pipe except threaded lightwall	N/A	12-0	12-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0	15-0
Threaded lightwall steel pipe	N/A	12-0	12-0	12-0	12-0	12-0	12-0	N/A	N/A	N/A	N/A	N/A
Copper tube	8-0	8-0	10-0	10-0	12-0	12-0	12-0	15-0	15-0	15-0	15-0	15-0
CPVC	5-6	6-0	6-6	7-0	8-0	9-0	10-0	N/A	N/A	N/A	N/A	N/A
Ductile iron pipe	N/A	N/A	N/A	N/A	N/A	N/A	15-0	N/A	15-0	N/A	15-0	15-0

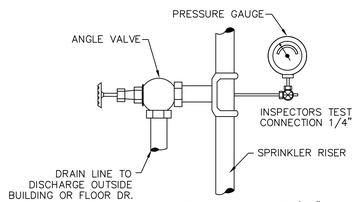
DISTANCE FROM SPRINKLER TO SIDE OF OBSTRUCTION (A)	MAXIMUM ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION (IN.) (B)
LESS THAN 1 FT.	0
1 FT. TO LESS THAN 1 FT. 6 IN.	2½
1 FT. 6 IN. TO LESS THAN 2 FT.	3½
2 FT. TO LESS THAN 2 FT. 6 IN.	5½
2 FT. 6 IN. TO LESS THAN 3 FT.	7½
3 FT. TO LESS THAN 3 FT. 6 IN.	9½
3 FT. 6 IN. TO LESS THAN 4 FT.	12
4 FT. TO LESS THAN 4 FT. 6 IN.	14
4 FT. 6 IN. TO LESS THAN 5 FT.	16½
5 FT. AND GREATER	18





INSPECTORS TEST CONNECTION

SCALE: NONE

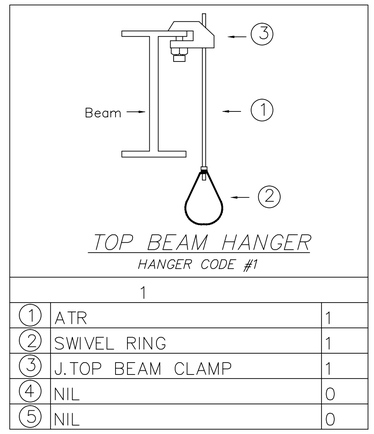


NOTE : A MINIMUM OF 4'-0" OF EXPOSED DRAIN PIPE IN WARM ROOM BEYOND VALVE WHEN DRAIN LINE EXTENDS THROUGH EXTERIOR WALL

RISER OR MAIN SIZE	DRAIN CONNECTION SIZE
UP TO 2"	3/4" OR LARGER
2-1/2" TO 3-1/2"	1- 1/4" OR LARGER
4" AND LARGER	2' ONLY

RISER DRAIN CONNECTION

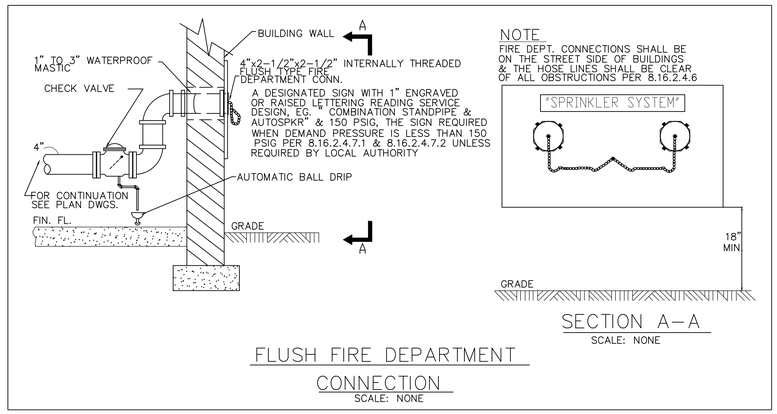
SCALE: NONE



TOP BEAM HANGER

HANGER CODE #1

1		
1	ATR	1
2	SWIVEL RING	1
3	J.TOP BEAM CLAMP	1
4	NIL	0
5	NIL	0

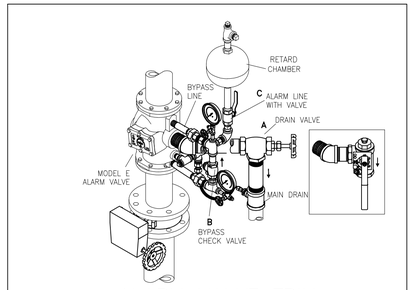


SECTION A-A

SCALE: NONE

FLUSH FIRE DEPARTMENT CONNECTION

SCALE: NONE



ALARM VALVE TRIM

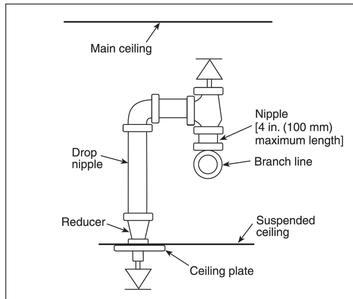
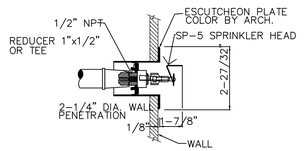
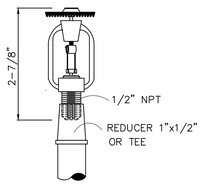


FIGURE 8.15.19.4.3 Sprinklers in Concealed Space and Below Ceiling.

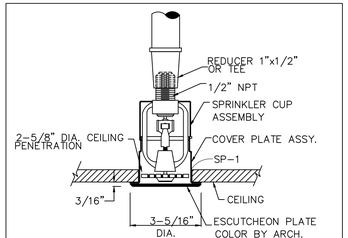


HORIZONTAL RECESSED SIDEWALL SPRINKLER HEADS



UPRIGHT / PENDANT SPRINKLER HEADS

SCALE: NONE



CONCEALED PENDANT SPRINKLER HEADS

SCALE: NONE

DATE: ISSUE

04-21-21
ISSUED FOR BIDDING

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PROPOSED ADDITION
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HARRISON, NY 10528

FIRE SPRINKLER/STANDPIPE DETAILS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: F/2020/HFD 2020-04

DRAWING#:

FS-8

INSTALLATION NOTES

1 THE SPRINKLER CONTRACTOR SHALL VERIFY ALL SPRINKLER PIPING LOCATIONS, SPRINKLER HEAD TYPE, SPRINKLER HEAD QUANTITY REQUIRED BY NFPA 13, SPRINKLER HEAD LOCATIONS, CLEARANCE FROM WALLS, HUNG CEILINGS, CONDUITS, LIGHTING, HVAC UNITS, DUCTWORK, & PLUMBING, AND ALL STRUCTURAL MEMBERS. THE SPRINKLER CONTRACTOR AT THE AWARD OF THE CONTRACT AND PRIOR TO CONSTRUCTION SHALL ALLOW FOR ALL CONTINGENCIES AND REVIEW WITH THE ARCHITECT ALL EXISTING SITE CONDITIONS AND MAKE ANY AND ALL CORRECTIONS IN ORDER TO AVOID FUTURE PROBLEMS.

2. IF A DISCREPANCY OR PROBLEM SHOULD ARISE THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF AN UPCOMING REVISION, AND UPON ARCHITECTS APPROVAL OF THE REVISION PROCEED WITH THE CHANGE WITHOUT ANY INTERRUPTION OF CONSTRUCTION SCHEDULE AND AT NO ADDITIONAL COST TO THE OWNER.

3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL HYDRAULIC CALCULATIONS AND FINAL PIPE SIZES.

4. THE SPRINKLER CONTRACTOR SHALL PURCHASE & INSTALL ALL CONTROLS, TAMPER AND FLOW SWITCHES, ALL POWER WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR.

5. THE ELECTRIC FIRE GONG SHALL BE WIRED BY THE SPRINKLER CONTRACTOR.

6. ALL SPRINKLER PIPING SHALL RUN CONCEALED.

7. UNLESS OTHERWISE NOTED ALL SPRINKLER PIPING SHALL RUN INSIDE NEW HUNG CEILINGS.

8. UNLESS OTHERWISE NOTED ALL SPRINKLER PIPING RUN IN STAIRWELLS SHALL SLOPE PARALLEL WITH ANGLE OF STAIR.

SPRINKLER EQUIPMENT SCHEDULE

ITEM#	PIPE SIZE	DESCRIPTION	QUAN.	MODEL #	MANUFACTURER	REMARKS
1	6"	ALARM VALVE	1	MODEL E	RELIABLE OR EQ.	FLANGED INLET & OUTLET VARIABLE PRESSURE CLOSED RETARD DRAIN TYPE, W/ ELECTRICAL SPRINKLER ALARM SW. WORKING PRESSURE 175 PSI, ANSI B16.1, VALVE BODY CAST IRON W/ BRONZE SEAT, & GALVANIZED TRIM.
2	–	ELECTRIC FIRE BELL	1	SSM24–10	SYSTEM SENSOR OR EQ.	10" GONG DIA., STARTING VOLTAGE 24 VDC, OPERATING VOLTAGE 19.2–26.4 VDC, UL 464, SOUND OUTPUT, 86 dBA
3	MATCH PIPE ? SEE DWG	ZONE MODULE	–	747M	VICTAULIC	STATIC PRESSURE RATING 365 PSI MAX. CAST IRON BODY SHUTOFF VALVE, TEST & DRAIN VALVE, ORIFICE, FM APPROVED WATER FLOW DETECTOR, COVER TAMPER SWITCH, PRESSURE GAUGE
4	MATCH PIPE ? SEE DWG	TAMPER SWITCHES	8	OSY2	SYSTEM SENSOR OR EQ.	NEMA 3R ENCLOSURE TWO SETS OF SPDT 10 A@ 125/250 VAC 2.5 A @ 6/12 24 VDC, & 32 DEG. F. – 120 DEG. F. OS& Y VALVES & BUTTERFLY VALVES.
5	MATCH PIPE ? SEE DWG	TAMPER SWITCHES	3	RBVS	POTTER SIGNALING	NEMA 4R RATED ENCLOSURE, SPDT CONTACTS 10A @ 125/250 VAC & 2A @ 30VDC, SPDT COVER TAMPER 3A @ 250 VAC, FOR USE ON 1/2" – 2" BALL VALVES, UL LISTED AND FM APPR'D. TEMP. RANGE –40 DEG. F– 150 DEG. F.
6	–	–	–	–	–	–
7	3/4"	AUTOMATIC BALL DRIP	1	MODEL C	RELIABLE OR EQ.	BRONZE CONSTRUCTION WITH FEMALE NPT ENDS MAX. WORKING PRESSURE 175 PSI.
8	4x2 1/2x 2 1/2	FIRE DEPT CONNECTIONS	1	MODEL No. 5021–D	POTTER ROEMER	FLUSH TYPE 4 x 2 1/2 x 2 1/2 POLISHED CHROME, CAST BRASS, TWO WAY INLET, BACK OUTLET, DBL. FEMALE SNOOTS WITH RIGID END NPT.x PIN LUG HOSE THREAD SWIVELS WITH CAST IRON BREAKABLE CAPS. BRANDING "AUTO SPR"
9	–	–	–	–	–	
10	1/4"	PRESSURE GAUGES	2	UA	RELIABLE OR EQ.	RANGE 0–300 PSI IN 5 PSI INCREMENTS, & 0–2000 kPa IN 50 kPa INCREMENTS. 3–1/2" DIAMETER CASE, HEIGHT 4–3/4" AND MALE NPT END CONNECTION. ACCURACY PER ANSI B40.1, UL LISTED & FM APPROVED.
11	6"	DOUBLE CHECK DETECTOR	1	709DCDA	WATTS	EPOXY COATED CAST IRON BODY, BRONZE SEATS, BRONZE METER, FM APPROVED, STAINLESS STEEL TRIM.
12	–	–		–	–	–

SPRINKLER SYSTEM VALVE SPECIFICATIONS

1. GATE VALVES 2" & SMALLER– 175 PSIG RATING, BLOCK PATTERN, SCREW OVER BONNET, & OUTSIDE SCREW & YOKE, BRONZE ASTM B–62 BODY CONSTRUCTION, BRONZE ASTM B–62 WEDGE, WEDGE PIN, BONNET, AND PACKING GLAND, SILICON BRONZE ASTM B–371 ALLOY STEM & STEM COLLAR, BRASS ASTM B–16 YOKE BUSHING, STEEL ASTM A–307 ZINC PLATED GLAND BOLTS, AND A MALLEABLE IRON HANDWHEEL. THREADED ENDS UL AND FM APPROVED. ACCEPTABLE MANUFACTURERS KENNEDY, JENKINS, OR NIBCO.

2. GATE VALVES 2–1/2" & LARGER– 175 PSIG. RATING CAST IRON BODY & BONNET ASTM A–126 CL. B, DUCTILE IRON BONNET CAP ASTM A–536, CAST BRONZE SOLID WEDGE ASTM B–584 ALLOY, CAST BRONZE WEDGE FACE RINGS ASTM B–584 ALLOY, OUTSIDE SCREW & YOKE, BRASS STEM ASTM B–16 ALLOY, DUCTILE IRON GLAND FOLLOWER ASTM A–536, NON–ASBESTOS PACKING, ZINC PLATED POWDERED IRON ASTM B–310 OR CAST BRASS ASTM ALLOY C36000 PACKING GLAND, AND CAST IRON HANDWHEEL ASTM A–126 CL. B. 125 # FLANGED ENDS PER ANSI B16.1, UL LISTED AND FM APPROVED. ACCEPTABLE MANUFACTURERS NIBCO, GRINNELL, OR CRANE.

3. BUTTERFLY VALVES 2–1/2" & LARGER– DUCTILE IRON BODY ASTM A–536, TAPPED LUG TYPE, 250 PSIG. RATING, CAST IRON & STEEL GEAR OPERATOR, STAINLESS STEEL STEM ASTM 582 TYPE 416, BRASS COLLAR BUSHING ASTM B 124, COPPER ALLOY CDA 122 UPPER BUSHING, EPDM STEM, LINER, & BODY SEAL, AND DUCTILE IRON NICKEL PLATED DISC ASTM 395. UL LISTED & FM APPROVED. ACCEPTABLE MANUFACTURERS NIBCO, GRINNELL, AND STOCKHAM.

4. BALL VALVES 2" & SMALLER– . TWO– PIECE BODY, FULL PORT, BLOWOUT–PROOF STEM, 600 PSI WORKING PRESSURE, FORGED BRASS ASTM B283 ALLOY BODY CONSTRUCTION, CHROME PLATED BRASS BALL ASTM B–16 ALLOY, VIRGIN PTFE PACKING, STEM, & SEAT RING, FORGED BRASS END PIECE ASTM B–283 ALLOY, AND A STEEL PLATED HANDLE. THREADED ENDS WITH VALVE CONFORMING TO MSS SP–110, NSF/ANSI 61–8, AND ASME B 16.44 UL LISTED & FM APPROVED. ACCEPTABLE MANUFACTURERS NIBCO, GRINNELL, AND CRANE..

5. GLOBE VALVES 2" & SMALLER– . 175 PSI WORKING PRESSURE, BRONZE BODY & BONNET CONSTRUCTION ASTM B–584 ALLOY, SCREW OVER TYPE BONNET, EPDM RUBBER OR NITRILE SEAT DISC, GRAPHITE IMPREGNATED NON ASBESTOS PACKING, BRONZE STEM ASTM B–584 ALLOY OR ASTM B–505, BRONZE PACKING NUT ASTM B–584 ALLOY OR ASTM B–16, STAINLESS STEEL SEAT SCREW, SHEET BRASS PACK WASHER, AND ALUMINUM HANDWHEEL. UL LISTED & FM APPROVED. ACCEPTABLE MANUFACTURERS NIBCO, GRINNELL, AND CRANE..

6. ANGLE VALVES 2" & SMALLER– . 175 PSI WORKING PRESSURE, BRONZE BODY & BONNET CONSTRUCTION ASTM B–584 ALLOY, SCREW OVER TYPE BONNET, NITRILE RUBBER SEAT DISC, GRAPHITE IMPREGNATED NON ASBESTOS PACKING, BRONZE STEM ASTM B–584 ALLOY, BRONZE PACKING NUT ASTM B–584 ALLOY OR ASTM B–16, STAINLESS STEEL SEAT SCREW, SHEET BRASS PACK WASHER, AND ALUMINUM HANDWHEEL. UL LISTED & FM APPROVED. ACCEPTABLE MANUFACTURERS NIBCO, GRINNELL, AND CRANE..

7. CHECK VALVES 2" & SMALLER– . HORIZONTAL SWING TYPE, 200 PSI WORKING PRESSURE, BRONZE BODY & BONNET CONSTRUCTION ASTM B–62 OR B–584 ALLOY, NITRILE RUBBER SEAT DISC, BRONZE HINGE PIN ASTM B–140 ALLOY OR B–134 ALLOY, BRONZE DISC HANGER ASTM B–62, BRONZE HANGER NUT ASTM B–97 ALLOY OR BRASS ASTM B–16, BRONZE DISC HOLDER ASTM B–62, BRASS SEAT DISC NUT ASTM B–16 OR B–97 ALLOY, BRONZE HINGE PIN PLUG ASTM B–140 ALLOY AND STAINLESS STEEL SEAT DISC WASHER. CONFORM TO MSS SP–80. UL LISTED & FM APPROVED. ACCEPTABLE MANUFACTURERS NIBCO, GRINNELL, AND CRANE..

8. CURB GATE VALVE .RESILIENT SEATED WEDGE TYPE 250 PSIG WORKING PRESSURE, NON–RISING STEM, DUCTILE IRON ASTM A–536 BODY CONSTRUCTION PER AWWA C–509, GRAY IRON 2" SQUARE OPERATING NUT ASTM A–126 CL. B, 125 LB FLANGED ENDS PER ANSI B16.1, GRAY IRON & EPDM RUBBER ENCASED WEDGE ASTM A–126 CL. B, BRONZE STEM & STEM NUT ASTM B–584, DELRIN THRUST WASHER BEARING, GRAY IRON INDICATOR POST PLATE ASTM A–126 CL. B, DUCTILE IRON FOLLOWER PLATE O–RING/GASKET & STEM O–RING EPDM RUBBER, AND DUCTILE IRON COVER ASTM A–536 WITH EPDM RUBBER COVER O–RING. THE NRS STEM STUFFING BOX SHALL BE THE O–RING SEAL TYPE WITH TWO O–RINGS LOCATED ABOVE THRUST COLLAR AND ONE O–RING BELOW. THE TWO O–RINGS ABOVE THE THRUST COLLAR SHALL BE REPLACEABLE WITH VALVE FULLY OPEN AND SUBJECTED TO FULL RATED WORKING PRESSURE. THE BODY AND BONNET SHALL BE COATED WITH FUSION BONDED EPOXY BOTH INTERIOR AND EXTERIOR COMPLYING WITH AWWA C550 AND NSF 61 APPROVED UL LISTED & FM APPROVED. ACCEPTABLE MANUFACTURERS CLOW, KENNEDY, AND CRANE..

   VALVE BOX & COVER– THE VALVE BOX SHALL BE CONSTRUCTED OF PVC, 6"ø SDR PVC PIPE WITH A CAST IRON LID AND COVER AT GRADE LEVEL THE PVC VALVE BOX SHALL BE COATED WITH TAR. THE COVER SHALL BE LABELLED "WATER" WITH 5–¼" LETTERING MINIMUM OR AS REQUIRED BY LOCAL MUNICIPAL AUTHORITY. ACCEPTABLE MANUFACTURERS BINGHAM & TAYLOR, OPELIKA, OR CHARLOTTE PIPE.

9. PROVIDE HANDWHEELS FOR ALL GATE, GLOBE, ANGLE AND DRAIN VALVES.

10. FOR BUTTERFLY VALVE PROVIDE GEAR OPERATORS 2–½" AND LARGER, FOR SIZES 2" AND SMALLER PROVIDE LEVEL LOCK HANDLE WITH TOOTHED PLATE.

11. FOR VALVES LOCATED MORE THAN 7'–0" ABOVE FINISHED FLOOR IN EQUIPMENT ROOM AREAS, PROVIDE ENDLESS CHAIN OPERATED SHEAVES. EXTEND CHAINS TO 5'–0" ABOVE FLOOR AND SECURE CLEAR OF WALKWAYS.

12. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL NOT INVERTED.

13. PROVIDE DRAIN VALVES AT MAIN SHUT–OFF VALVES, LOW POINTS OF PIPING AND APPARATUS.

14. UNLESS OTHERWISE NOTED ALL DRAIN VALVES SHALL BE ¾" BALL VALVES WITH CAP AND CHAIN.

Seismic Restraint of Piping:

1. All seismic restraint systems shall be installed in strict accordance with the manufacturer's seismic restraint guidelines manual and all certified submittal data.
2. Transverse piping restraints shall be at 40–foot maximum spacing for all pipe sizes, except where lesser spacing is required to limit anchorage loads.
3. Longitudinal restraints shall be at 80–foot maximum spacing for all pipe sizes, except where lesser spacing is required to limit anchorage loads.
4. Transverse restraint for one pipe section may also act as a longitudinal restraint for a pipe section of the same size connected perpendicular to it if the restraint is installed within 24–inches of the elbow or tee or combined stresses are within allowable limits at longer distances.
5. Hold down clamps must be used to attach pipe to all trapeze members before applying restraints.
6. Branch lines may not be used to restrain main lines.
7. Provide reinforced clevis bolts when required.
8. Piping crossing building seismic or expansion joints, passing from building to building, or supported from different portions of the building shall be installed to allow differential support displacements without damaging the pipe, equipment connections, or support connections. Pipe offsets, loops, anchors, and guides shall be installed as required to provide specified motion capability and limit motion of adjacent piping.
9. Do not brace a system to two independent structures such as ceiling and wall.
10. Provide appropriately sized openings in walls, floors, and ceilings for anticipated seismic movement. Provide fire seal systems in fire–rated walls.
11.
12. Seismic Restraint of mechanical Services
13. All seismic restraint systems shall be installed in strict accordance with the manufacturer's seismic restraint guidelines manual and all certified submittal data.
14. Installation of seismic restraints shall not cause any change in position of equipment or piping, resulting in stresses or misalignment.
15. No rigid connections between equipment and the building structure shall be made that degrade the noise and vibration–isolation system specified.
16. Do not install any equipment, piping, duct, or conduit that makes rigid connections with the building unless isolation is not specified.
17. Prior to installation, bring to the architect's/engineer's attention any discrepancies between the specifications and the field conditions, or changes required due to specific equipment selection.
18. Bracing may occur from flanges of structural beams, upper truss cords of bar joists, cast in place inserts, or wedge–type concrete anchors. Consult structural engineer of record.
19. Overstressing of the building structure shall not occur from overhead support of equipment. Bracing attached to structural members may present additional stresses. The contractor shall submit loads to the structural engineer of record for approval in this event.
20. Brace support rods when necessary to accept compressive loads. Welding of compressive braces to the vertical support rods is not acceptable.
21. Provide reinforced clevis bolts where required.
22. Seismic restraints shall be mechanically attached to the system. Looping restraints around the system is not acceptable.
23. Do not brace a system to two independent structures such as a ceiling and wall.
24. Provide appropriately sized openings in walls, floors, and ceilings for anticipated seismic movement. Provide fire seal systems in fire–rated walls.

SPRINKLER HEAD SCHEDULE

CONCEALED PENDANT SPRINKLER HEADS (QUICK RESPONSE)

DESCRIPTION: ⊠ — SPRINKLER TEMPERATURE RATING OF 155°F, 139°F COVER PLATE RATING 175 PSI MAX WORKING PRESSURE, ½" NPT THREADS, 5.6 K–FACTOR, COVER PLATE COLOR SHALL BE BY ARCHITECT. TYCO OR EQUAL MODEL SERIES RFII. SIN TY3531.

COMBUSTIBLE CONCEALED SPACE UPRIGHT SPRINKLER HEADS

DESCRIPTION: ◇ — SPRINKLER TEMPERATURE RATING OF 200°F, 175 PSI MAX WORKING PRESSURE, ½" NPT THREADS, 5.6 K–FACTOR. TYCO OR EQUAL MODEL CC3. SIN TY3199

UPRIGHT SPRINKLER HEADS (STANDARD RESPONSE)

DESCRIPTION: ◒ — SPRINKLER TEMPERATURE RATING OF 165°F, 175 PSI MAX WORKING PRESSURE, ½" NPT THREADS, 5.6 K–FACTOR. TYCO OR EQUAL MODEL TY–B. SIN TY3151.

UPRIGHT SPRINKLER HEADS (QUICK RESPONSE)

DESCRIPTION: ◉ — SPRINKLER TEMPERATURE RATING OF 165°F, 175 PSI MAX WORKING PRESSURE, ½" NPT THREADS, 5.6 K–FACTOR. TYCO OR EQUAL MODEL TY–FRB. SIN TY313.

DRY–TYPE HORIZONTAL SIDEWALL SPRINKLER HEADS (QUICK RESPONSE)

DESCRIPTION: D▷ — SPRINKLER TEMPERATURE RATING OF 155°F, 175 PSI MAX WORKING PRESSURE, ½" NPT THREADS, 5.6 K–FACTOR, HORIZONTAL DEFLECTOR. TYCO OR EQUAL MODEL SERIEST DS–1. SIN TY3735.

HORIZONTAL SIDEWALL SPRINKLER HEADS (QUICK RESPONSE)

DESCRIPTION: ▷ — SPRINKLER TEMPERATURE RATING OF 165°F, 175 PSI MAX WORKING PRESSURE, ¾" NPT THREADS, 5.6 K–FACTOR, HORIZONTAL DEFLECTOR. TYCO OR EQUAL MODEL SERIEST TY–FRL. SIN TY3321.

HORIZONTAL SIDEWALL SPRINKLER HEADS (EXTENDED COVERAGE)

DESCRIPTION: EC▷ — SPRINKLER TEMPERATURE RATING OF 165°F, 175 PSI MAX WORKING PRESSURE, ¾" NPT THREADS, 5.6 K–FACTOR, HORIZONTAL DEFLECTOR. TYCO OR EQUAL MODEL SW–20. SIN TY5332.

DATE: ISSUE

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PROPOSED ADDITION
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FIRE SPRINKLER/STANDPIPE
SCHEDULES AND DETAILS

PROJECT #: 2020-04

DRAWN BY: SEND. ARCH.

CAD FILE: P/2020/HFD 2020-04

DRAWING#:

FS-9

WET PIPE SPRINKLER SYSTEM DESIGN SPECIFICATIONS

1. CLASSIFICATION OF AUTOMATIC SPRINKLER HEADS PER CHAPTER 5 NFPA 13.
   A. ORDINARY HAZARD OCCUPANCIES (GROUP I)- SPACES WITH MODERATE QUANTITY AND COMBUSTIBILITY OF CONTENTS. STOCKPILES OF CONTENTS WITH LOW COMBUSTIBILITY THAT DO NOT EXCEED 8FT.
   B. LIGHT HAZARD OCCUPANCIES.

2. ALL SPRINKLER COMPONENTS AND HARDWARE SHALL BE IN ACCORDANCE WITH CHAPTER 7 NFPA 13

3. SPRINKLER SYSTEM COMPONENTS SHALL BE RATED FOR THE MAXIMUM SYSTEM WORKING PRESSURE TO WHICH THEY ARE EXPOSED BUT SHALL NOT BE RATED AT LESS THAN 175 PSI FOR COMPONENTS INSTALLED ABOVEGROUND, AND 150 PSI FOR COMPONENTS INSTALLED UNDERGROUND PER NFPA SECTION 7.1.2.

4. ALL SPRINKLERS SHALL BE PERMANENTLY MARKED WITH ONE OR TWO ENGLISH UPPERCASE ALPHABETIC CHARACTERS TO IDENTIFY THE MANUFACTURER, IMMEDIATELY FOLLOWED BY THREE OR FOUR NUMBERS, TO UNIQUELY IDENTIFY A SPRINKLER AS TO K-FACTOR, DEFLECTOR CHARACTERISTIC, PRESSURE RATING AND THERMAL SENSITIVITY PER NFPA SECTION 7.2.1.

5. UNLESS THE REQUIREMENTS OF 7.2.2.2, 7.2.2.3, OR 7.2.2.4 ARE MET, THE K-FACTOR, RELATIVE DISCHARGE, AND MARKING IDENTIFICATION FOR SPRINKLERS HAVING DIFFERENT K-FACTORS SHALL BE IN ACCORDANCE WITH TABLE 7.2.2.1.

6. WHERE RESIDENTIAL SPRINKLERS ARE INSTALLED IN A COMPARTMENT (COMPARTMENT A SPACE COMPLETELY ENCLOSED BY WALLS AND A CEILING) ALL SPRINKLERS WITHIN A COMPARTMENT SHALL BE OF A FAST RESPONSE TYPE HAVING A THERMAL ELEMENT WITH AN RTI (METERS-SECONDS) 1/2 OR LESS PER NFPA 13- 12.1.4.

7. TEMPERATURE CHARACTERISTIC FOR AUTOMATIC SPRINKLERS SHALL HAVE THERE FRAME ARMS, DEFLECTOR, COATING MATERIAL, OR LIQUID BULB COLOR CODED IN ACCORDANCE WITH THE REQUIREMENTS OF TABLE 7.2.4.1 OR WITH THE FOLLOWING:
   A. A DOT ON THE TOP OF THE DEFLECTOR, THE COLOR OF THE COATING MATERIAL, OR COLORED FRAME ARMS PERMITTED ONLY ON CORROSION RESISTANT SPRINKLERS.
   B. COLOR IDENTIFICATION SHALL NOT BE REQUIRED FOR ORNAMENTAL SPRINKLERS SUCH AS FACTORY PLATED/PAINTED SPRINKLERS OR FOR RECESSED, FLUSH, OR CONCEALED SPRINKLERS.
   C. FRAME ARMS FOR BULB TYPE SPRINKLERS SHALL NOT BE REQUIRED TO BE COLOR CODED.
   D. THE LIQUID IN BULB TYPE SPRINKLERS SHALL BE COLOR CODED IN ACCORDANCE WITH NFPA TABLE 7.2.4.1.

8. CORROSION RESISTANT SPRINKLERS SHALL BE INSTALLED WHERE CHEMICALS, MOISTURE, OR OTHER CORROSIVE VAPORS. CORROSION RESISTANT COATINGS SHALL BE APPLIED BY THE MANUFACTURER, AND IF DAMAGE TO THE PROTECTIVE COATING SHOULD OCCUR AT THE TIME OF INSTALLATION IT SHALL BE REPAIRED AT ONCE USING ONLY THE APPROVED MANUFACTURERS COATING. IN ADDITION THE SPRINKLERS SHALL ONLY BE PAINTED BY THE SPRINKLER MANUFACTURER PER NFPA SECTION 16.2.2.

9. ORNAMENTAL FINISHES SHALL ONLY BE APPLIED TO SPRINKLERS AND IF APPLICABLE THEIR CONCEALED COVER PLATES, BY THE SPRINKLER MANUFACTURER ONLY. PER NFPA SECTION 7.2.5.3.1.

10. ESCUTCHEONS USED WITH RECESSED, FLUSH-TYPE, OR CONCEALED SPRINKLERS SHALL BE PART OF A LISTED SPRINKLER ASSEMBLY.

11. A MINIMUM OF SIX (6) SPARE SPRINKLERS (FOR BLDGS UNDER 300 HEADS), 12 SPRINKLERS (FOR BLDGS 300 - 1000 SPRINKLERS), 24 SPRINKLERS (FOR BLDGS 1000 SPRINKLERS AND OVER) SHALL BE MAINTAINED ON THE PREMISES, THE SPRINKLERS SHALL CORRESPOND TO THE TYPES & TEMPERATURE RATINGS OF THE SPRINKLERS IN THE PROPERTY. IN THE EVENT OF DAMAGE TO ANY SPRINKLER IT CAN BE REPLACED IMMEDIATELY. THE SPRINKLERS SHALL BE KEPT IN A CABINET LOCATED WHERE THE TEMPERATURE TO WHICH THEY ARE SUBJECTED WILL AT NO TIME EXCEED THE MAXIMUM CEILING TEMPERATURES SPECIFIED IN TABLE 7.2.4.1 FOR EACH OF THE SPRINKLERS WITHIN THE CABINET. WHERE DRY SPRINKLERS OF DIFFERENT LENGTHS ARE INSTALLED, SPARE DRY SPRINKLERS SHALL NOT BE REQUIRED, PROVIDED THAT A MEANS OF RETURNING THE SYSTEM TO SERVICE IS FURNISHED. ONE SPRINKLER WRENCH AS SPECIFIED BY THE SPRINKLER MANUFACTURER SHALL BE PROVIDED IN THE CABINET FOR EACH TYPE OF SPRINKLER INSTALLED TO BE USED FOR THE REMOVAL AND INSTALLATION OF SPRINKLERS IN THE SYSTEM. A LIST OF THE SPRINKLERS INSTALLED IN THE PROPERTY SHALL BE POSTED IN THE SPRINKLER CABINET. THE LIST SHALL INCLUDE THE FOLLOWING: SPRINKLER IDENTIFICATION NUMBER (SIN) IF EQUIPPED; OR THE MANUFACTURER, MODEL, K-FACTOR, DEFLECTOR TYPE, THERMAL SENSITIVITY, AND PRESSURE RATING. GENERAL DESCRIPTION. QUANTITY OF EACH TYPE TO BE CONTAINED IN THE CABINET, AND ISSUE OR REVISION DATE OF THE LIST.

12. ABOVEGROUND SPRINKLER PIPING SHALL BE IN ACCORDANCE WITH NFPA 13 SECTION 7.3.1.1 & TABLE 7.4.1, NFPA 14, SECTION 4.2 & TABLES 4.2.1 & 4.3.1, PIPING SHALL BE MINIMUM SCHEDULE 40 SEAMLESS STEEL PIPE 8" AND SMALLER, BLACK OR HOT DIPPED GALVANIZED CONFORMING TO ASTM SPECIFICATION A-53 OR A-795 SCHEDULE 30 SEAMLESS STEEL PIPE, 8 INCH AND LARGER, BOTH SUITABLE FOR PRESSURES UP TO 300 PSI AND THREADED OR WELDED ENDS.
   A. ALTERNATE BLACK OR HOT DIPPED GALVANIZED SEAMLESS STEEL PIPE, GROOVED ENDS, SUITABLE FOR PRESSURES UP TO 300 PSI. SCHEDULE 10 FOR PIPE SIZES 5 IN OR LESS, 0.134" WALL THICKNESS FOR 6 INCH PIPING, AND 0.188" WALL THICKNESS FOR 8 INCH & 10 INCH PIPE.

13. FITTINGS FOR ABOVEGROUND SPRINKLER SYSTEMS SHALL BE IN ACCORDANCE WITH NFPA 13 SECTION 7.4 AND TABLE 7.4.1. THREADED MALLEABLE IRON CLASS 150 AND 300 ASME B16.3.
   A. GROOVED OR SHOULDERED END FITTINGS DUCTILE IRON ASTM A-395 AND ASTM A-536, PIPING SHALL BE DIMENSIONALLY COMPATABLE WITH THE FITTINGS. GROOVED FITTINGS AND GASKETS SHALL BE LISTED FOR DRY PIPE SERVICE.

14. ALL VALVES CONTROLLING CONNECTIONS TO WATER SUPPLIES AND TO SUPPLY PIPES TO SPRINKLERS SHALL BE LISTED INDICATING VALVES. PER NFPA 13 SECTION 7.6.1, LISTED INDICATING VALVES SHALL NOT CLOSE IN LESS THAN 5 SECONDS WHEN OPERATED AT A MAXIMUM POSSIBLE SPEED FROM THE FULLY OPEN POSITION PER NFPA.

15. ALL CONTROL, DRAIN, AND TEST CONNECTION VALVES SHALL BE PROVIDED WITH A PERMANENTLY MARKED WEATHERPROOF METAL OR RIGID PLASTIC IDENTIFICATION SIGN, SECURED WITH A CORROSION RESISTANT WIRE, CHAIN, THE SIGN SHALL ALSO IDENTIFY THE BUILDING PER NFPA 13 SECTION 16.9.1.2.

16. ALL SPACING, LOCATION, POSITION, AND INSTALLATION OF SPRINKLER HEADS SHALL BE IN ACCORDANCE WITH NFPA 13 CHAPTER #9.

17. THE MAXIMUM FLOOR AREA PROTECTED BY ANY ONE SPRINKLER SYSTEM RISER SHALL BE AS FOLLOWS: A. LIGHT HAZARD OCCUPANCY - 52,000 SQ. FT.

18. SPRINKLER TEMPERATURE RATINGS SHALL BE IN ACCORDANCE WITH TABLE 9.4.2, ORDINARY TEMPERATURE RATINGS (MAXIMUM CEILING TEMPERATURE 100 DEGREES F.) SHALL BE INSTALLED THROUGHOUT BUILDINGS ALONG WITH INTERMEDIATE AND HIGH TEMPERATURE RATINGS (CEILING TEMPERATURES GREATER THAN 100 DEGREES F.) SHALL BE INSTALLED IN SPECIFIC LOCATIONS AS REQUIRED BY SECTION 9.4.2.5 PARAGRAPH 1 THRU 11.

19. DISTANCE OF SPRINKLER HEADS FROM HEAT SOURCES SHALL BE BASED ON TEMPERATURE RATINGS AND TYPE OF HEATING CONDITION IN ACCORDANCE WITH NFPA TABLES 9.4.2.5 (a), 9.4.2.5 (b), 9.4.2.5 (C), AND FIGURE 9.4.2.5

20. SPRINKLERS IN LIGHT HAZARD OCCUPANCIES SHALL BE ONE OF THE FOLLOWING: PER NFPA 13 9.4.3.1. (1-6) 1. QUICK RESPONSE TYPE 2. RESIDENTIAL SPRINKLERS IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 12. 3. QUICK RESPONSE CMSA SPRINKLERS. 4. ESFR SPRINKLERS. 5. STANDARD-RESPONSE SPRINKLERS USED FOR MODIFICATIONS OR ADDITIONS TO EXISTING LIGHT HAZARD SYSTEMS QUIPPED WITH STANDARD-RESPONSE SPRINKLERS. 6. STANDARD-RESPONSE SPRINKLERS USED WHERE INDIVIDUAL STANDARD-RESPNSE SPRINKLERS ARE REPLACED IN EXISTING LIGHT HAZARD SYSTEMS.

21. UPRIGHT AND PENDANT SPRAY SPRINKLERS SHALL BE PERMITTED IN ALL OCCUPANCY HAZARD CLASSIFICATIONS AND BUILDING CONSTRUCTION TYPES UNLESS THE REQUIREMENTS OF 9.3.2 APPLY PER NFPA 10.2.2.

22. SIDEWALL SPRINKLER HEADS SHALL ONLY BE SPECIFIED UNDER THE FOLLOWING CONDITIONS IN ACCORDANCE WITH NFPA 10.3.2:
   A. LIGHT HAZARD OCCUPANCIES WITH SMOOTH, HORIZONTAL, SLOPED OR FLAT CEILINGS
   B. ORDINARY HAZARD OCCUPANCIES WITH SMOOTH, & FLAT CEILINGS, LISTED FOR SUCH USE
   C. PROTECTION OF AREAS BELOW OVERHEAD DOORS
   D. AT THE TOP AND BOTTOM OF ELEVATOR HOISTWAYS
   E. FOR THE PROTECTION OF STEEL BUILDING COLUMNS
   F. UNDER OBSTRUCTIONS THAT REQUIRE SPRINKLERS

23. MAXIMUM AREA OF SPRINKLER COVERAGE (SQ. FT.) FOR ANY TYPE OF SPRINKLER SHALL BE 225 SQ. FT. PER NFPA SECTION 10.2.4.2.2.

24. THE DISTANCE FROM SPRINKLERS TO WALLS (MEASURED PERPENDICULAR TO WALLS) SHALL NOT EXCEED ONE HALF (½) OF THE ALLOWABLE MAXIMUM DISTANCE BETWEEN SPRINKLERS. PER NFPA SECTION 10.2.5.2.1.

25. FOR CONTINUOUS OR NON-CONTINUOUS OBSTRUCTIONS THE MINIMUM CLEARANCE BELOW SPRINKLER HEAD DEFLECTORS SHALL BE 18 INCHES, PER NFPA SECTION 10.2.7.2.1.1.

26. CONTINUOUS OR NON-CONTINUOUS OBSTRUCTIONS THAT INTERRUPT THE DISCHARGE OF WATER FROM SPRINKLER DEFLECTORS GREATER THAN 18 INCHES BELOW WITH FIXED OBSTRUCTIONS OVER 4'-0" WIDE (DUCTS, DECKS, OPEN GRATE FLOORING, CUTTING TABLES, & OVERHEAD DOORS) SHALL HAVE SPRINKLERS INSTALLED UNDER, THE SPRINKLERS SHALL BE OF THE INTERMEDIATE LEVEL/ RACK STORAGE TYPE OR OTHERWISE SHIELDED FROM THE SPRINKLER DISCHARGE ABOVE. PER NFPA SECTIONS 9.5.5.3 THRU 9.5.5.4.

27. CLEARANCE TO THE TOP OF STORAGE SHALL BE 18 INCH OR GREATER. PER NFPA SECTION 9.5.6.1

28. SPRINKLERS SHALL BE OMITTED FROM SKYLIGHTS OR OTHER CEILING POCKETS THAT ARE 32 SQ. FT OR LESS, SEPARATED BY MINIMUM 10'-0" FROM ANY OTHER CEILING POCKET OR SKYLIGHT. PER NFPA SECTION 9.3.16.

29. THE MAXIMUM AREA OF COVERAGE PER SPRINKLER HEAD, FOR AN HYDRAULICALLY CALCULATED SYSTEM FOR STANDARD SPRAY PENDANT & UPRIGHT SPRINKLER HEADS LIGHT HAZARD, SHALL BE 225 SQ. FT. PER NFPA 13 SECTION 10.2.4.2 & TABLE 10.2.4.2.1(a)

30. SPRINKLER COVERAGE FOR ROOMS WITH IRREGULAR OR ANGLED WALLS THE MAXIMUM HORIZONTAL DISTANCE BETWEEN A SPRINKLER AND ANY POINT OF FLOOR AREA, PROTECTED BY THAT SPRINKLER SHALL NOT EXCEED 0.75 TIMES THE ALLOWABLE DISTANCE. THE MAXIMUM PERPENDICULAR DISTANCE SHALL NOT BE EXCEEDED. PER NFPA 13 10.2.5.2.2.

31. THE REQUIREMENTS OF 10.2.4.1.1 SHALL NOT APPLY IN A SMALL ROOM AS DEFINED IN 3.3.196. THE PROTECTION AREA OF COVERAGE FOR EACH SPRINKLER IN THE SMALL ROOM SHALL BE THE AREA OF THE ROOM DIVIDED BY THE NUMBER OF SPRINKLERS IN THE ROOM. AS PER NFPA 13 - 10.2.4.1.2 & 10.2.4.1.2.1.

32. MINIMUM DISTANCE FOR SPRINKLER HEADS FROM WALLS SHALL BE 4 INCHES PER NFPA SECTION 10.2.5.3.

33. SPRINKLER HEAD PROTECTION AREAS AND MAXIMUM SPACING FOR STANDARD SPRAY UPRIGHT AND STANDARD SPRAY PENDANT HEADS IN LIGHT HAZARD OCCUPANCIES TABLE 10.2.4.2.1(a) AND PILED STORAGE 10.2.4.2.1(a) .

34. THE PROTECTION AREA FOR RESIDENTIAL SPRINKLERS WITH EXTENDED COVERAGE AREA IS DEFINED IN THE LISTING OF THE SPRINKLER AS A MAXIMUM SQUARE OR RECTANGULAR AREA, LISTING INFORMATION IS PRESENTED IN 2 FT. INCREMENTS FROM 12 TO 20 FT. THE FLOW THAT IS USED IN THE HYDRAULIC CALCULATION IS SELECTED FROM THE FLOW REQUIRED BY THE LISTING FOR THE SELECTED COVERAGE. PER NFPA 13- A-11.2.3.5.1

35. THE MINIMUM DISTANCE BETWEEN SPRINKLER HEADS SHALL BE 6'-0" UNLESS BAFFLES ARE INSTALLED IN ACCORDANCE WITH SECTION 10.2.5.4.2 OR THE SPRINKLERS ARE INSTALLED IN A RACK PER SECTION 10.2.5.4.3. PER NFPA SECTION 10.2.5.4.

36. UPRIGHT AND PENDANT SPRINKLER HEAD DEFLECTOR CLEARANCE FOR UNOBSTRUCTED CONSTRUCTION SHALL BE 1 INCH MINIMUM, WITH A MAXIMUM OF 12 INCHES, THE CLEARANCE DOES NOT APPLY FOR LIGHT & ORDINARY HAZARD OCCUPANCIES WITH CEILINGS OF NON- COMBUSTIBLE OR LIMITED COMBUSTIBLE CONSTRUCTIONS. WHERE THERE IS A CHANGE IN CEILING ELEVATION WITHIN THE SPRINKLER HEADS COVERAGE AREA OF MORE THAN 36 INCHES BETWEEN THE UPPER CEILING AND SPRINKLER DEFLECTOR THE CEILING ELEVATION CHANGE SHALL BE CONSIDERED A WALL FOR SPRINKLER SPACING, LESS THAN 36 INCHES IN ELEVATION CHANGE THE CEILING SHALL BE CONSIDERED FLAT. PER NFPA SECTION 10.2.6.1.1.1, FIGURE 10.2.6.1.1.3(A), & 10.2.6.1.1.3(B).

37. SPRINKLER HEAD DEFLECTOR LOCATIONS FOR OBSTRUCTED CONSTRUCTION SHALL BE AS PER NFPA SECTION 10.2.6.1.2 PARAGRAPH 1-5 THRU & TABLE 10.2.7.1.2.

38. SPRINKLER HEADS UNDER OR NEAR THE PEAK OF THE ROOF OR CEILING SHALL HAVE DEFLECTORS LOCATED NOT MORE THAN 3 FEET MAXIMUM VERTICALLY DOWN FROM THE PEAK. NFPA SECTION 10.2.6.1.3 & FIGURE 10.2.6.1.3.1 (a), AND 10.2.6.1.3.1 (b)

39. SPRINKLERS SHALL BE REQUIRED IN ALL CEILING POCKETS, UNLESS THE FOLLOWING CONDITIONS ARE PRESENT WHICH SPRINKLERS SHALL NOT BE REQUIRED NFPA SECTION 10.2.9 THRU 10.2.9.3.
   A. POCKET DEPTH 36 INCHES MAXIMUM
   B. POCKET VOLUME 1000 CU. FT.
   C. SPRINKLER PROTECTION BELOW UNPROTECTED CEILING POCKET
   D. MINIMUM 10'-0" HORIZONTAL SEPARATION FROM ADJACENT UNPROTECTED CEILING POCKETS
   E. CONSTRUCTED OF NON-COMBUSTIBLE OR LIMITED COMBUSTIBLE CONSTRUCTION.
   F. QUICK-RESPONSE SPRINKLERS ARE UTILIZED THROUGHOUT THE COMPARTMENT.

40. PENDANT AND UPRIGHT PENDANT SPRINKLER CLEARANCES FOR SUSPENDED OR FLOOR MOUNTED OBSTRUCTIONS IN LIGHT HAZARD OCCUPANCIES SHALL BE IN ACCORDANCE WITH TABLE 10.2.7.2.2 & FIGURE 10.2.7.2.2.

41. MAXIMUM PROTECTION AREAS FOR SIDEWALL SPRINKLER HEADS FOR LIGHT HAZARD OCCUPANCIES SHALL BE AS PER SECTIONS 10.3.3 THRU 10.3.5.2.1. AND TABLE 10.3.3.2.1.

42. SIDEWALL SPRINKLERS SHALL NOT BE INSTALLED BACK TO BACK WITHOUT THE SEPARATION OF A CONTINUOUS LINTEL OR SOFFIT. PER NFPA SECTION 10.3.4.1.4.

43. SIDEWALL HEADS SHALL BE SPACED NOT LESS THAN 6'-0" AN HAVE A MINIMUM OF 4 INCHES FROM AN END WALL. PER NFPA SECTION 10.3.4.3.1 & 10.3.4.4.

44. WHERE SIDEWALL HEADS ARE INSTALLED ON OPPOSITE WALLS OR SIDES THE MAXIMUM SEPARATION DISTANCE OF HEADS IN A LIGHT HAZARD OCCUPANCY SHALL BE 24'-0" FOR LIGHT HAZARD AND 20'-0" FOR ORDINARY HAZARD, WITH SPACING AS REQUIRED BY TABLE 10.3.3.2.1. PER NFPA SECTION 10.3.4.1.5.

45. SIDEWALL SPRINKLER HEAD DEFLECTOR CEILING CLEARANCE SHALL BE 4 INCH MINIMUM AND 6 INCH MAXIMUM, NON-COMBUSTIBLE AND LIMITED COMBUSTIBLE CEILING CONSTRUCTION CLEARANCES SHALL BE 6 INCH TO 12 INCH, OR 12 INCH TO 18 INCH. PER NFPA SECTION 10.3.5.1.1.1 AND 10.3.5.1.1.2.

46. SIDEWALL SPRINKLER HEADS SHALL BE LOCATED NO CLOSER THAN 4'-0" FROM LIGHT FIXTURES OR SIMILAR OBSTRUCTIONS, AND ALL OBSTRUCTION CLEARANCES IN CONFORMANCE WITH SECTIONS 10.3.6 THRU 10.3.7 AND TABLES 10.3.6.1.3, 10.3.6.1.4, & 10.3.6.2.2 AND FIGURES 10.3.6.1.3, 10.3.6.1.4, 10.3.6.2.1.3(A), 10.3.6.2.1.3(B), AND 10.3.6.2.2.

51. SPRINKLERS UNDER A ROOF OR CEILING IN COMBUSTIBLE CONCEALED SPACES OF WOOD JOIST OR WOOD TRUSS CONSTRUCTION WITH MEMBERS 3 FT. OR LESS ON CENTER WITH A SLOPE OF 4 TO 12 OR GREATER SHALL BE POSITIONED IN ACCORDANCE WITH FIGURE 10.2.6.1.4 AND THE REQUIREMENTS OF 10.2.6.1.4.1 THROUGH 10.2.6.1.4.6. PER NFPA 13 10.2.6.1.4.

52. ALL CONCEALED SPACES ENCLOSED WHOLLY OR PARTLY BY COMBUSTIBLE CONSTRUCTION SHALL BE PROTECTED BY SPRINKLERS UNLESS AND OF THE REQUIREMENTS OF SECTIONS 9.2 THRU 9.2.1.18.1 ARE MET.

53. -

54. CONCEALED SPACES WITH EXPOSED COMBUSTIBLES OR COMBUSTIBLE CONSTRUCTION SHALL BE SPRINKLED IN ACCORDANCE WITH THE FOLLOWING (PER NFPA SECTION 9.3.17)
   A. COMBUSTIBLES WITHIN VERTICAL PARTITIONS OR WALLS AROUND A PORTION OF AN ENCLOSURE SHALL HAVE SPRINKLERS SPACED @ 12'-0" APART, NOT MORE THAN 6'-0" FROM THE INSIDE OF THE PARTITION. 1ST & LAST SPRINKLERS WITH A MAXIMUM OF 5'-0" AT THE PARTITION ENDS.
   B. COMBUSTIBLES IN A HORIZONTAL PLANE SHALL BE SPRINKLED WITH A LIGHT HAZARD SPACING. ADDITIONAL SPRINKLERS SHALL BE INSTALLED AT A MAXIMUM OF 6'-0" OUTSIDE THE AREA OUTLINE AND NOT MORE THAN 12'-0" ON CENTER ALONG THE OUTLINE, WHEN THE OUTLINE RETURNS TO A WALL OR OTHER OBSTRUCTION THE LAST SPRINKLER SHALL BE 6'0" MAX. FROM THE WALL OR OBSTRUCTION

55. ALL VERTICAL SHAFTS SHALL REQUIRE ONE SPRINKLER AT THE TOP OF THE SHAFT WITH THE EXCEPTION OF NON ACCESSIBLE SHAFTS CONSTRUCTED OF NON OR LIMITED NON COMBUSTIBLE MATERIALS & AND NON ACCESSIBLE MECHANICAL & ELECTRICAL SHAFTS CONSTRUCTED THE SAMEWAY. PER NFPA SECTION 9.3.3.1 THRU 9.3.3.1.2.

56. VERTICAL SHAFTS HAVING COMBUSTIBLE SURFACES SHALL HAVE SPRINKLER HEADS INSTALLED AT ALTERNATE FLOORS, AND A TRAPPED SHAFT SHALL HAVE AN ADDITIONAL HEAD AT THE TOP OF EACH TRAPPED SECTION, AS WELL AS A HEAD BENEATH STAIRWAYS OF COMBUSTIBLE CONSTRUCTION. PER NFPA SECTIONS 9.3.3.2.1, 9.3.3.2.2, 9.3.3.3 & 9.3.4.1.

57. NONCOMBUSTIBLE STAIRS AND SHAFTS SHALL HAVE ONE SPRINKLER AT THE TOP, AND UNDER FIRST LANDING & AT THE SHAFT BOTTOM, AREAS BENEATH LANDINGS USED FOR STORAGE, AND NON COMBUSTIBLE STAIR SHAFTS WITH A FIRE SEPARATION HAVING A SPRINKLER ON EACH SIDE OF THE SEPARATION. PER NFPA SECTIONS 9.3.4.1.1 THRU 9.3.4.3.

58. SIDEWALL SPRAY SPRINKLERS OF ORDINARY OR INTERMEDIATE TEMPERATURE RATING SHALL BE INSTALLED 2FT. FROM THE ELEVATOR PIT FLOOR IN ADDITION TO AN UPRIGHT OR PENDANT HEAD AT THE TOP OF THE ELEVATOR HOISTWAY, THE SPRINKLER HEADS SHALL NOT BE REQUIRED FOR NON COMBUSTIBLE SHAFTS THAT DON'T CONTAIN COMBUSTIBLE HYDRAULIC FLUIDS, AND CAR CONSTRUCTION IN ACCORDANCE WITH ASME A17.1 ELEVATOR & ESCALATOR CODE. PER NFPA SECTION 9.3.6-9.3.6.6.

59. SPRINKLERS SHALL BE INSTALLED UNDER EXTERIOR ROOFS OR CANOPIES EXCEEDING 4 FT. IN WIDTH OR INSTALLED OVER AREAS WHERE COMBUSTIBLES ARE STORED OR HANDLED. HEADS CAN BE OMITTED WHERE CONSTRUCTION IS OF NON COMBUSTIBLE OR LIMITED COMBUSTIBLE MATERIALS. HEADS CAN ALSO BE OMITTED FROM CORRIDORS WHEN THE WALLS OF THE CORRIDOR AREA AT LEAST 50 OPEN WALLS & CONSTRUCTED OF NON COMBUSTIBLE MATERIAL. PER NFPA SECTIONS 9.2.3.1-9.2.3.5.

60. SPRINKLER PROTECTION SHALL BE REQUIRED IN ALL ELECTRICAL EQUIPMENT ROOMS WITH NON COMBUSTIBLE HOODS AND SHIELDS FOR PROTECTION, SPRINKLERS SHALL BE OMITTED WHERE ALL OF THE FOLLOWING PROVISIONS BEING MET: PER NFPA SECTION 9.2.6 (1-4).
   A. ROOM WITH ELECTRICAL EQUIPMENT ONLY.
   B. ONLY DRY TYPE OR LIQUID-TYPE WITH LISTED K-CLASS FLUID ELECTRICAL EQUIPMENT.
   C. 2 HR FIRE RATED ENCLOSURE AND PENETRATIONS.
   D. NO STORAGE.

61. ALL SPRINKLER SYSTEMS SHALL BE ARRANGED FOR FLUSHING, WITH 1" OR LARGER FITTINGS AT THE END OF ALL CROSS READILY REMOVABLE 1-1/4" MAINS. PER NFPA SECTIONS 16.6.1-16.6.4.

62. ALL SPRINKLER PIPE AND FITTINGS SHALL BE INSTALLED SO THE SYSTEM CAN BE DRAINED. WET PIPE SYSTEMS ARE PERMITTED TO BE INSTALLED LEVEL WITH THE EXCEPTION OF TRAPPED OR PICKETED PIPE SECTIONS, DRY PIPE SYSTEMS SHALL BE PITCHED IN ACCORDANCE WITH THE FOLLOWING, MAINS AT 1/4" PER FOOT, AND BRANCH LINES AT 1/2" PER FOOT. PER NFPA SECTIONS 16.10.2.1-16.10.3.3.

63. ALL DRAINS SHALL BE SIZED IN ACCORDANCE WITH TABLE 16.10.4.2 AND DISCHARGE OUTSIDE THE BUILDING, OR TO A DRAIN CONNECTION. PER NFPA SECTION 16.10.4.

64. TEST CONNECTIONS SHALL BE PERMITTED TO BE USED AS A MAIN DRAIN CONNECTION AND SHALL BE PROVIDED AT LOCATIONS THAT WILL PERMIT FLOW TESTS OF WATER SUPPLIES AND CONNECTIONS. THE VALVE MUST BE OPENED WIDE FOR SUFFICIENT TIME TO ASSURE A PROPER TEST WITHOUT CAUSING WATER DAMAGE. PER NFPA SECTIONS 16.10.4.6.1-16.10.4.9.

65. DIRECT INTERCONNECTIONS SHALL NOT BE MADE BETWEEN SPRINKLER DRAINS AND SEWERS, THE DRAIN DISCHARGE MUST CONFORM TO HEALTH AND WATER DEPARTMENT REGULATIONS, AND DRAIN PIPING SHALL BE ARRANGED TO AVOID FREEZING AND EXPOSURE, IN ADDITION THE DRAIN SHALL BE FITTED WITH A TURNED DOWN ELBOW. PER NFPA SECTIONS 16.10.6.1-16.10.6.6.

66. ALL SPRINKLER PIPING, HANGERS AND FITTINGS SHALL BE PROTECTED AGAINST CORROSION.

67. ALARM TEST CONNECTION FOR WET PIPE SPRINKLER SYSTEMS SHALL NOT BE LESS THAN 3/4" DIA. TERMINATING IN A SMOOTH BORE CORROSION-RESISTANT DRIFICE GIVING THE FLOW EQUIVALENT OF ONE SPRINKLER OF A TYPE HAVING THE SMALLEST DRIFICE INSTALLED ON THE PARTICULAR SYSTEM TO TEST THE WATERFLOW ALARM DEVICE. THE DISCHARGE SHALL BE TO THE OUTSIDE & THE VALVE READILY ACCESSIBLE. PER NFPA SECTIONS 16.4.2.1-16.4.2.4.

68. AS PER NFPA SECTION 16.4.1 ONLY APPROVED MATERIALS WILL BE USED, SPRINKLERS WILL BE PROTECTED AGAINST FREEZING AND MECHANICAL INJURY.

69. ALL SPRINKLER SYSTEM HANGERS, BRACING, AND PIPING RESTRAINT SHALL BE IN ACCORDANCE WITH NFPA 13 CHAPTER #17.

70. ALL PIPE HANGERS SHALL BE FERROUS AND DESIGNED TO SUPPORT FIVE TIMES THE WEIGHT OF THE WATER FILLED PIPE PLUS 250 LBS. AT EACH POINT OF SUPPORT, THE SPACING BETWEEN HANGERS SHALL NOT EXCEED THE VALUE GIVEN FOR A GIVEN PIPE MATERIAL AS PER TABLE 17.4.2.1(A) OR TABLE 17.4.2.1(B). PER NFPA SECTION 17.1.2.

71. NO SPRINKLER OR DRAIN PIPING SHALL BE SUPPORTED FROM ANOTHER PIPE LINE OR OTHER HANGERS OR SUPPORTS.

72. FOR TRAPEZE HANGERS, THE MINIMUM SIZE OF STEEL ANGLE OR PIPE SPAN BETWEEN STRUCTURAL MEMBERS SHALL BE SUCH THAT THE SECTION MODULUS REQUIRED IN TABLE 17.3.1(A) DOES NOT EXCEED THE AVAILABLE SECTION MODULUS OF THE TRAPEZE MEMBER FROM TABLE 17.3.1(B) OR TABLE 17.3.1(C).

73. HANGER ROD SIZE SHALL BE THE SAME AS THAT APPROVED FOR USE WITH THE HANGER ASSEMBLY, AND THE ROD SIZE SHALL NOT BE LESS THAN THE FOLLOWING. NFPA SECTION 17.2.1.1.
   A. 4" & SMALLER - 3/8" DIAMETER
   B. 5"-8" - 1/2" DIAMETER
   C. 10" - 5/8" DIAMETER
   D. 12" - 3/4" DIAMETER

74. THE SIZE OF THE ROD MATERIAL FOR EYE RODS SHALL BE THE FOLLOWING. PER NFPA SECTION 17.2.1.5.1.
   A. 4" & SMALLER - BENT EYE 3/8"DIA., WITH WELDED EYE 3/4"DIA.
   B. 5"-6" - BENT EYE 1/2"DIA., WITH WELDED EYE 1/2"DIA.
   C. 8" - BENT EYE 3/4"DIA., WITH WELDED EYE 1/2"DIA.

75. THE SIZE OF THE ROD MATERIAL OF U-HOOKS SHALL BE THE FOLLOWING. PER NFPA SECTION 17.2.1.4.
   A. 2" & SMALLER 3/8"DIA.
   B. 2½"-6" 3/8" DIA.
   C. 8" 1/2" DIA.

76. THE USE OF LISTED INSERTS SET IN CONCRETE AND LISTED POST-INSTALLED ANCHORS TO SUPPORT HANGERS SHALL BE PERMITTED FOR MAINS AND BRANCH LINES WITH THE FOLLOWING CONDITIONS. PER NFPA SECTIONS 17.2.2.2-17.2.2.8.
   A. POST-INSTALLD ANCHORS SHALL NOT BE USED IN CINDER CONCRETE, EXCEPT FOR BRANCH LINES WHERE THE POST-INSTALLED ANCHORS ARE ALTERNATED WITH THOUGH-BOLTS OR HANGERS ATTACHED TO BEAMS.
   B. POST-INSTALLED ANCHORS SHALL NOT BE USED IN CEILINGS OF GYPSUM OR OTHER SIMILAR SOFT MATERIAL.
   C. UNLESS THE REQUIREMENTS OF 17.2.2.5 ARE MET, POST-INSTALLED ANCHORS SHALL BE INSTALLED IN A HORIZONTAL POSITION IN THE SIDES OF CONCRETE BEAMS.
   D. POST-INSTALLED ANCHORS CAN BE INSTALLED IN THE VERTICAL POSITION WHEN CONCRETE IS COMPRISED OF GRAVEL OR CRUSHED STONE TO SUPPORT PIPES 4" OR SMALLER, WHEN THEY ARE ALTERNATED WITH HANGERS CONNECTED DIRECTLY TO THE STRUCTURAL MEMBERS (5" OR LARGER PIPE), AND WHEN THEY ARE NOT SPACED OVER 10' TO SUPPORT PIPE 4" OR LARGER.
   E. PENETRATIONS FOR POST-INSTALLED ANCHORS IN THE SIDE OF BEAMS SHALL BE ABOVE THE CENTERLINE OF THE BEAM ABOVE THE BOTTOM REINFORCEMENT STEEL RODS.
   F. PENETRATIONS FOR POST-INSTALLED ANCHORS USED IN THE VERTICAL POSITION SHALL BE DRILLED TO PROVIDE UNIFORM CONTACT WITH THE SHIELD OVER ITS ENTIRE CIRCUMFERENCE.
   G. THE DEPTH OF THE POST-INSTALLED ANCHOR PENETRATION SHALL NOT BE LESS THAN SPECIFIED FOR THE TYPE OF SHIELD USED.

77. THE MINIMUM BOLT SIZE USED WITH THE PIPE HANGERS AND INSTALLED THROUGH CONCRETE SHALL NOT BE LESS THAN THE FOLLOWING. PER NFPA SECTION 17.2.2.10.1.
   A. 4" & SMALLER - 3/8"
   B. 5"-8" - ½"
   C. 10" - 5/8"
   D. 12" - ¾"

78. THE MINIMUM BOLT SIZE USED WITH A HANGER AND INSTALLED THROUGH STEEL SHALL NOT BE LESS THAN THE FOLLOWING. PER NFPA SECTION 17.2.3.5.1.
   A. 4" & SMALLER - 3/8"
   B. 5"-8" - ½"
   C. 10" - 5/8"
   D. 12" - ¾"

79. DRIVE SCREWS SHALL ONLY BE USED IN THE HORIZONTAL POSITION AS IN THE SIDE OF A BEAM AND ONLY 2" OR SMALLER PIPE. DRIVE SCREWS SHALL ONL