FIRE PROTECTION SYMBOLS

(NOT ALL SYMBOLS ARE NECESSARILY USED ON THIS PROJECT)

F	FIRE STANDPIPE PIPING
SPR	SPRINKLER PIPING
PA	PREACTION SYSTEM SPRINKLER PIPING
DR	DRAIN PIPING
	PIPING BELOW SLAB
	EXISTING PIPING
	EXISTING PIPING TO BE REMOVED
	PIPING w/FREEZE PROTECTION CABLE & INSULATION
	SLOPED CHANGE IN PIPE ELEVATION
	WATER PROOF SLEEVE
	SLEEVE
	FIRE HOSE VALVE
	FIRE HOSE VALVE IN CABINET
	FIRE HOSE VALVE w/HOSE IN CABINET
	SPRINKLER FLOOR CONTROL VALVE ASSEMBLY
	COMMERCIAL RISER MANIFOLD ASSEMBLY
	CONNECT TO EXISTING
	EXISTING FIRE HYDRANT
	NEW FIRE HYDRANT
	PLUG VALVE
	MIXING VALVE
	RELIEF VALVE
	BALL VALVE
	GATE VALVE
	GLOBE VALVE
	OUTSIDE SCREW & YOKE (OS & Y) VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE (PRV)
	SOLENOID VALVE
	FLOAT VALVE
	BACKWATER VALVE
	Y STRAINER w/BLOW-OFF VALVE
RPZ	REDUCED PRESSURE ZONE BACKFLOW PREVENTER ASSEMBLY
DCV	DETECTOR CHECK VALVE ASSEMBLY
T	TAMPER SWITCH
	WATERFLOW SWITCH
	PRESSURE GAUGE w/GAUGE COCK
	TEMPERATURE GAUGE
# #	HYDRAULIC REF. POINTS (WET SYSTEM) (#)=ELEMENT (#)=NODE

FIRE PROTECTION ABBREVIATIONS

(NOT ALL ABBREV. ARE NECESSARILY USED ON THIS PROJECT)

ABD	AUTOMATIC BALL DRIP
AD	AREA DRAIN
AFF	ABOVE FINISHED FLOOR
ATS	AUTOMATIC TRANSFER SWITCH
BOP	BOTTOM OF PIPE
CFM	CUBIC FEET PER MINUTE
(CTE)	CONNECT TO EXISTING
CV	CHECK VALVE
DIA	DIAMETER
DR	DRAIN
DN	DOWN (PENETRATES FLOOR SLAB)
(E)	EXISTING
FHC	FIRE HOSE CABINET
FCVA	FLOOR CONTROL VALVE ASSEMBLY
FHV	FIRE HOSE VALVE
FHVC	FIRE HOSE VALVE CABINET
FD	FLOOR DRAIN
FL	FLOOR
FP	FIRE PUMP
FSP	FIRE STANDPIPE
FT	FEET
GC	GENERAL CONTRACTOR
GV	GATE VALVE
GAL	GALLONS
GPM	GALLONS PER MINUTE
HD	HEAT DETECTOR
ID	INSIDE DIAMETER
IN	INCH
JP	JOCKEY PUMP
MAX	MAXIMUM
MIN	MINIMUM
(N)	NEW
NC	NORMALLY CLOSE
N.I.C.	NOT IN THIS CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
OS&Y	OUTSIDE SCREW & YOKE GATE VALVE
PSIA	POUNDS PER SQUARE INCH (ABSOLUTE)
PSI	POUNDS PER SQUARE INCH (GAUGE)
PRV	PRESSURE REDUCING VALVE
SD	SMOKE DETECTOR
SPR	SPRINKLER
TOP	TOP OF PIPE
TS	TAMPER SWITCH
UON	UNLESS OTHERWISE NOTED
UP	UP (PENETRATES FLOOR SLAB)
WFS	WATER FLOW SWITCH
Z	ZONE

FIRE PROTECTION DEMOLITION NOTES:

1. REMOVE EXISTING SPRINKLER HEADS AND PIPING IN THE AREA OF WORK, BACK TO EXISTING SPRINKLER MAINS. ALL ABANDONED PIPING TO BE REMOVED.
2. MAKE ANY NECESSARY TEMPORARY CONNECTIONS BETWEEN EXISTING AND NEW WORK TO MAINTAIN CONTINUOUS SERVICE OF ALL EXISTING SYSTEMS. MINIMIZE SHUTDOWNS. OBTAIN WRITTEN APPROVAL FROM BUILDING MANAGEMENT/LANDLORD FOR SHUTDOWNS. ALL SHUT-DOWNS REQUIRE 24 HOUR NOTICE TO OWNER.
3. CONTRACTOR SHALL CAREFULLY EXAMINE EXISTING CONDITIONS BEFORE STARTING ANY WORK.
4. CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER BEFORE REMOVING OR RELOCATING ANY EXISTING PIPING NOT INDICATED ON DRAWINGS.

SPRINKLER DESIGN CRITERIA:

ENTIRE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY CALCULATED TO MEET FOLLOWING CRITERIA:

1. ORDINARY 1 HAZARD OCCUPANCY - MECHANICAL ROOMS, STORAGE ROOMS & AND ALL OTHER SIMILAR AREAS: DENSITY 0.15 GPM PER SQ. FT OVER MOST HYDRAULICALLY REMOTE 1,500 SQ. FT., MAXIMUM COVERAGE PER SPRINKLER HEAD = 130 SQ. FT.
2. LIGHT HAZARD OCCUPANCY - OFFICE SPACE, TOILET ROOMS, PATIENT ROOMS, CORRIDORS, PATIENT/EXAM ROOMS & ALL OTHER AREAS: DENSITY 0.10 GPM PER SQ. FT. OVER MOST HYDRAULICALLY REMOTE 1,500 SQ. FT., MAXIMUM COVERAGE PER SPRINKLER HEAD = 196 SQ. FT.
3. MINIMUM PRESSURE AT PREACTION SPRINKLER SYSTEM SPRINKLER HEAD - 12.30 PSI OR AS REQUIRED BY SPRINKLER HEAD, WHICHEVER IS GREATER.
4. WHENEVER ROLL GROOVED CONNECTIONS ARE USED, ALLOWANCE FOR ADDITIONAL PRESSURE LOSS AT GROOVES SHALL BE MADE AS FOLLOWS:
   - 4.1. FOR EACH COUPLING ON STRAIGHT RUN INCLUDING STRAIGHT FLOW THROUGH TEE OR CROSS: ADD 1 EQUIVALENT FOOT OF PIPE.
   - 4.2. FOR EACH COUPLING AT ELBOW, TEE OR CROSS WHERE DIRECTION OF FLOW CHANGES: ADD 2 EQUIVALENT FEET OF PIPE:
5. EQUIVALENT FITTING LENGTHS USED IN HYDRAULIC CALCULATIONS SHALL BE IN ACCORDANCE WITH NFPA STANDARD NO. 13
   - 5.1. WHEREVER FITTINGS ARE USED IN CONJUNCTION WITH LIGHTWALL PIPE, EQUIVALENT FITTING LENGTHS INDICATED IN NFPA-13 SHALL BE INCREASED BY 30%
6. DISCHARGE FROM EACH SPRINKLER HEAD SHALL NOT BE LESS THAN REQUIRED FOR AREA COVERED BY THIS HEAD. AREA COVERAGE PER HEAD SHALL BE DETERMINED IN ACCORDANCE WITH NFPA STANDARD NO. 13, PARAGRAPH 7-4.3.1.2.
7. HYDRAULIC CALCULATIONS SHALL BE BROUGHT BACK TO CONNECTION TO WATER SUPPLY.

FIRE PROTECTION GENERAL NOTES:

1. GENERAL NOTES, SYMBOLS LIST AND DETAILS ARE APPLICABLE TO ALL DRAWINGS MARKED F.
2. ALL FIRE PROTECTION WORK SHALL BE IN ACCORDANCE WITH THE CURRENT FIRE PROTECTION CODE AND ALL APPLICABLE LOCAL CODES AND DRAWINGS.
3. PROVIDE WET-PIPE SPRINKLERS IN ALL AREAS.
4. SECURE MOST RECENT FIRE PUMP FLOW TEST DATA FOR THE USE IN PERFORMING HYDRAULIC CALCULATIONS.
5. SPRINKLER SYSTEM SHALL BE HYDRAULICALLY CALCULATED FOR LIGHT HAZARD EXCEPT AS NOTED.
6. HYDRAULIC CALCULATIONS SHALL BE BROUGHT BACK TO CONNECTION TO WATER SUPPLY FIRE RISER.
7. SYSTEMS SHALL BE BALANCED TO MAINTAIN MINIMUM 30 MINUTES FIRE RESERVE.
8. ADD 10 PSI CONTINGENCY FACTOR TO HYDRAULIC CALCULATIONS.
9. EXACT LOCATION OF SPRINKLER HEADS IN FINISHED AREAS WITH SUSPENDED CEILING SHALL BE AS INDICATED ON REFLECTED CEILING PLANS.
10. MAXIMUM PRESSURE AT END SPRINKLER HEAD 14.10 PSI, OR AS REQUIRED BY SPRINKLER HEAD FOR LIGHT HAZARD SYSTEM. (WHICHEVER DEMAND IS GREATER)
11. EQUIVALENT FITTING LENGTHS USED IN HYDRAULIC CALCULATIONS SHALL BE IN ACCORDANCE WITH NFPA-13 STANDARD.
    - a. WHEREVER FITTINGS ARE USED IN CONJUNCTION WITH LIGHTWALL PIPE, EQUIVALENT FITTING LENGTHS INDICATED IN NFPA-13 SHALL BE INCREASED BY 30%
12. MAXIMUM FLOW VELOCITY SHALL NOT EXCEED 20 F.P.S.
13. ALL AUTOMATIC SPRINKLER HEADS, PIPE FITTINGS, PIPE HANGERS, AUTOMATIC CONTROL VALVES AND MANUAL CONTROL VALVES SHALL BEAR FACTORY MUTUAL APPROVAL AND SHALL BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
14. ALL EXPOSED PIPE, FITTINGS, HANGERS AND SUPPLEMENTARY STEEL SHALL BE PAINTED.
15. ENDS OF ALL CROSS MAINS SHALL BE PROVIDED WITH THREADED FLUSHING CONNECTION NO MORE THAN 2 INCHES IN DIAMETER.
16. PROVIDE AUXILIARY DRAINS FOR ALL BELOW DUCT SPRINKLERS AND OTHER TRAPPED SECTIONS. PIPING TO ONE SINGLE SPRINKLER IS EXCLUDED.
17. PROVIDE FLUSHING CONNECTIONS WHERE REQUIRED BY NFPA AND F.M.
18. COORDINATE WITH OWNER FOR ALL SHUTDOWNS.
19. PROVIDE TEST CONNECTIONS AT HIGHEST POINT OF MAIN PORTION OF EACH SPRINKLER SYSTEM, WITH 1" PIPE AND VALVE. TEST PIPE SHALL BE CONNECTED TO SPRINKLER PIPE AT LEAST 1-1/4" IN SIZE AND SHALL DISCHARGE OUTSIDE BUILDING OR THROUGH 1/2" SMOOTH BORE BRASS OUTLET, WHERE IT CAN BE EASILY SEEN.
20. PROVIDE ADDITIONAL HEADS UNDER DUCTWORK LARGER THAN 48" WIDE.
21. WATER SUPPLY INFORMATION TO BE VERIFIED BY FIRE PUMP FLOW TEST DATA.
22. THE INSTALLATION COMPONENT, SIZING, SPACING, CLEARANCES, POSITION AND TYPE OF SYSTEMS SHALL CONFORM TO LOCAL APPLICABLE LAWS & NFPA.
23. CONTRACTOR SHALL COORDINATE ALL SPRINKLER RISER SHUTDOWNS AND DRAIN DOWNS WITH THE BUILDING OPERATIONS STAFF AND THE LANDLORD 5 WORKING DAYS PRIOR TO WORK.
24. SPRINKLER DISTRIBUTION MAIN PIPING IDENTIFICATION LABELS & PIPE TAGS ABOVE THE CEILING SHALL BE PROVIDED AND COORDINATED BY SPRINKLER CONTRACTOR.
25. ALL COMPONENTS USED IN FIRE PROTECTION SYSTEMS SHALL BE IN ACCORDANCE WITH THE OWNER'S GUIDELINES, STANDARDS AND SPECIFICATIONS.
26. NEW SPRINKLER HEAD TYPE AND TEMPERATURE RATING SHALL BE IN ACCORDANCE WITH SPRINKLER SCHEDULE, UNLESS NOTED OTHERWISE AND/OR REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
27. COORDINATE ALL PIPE PENETRATIONS AND CORING WITH STRUCTURAL ENGINEER.
28. REFER TO ARCHITECTURAL DRAWINGS FOR ALL CEILING RELATED WORK.
29. COORDINATE ALL NEW FIRE PROTECTION WORK WITH ALL NEW DUCTWORK, PIPING AND UTILITIES OF ANY SYSTEMS. DRAWINGS ARE DIAGRAMMATIC AND SHOW THE INTENT OF THE DESIGN. REROUTE SPRINKLER PIPING AROUND ANY NEW SYSTEMS, INCLUDING ALL REQUIRED FITTINGS AND SUPPORTS TO MAKE THE INSTALLATION OF THE SPRINKLER PIPING AND SPRINKLER HEADS POSSIBLE. RESEAL ANY FIRE AND/OR SMOKE RATED PENETRATIONS THAT HAVE BEEN AFFECTED AS A RESULT OF ANY MODIFICATIONS.
30. NEW SPRINKLER HEAD TYPE AND TEMPERATURE RATING SHALL BE IN ACCORDANCE WITH SPRINKLER SCHEDULE, UNLESS NOTED OTHERWISE AND/OR REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION.
31. CLOSELY SPACED SPRINKLER HEADS LOCATED 6'-0" O.C. AND LOT LINE SPRINKLERS SHALL DISCHARGE MINIMUM 3 GPM PER LINEAR FOOT OF PROTECTED LINE. NUMBER OF CLOSELY SPACED SPRINKLERS INCLUDED IN HYDRAULIC CALCULATIONS SHALL BE IN ACCORDANCE WITH NFPA-13 PARA, 4-4.8.2.3.
32. WHENEVER ROLL GROOVED CONNECTIONS ARE USED, ALLOWANCE FOR ADDITIONAL PRESSURE LOSS AT GROOVES SHALL BE MADE AS FOLLOWS:
    - b. FOR EACH COUPLING ON STRAIGHT RUN INCLUDING STRAIGHT FLOW THROUGH TEE OR CROSS: ADD 1 EQUIVALENT FOOT OF PIPE.
    - c. FOR EACH COUPLING AT ELBOW, TEE OR CROSS WHERE DIRECTION OF FLOW CHANGES: ADD 2 EQUIVALENT FEET OF PIPE
33. DISCHARGE FROM EACH SPRINKLER HEAD SHALL NOT BE LESS THAN REQUIRED FOR AREA COVERED BY THIS HEAD. AREA COVERAGE PER HEAD SHALL BE DETERMINED IN ACCORDANCE WITH NFPA STANDARD NO. 13, PARAGRAPH 7-4.3.1.2.

SPRINKLER HEAD SCHEDULE

REQUIRED	DESIGNATION	UPRIGHT SPRINKLER HEAD	HIGH TEMPERATURE	FLUSH PLATE SPR.	PENDENT	HORIZONTAL SIDEWALL SPRINKLER HEAD	EXISTING UPRIGHT SPR. ABOVE CEILING	DRY HEAD	EXISTING "OLD STYLE" PENDANT SPR. HEAD	QUICK RESPONSE	PROVIDE BROWN WAX FINISH/COATING	EXIST SPR HEAD TO BE REMOVED/RELOCATED	EXIST SPRINKLER HEAD	SPRINKLER INSTALLED ABOVE NACT CEILING	MANUFACTURER: CENTRAL	MANUFACTURER: RELIABLE	MANUFACTURER: GRINNELL	MANUFACTURER: STAR	MANUFACTURER: VIKING	MANUFACTURER:	REMARKS
															MODEL NUMBER						
○	—○	○								○					F1FR56						K=5.6 1/2" ORIFICE 155°F RATING
○	—◎			○						○					G5-56						K=5.6 1/2" ORIFICE 165°F RATING, 135°F COVERPLATE

NOTES:
1. EXPOSED UPRIGHT HEADS IN OCCUPIED SPACES SHALL BE CHROME FINISH.
2. PROVIDE ESCUTCHEONS WHEN PENETRATING EXPOSED WALL.
3. PROVIDE SPRINKLER GUARDS AT ALL HEADS 7'-0" AND LOWER.
4. COLOR SELECTION BY ARCHITECT.

FIRE PROTECTION DRAWING LIST

DRAWING No.	DRAWING TITLE
F00-01	FIRE PROTECTION COVER SHEET
F00-10	FIRE PROTECTION DETAILS
F00-20	FIRE PROTECTION SPECIFICATIONS
F01-06	FIRE PROTECTION FLOOR PLAN LEVEL 6 - DEMOLITION
F02-06	FIRE PROTECTION FLOOR PLAN LEVEL 6

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FIRE PROTECTION COVER SHEET

Sheet

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