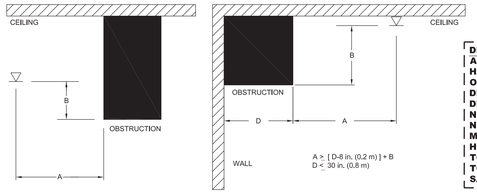
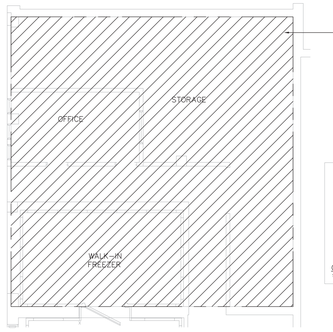
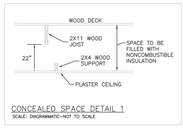
Distance from Sprinklers to Side of Obstruction (A)	Maximum Allowable Distance of Deflector above Bottom of Obstruction (in.) (B)
Less than 1 ft.	0
1 ft to less than 1 ft. 6 in.	2-½"
1 ft 6 in. to less than 2 ft.	3-½"
2 ft to less than 2 ft. 6 in.	5-½"
2 ft 6 in. to less than 3 ft.	7-½"
3 ft to less than 3 ft. 6 in.	9-½"
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.	16-½"
5 ft and greater	18"



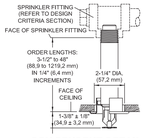
OBSTRUCTION AGAINST WALLS (SSU/SSP)

DESIGN DATA: CALCULATION #8
AREA: CANOPY
HAZARD: LIGHT
OCCUPANCY: INSTITUTIONAL
DENSITY: .10 GPM/FT. 345 SQ. FT.
DESIGN AREA PROTECTED AS PER NFPA #13 BY A SINGLE LINE
NO. SPRINKLERS CALCULATED: 6
MAX AREA PER SPRINKLER: 50 SQ. FT.
HOSE ALLOWANCE: 100 GPM
TOTAL WATER REQUIRED: 207.885 GPM
TOTAL PRESSURE REQUIRED: 35.032 PSI
SAFETY FACTOR: 16.256 PSI

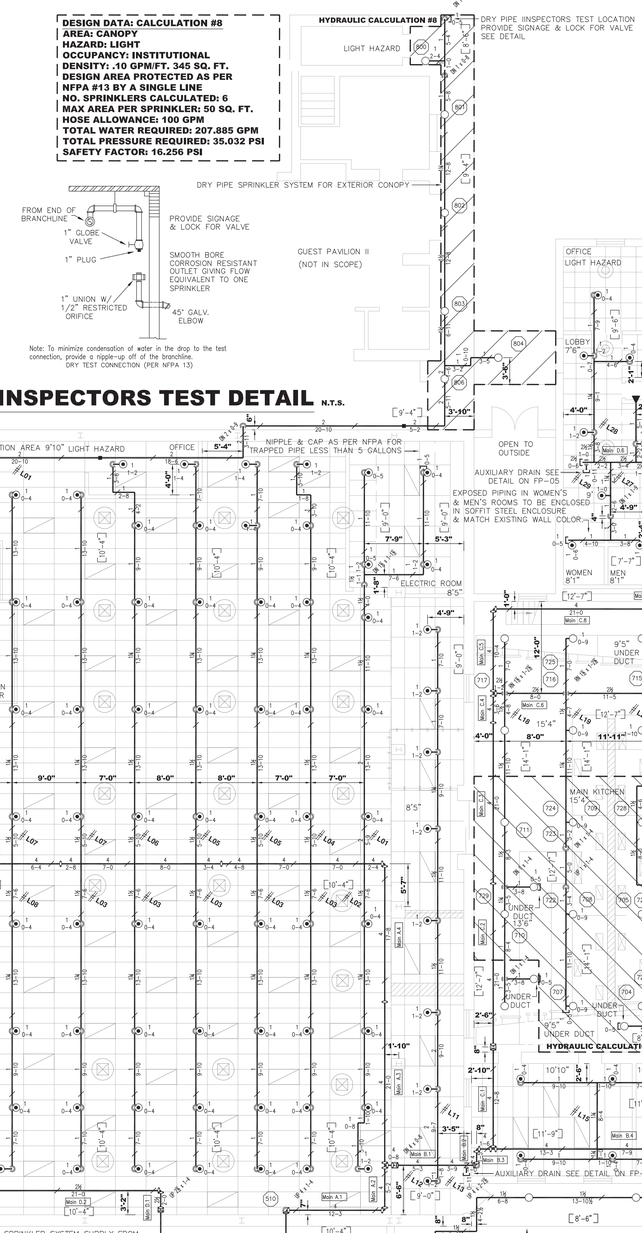


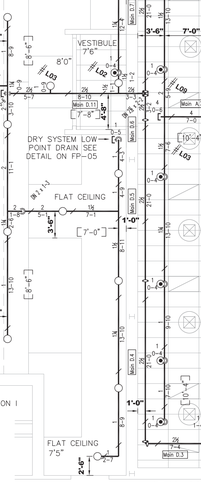


CONCEALED SPACE DETAIL 1
SCALE: DIAGRAMATIC–NOT TO SCALE



DRY PENDENT DETAIL





SPRINKLER SYSTEM LEGEND:

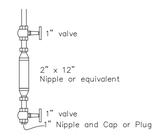
- (REF) HYDRAULIC REFERENCE POINT
- HYDRAULIC REMOTE AREA
- VERTICAL PIPE (UP or DN)
- [FCA] FLOOR CONTROL ASSEMBLY
- WET PIPE SYSTEM (SCH 40 BLACK STEEL PIPE)
- HANGER LOCATION
- [0'–0"] PIPE ELEVATION ABOVE FINISHED FLOOR

INSTALLATION / REVIEW NOTES:

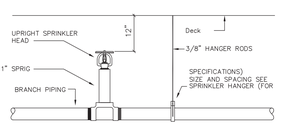
1) Field verify all sprinkler and pipe locations prior to installation.
2) All pipe dimensions shown are center of the fitting.
3) Hydraulic Areas were decreased a certain percentage for Quick Response Sprinklers use.
4) Install wire guards on all sprinklers less than 6'–8" high in exposed ceilin areas – Mech./Elect. rooms
5) Route 1" Auxilliary Drains (as needed) for unforseen trapped areas.
6) Piping for Mains is Black Schedule 10 Grooved Steel Pipe with Grooved Fittings. Piping for Branchlines is Black Schedule 40 Threaded Steel Pipe with Cast Iron Fitttings.
7) All dry system piping is Black Schedule 40 Steel Pipe, grooved for mains and branchlines.
8) All dry system piping is Schedule 40 grooved, fittings, and hangers shall be galvanized.
9) The length of an unsupported armover to a sprinkler in the pendent position shall not exceed 24" in length.
10) End line sprinklers in the pendent position shall be supported by a hanger that prevents upward movement of the piping.
11) All ceiling heights are 8'–5" (uon).

GENERAL NOTES:

1. Contractors work shall consist of all necessary labor and material to design and install new automatic fire sprinkler sytems on the guest pavilion #1 and kitchen buildings.
2. Contract excludes all electrical work.
3. Sprinkler System design and installation shall conform to NFPA 13, the project specifications, and the state of delaware rules and regulations.
4. All material to be UL/FM approved for fire services.
5. All piping shall be Black Schedule 40 steel pipe (uon). All threaded fittings shall be Malleable Iron Class 300 (uon).
6. Sprinkler equipment room components shall be properly indentified.
7. All hangers shall be in accordance with NFPA 13 and the hanger listing requirements.
8. All systems shall be tested at 200 PSI or 50 PSI above maximum working pressure, which ever is greater, for 2 hours and witnessed by the UT Fire Marshal's Office inspector. Any leaks shall be repaired.
9. The systems have been hydraulically calculated per NFPA 13.
10. Owner or tenant is responsible for maintaining adequate thermostatically controlled heat (Min. 40 degrees F.) throughout the area protected by a wet system.



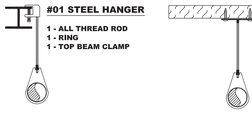
AUXILIARY DRAIN **DRY SYSTEM LOW POINT DRAIN**

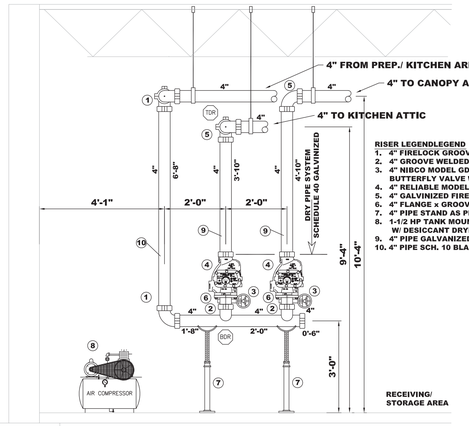


UPRIGHT SPRINKLER DETAIL N.T.S.

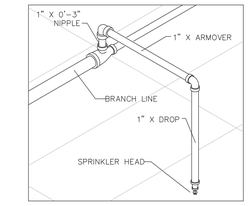
DRY INSPECTORS TEST DETAIL N.T.S.

Note: To minimize condensation of water in the drop to the test connection, provide a nipple–up off of the branchline.
DRY TEST CONNECTION (PER NFPA 13)

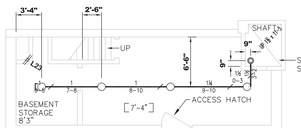




SECTION C 1/2" = 1'-0"



RETURN BEND DETAIL N.T.S.



BASEMENT SPRINKLER PLAN

SCALE 1/8"=1'-0"

DESIGN DATA: CALCULATION #5
AREA: RECEIVING & STORAGE AREA
HAZARD: ORDINARY GROUP 2
OCCUPANCY: INSTITUTIONAL
DENSITY: .20 GPM/FT. 1500 SQ. FT.
NO. SPRINKLERS CALCULATED: 15
MAX AREA PER SPRINKLER: 110 SQ. FT.
HOSE ALLOWANCE: 250 GPM
TOTAL WATER REQUIRED: 590.847 GPM
TOTAL PRESSURE REQUIRED: 34.324 PSI
SAFETY FACTOR: 12.757 PSI
TOP OF STORAGE = 10 FEET

KITCHEN / DINNING SPRINKLER PLAN

SCALE 1/8"=1'-0"

* ORDINARY GROUP 1 HAZARD OCCUPANCY UNLESS OTHERWISE NOTED *
* INSTALL NIPPLE & CAP AS PER NFPA FOR TRAPPED PIPE LESS THAN 5 GALLONS *
* TYPE OF CONSTRUCTION : STEEL FRAMING W/ STEEL & WOOD DECK *

SCOPE OF WORK

INSTALL WET AND DRY PIPE SYSTEMS FROM GUEST PAVILION #1. DRY VALVES TO BE LOCATED IN WAREHOUSE TO SUPPLY EXTERIOR CONPIES AND ATTIC ABOVE KITCHEN.

FIRE SPRINKLER NOTES

SYSTEM DESIGNED AS PER NFPA #13 2002 EDITION

256 TOTAL SPRINKLER HEADS W/ DEFLECTORS @ 1"–12" FROM BOTTOM OF CEILING/ DECK & PARALLEL

19,122 SQ. FT. TOTAL AREA PROTECTED ON WET SYSTEM

THE TOTAL VOLUME OF CANOPY DRY SYSTEM IS 47 US GALLONS

THE TOTAL VOLUME OF KITCHEN ATTIC DRY SYSTEM IS 137 US GALLONS

CONTRACTOR SHALL:

PROVIDE REQUIRED SIGNS & FLUSHING CONNECTIONS.

CONTRACTORS MATERIAL AND TEST CERTIFICATES FOR ABOVE GROUND AND UNDERGROUND PIPE SHALL BE SUBMITTED TO THE FIRE MARSHALL PRIOR TO APPROVAL OF THE INSTALLATION.

PIPE MATERIAL

1"–2" SCH. 40 THREADED BLACK STEEL W/ THREADED CAST IRON FITTINGS

2½"–6" SCH. 10 GROOVED BLACK STEEL W/ GROOVED FITTINGS W/ WELDED OUTLETS

ALL DRY PIPE SCH. 40 BLACK STEEL

ALL DRY PIPE AND FITTINGS SHALL BE GALVANIZED

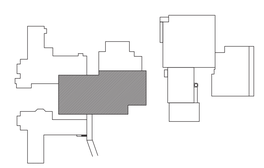
ALL DIMENSIONS & ELEVATIONS ARE CENTERLINE OF PIPE & STEEL UNLESS NOTED OTHERWISE

PITCH DRY SYSTEM PIPE BACK TO RISER

MIN: 1/4" PER 10'–0" FOR MAINS

MIN: 1/2" PER 10'–0" FOR BRANCHLINES

DESIGN DATA: CALCULATION #7
AREA: KITCHEN
HAZARD: ORDINARY GROUP 1
OCCUPANCY: INSTITUTIONAL
DENSITY: .15 GPM/FT. 1020 SQ. FT.
AREA REDUCTION AS PER NFPA #13 FOR QUICK RESPOSE SPRINKLERS
NO. SPRINKLERS CALCULATED: 12
MAX AREA PER SPRINKLER: 100 SQ. FT.
HOSE ALLOWANCE: 250 GPM
TOTAL WATER REQUIRED: 478.996 GPM
TOTAL PRESSURE REQUIRED: 36.918 PSI
SAFETY FACTOR: 11.746 PSI



KEY PLAN N.T.S.

PJH
FIRE SPRINKLER DESIGN, L.L.C.
58 GINGER COURT, BUILDING 5, SUITE 3B
TELEPHONE: 732-446-4657
TELEPHONE: 732-446-4658
FACSIMILE: 732-440-4658
WWW.PJHFIRESPRINKLERDESIGN.COM

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REVISION #1 AS PER DELAWARE STATE FIRE MARSHAL
PLAN REVIEW REPORT DATED 04-22-2010

OWNER: STATE OF DELAWARE
DELAWARE HEALTH AND SOCIAL SERVICES
DIVISION OF FACILITIES MANAGEMENT

CONTRACTOR:

SYMBOL	MAKE	MODEL	SIN	K	ORIFICE	TEMP	FINISH	ESCUTCHEON	QTY. BLDG.	TOTAL FOR THIS PROJECT
◆	RELIABLE	F1FR PENDENT	R3815	5.6	1/2"	155°	CHROME	F2 ESCUTCHEON	130	256
●	RELIABLE	F1FR PENDENT	R3825	5.6	1/2"	155°	BRONZE	F2 ESCUTCHEON	95	507
◎	RELIABLE	F1FH UPRIGHT	R3825	5.6	1/2"	155°	BRONZE	1" SPRIG UP	4	
◇	RELIABLE	F1FR UPRIGHT	R3822	8.0	3/4"	155°	BRONZE	N/A	20	
▼	RELIABLE	F1FR PENDENT	R3825	5.6	1/2"	155°	WHITE	F2 ESCUTCHEON	7	
■	RELIABLE	F1QR DRY PEND	R3714	5.6	1/2"	155°	CHROME	F2 ESCUTCHEON	10	

SPRINKLER LEGEND

CONTRACT NAME: *Delaware Hospital For The Chronically Ill*
100 Sunnyside Road
Smyrna, Delaware
Existing Building

DESCRIPTION: NFPA 13 AUTOMATIC FIRE SPRINKLER SYSTEM

SCALE:	1/8" = 1'-0"
DRAWN BY:	P.J.H.
CHECKED BY:	P.J.H.
DATE:	03/22/10
DWG. NO.:	FP-05
SHEET:	5 OF 6
CONTRACT #	10–015