

UL SYSTEM NO. CA1154
METALLIC PIPE THROUGH CONCRETE FLOOR WALL, OR BLOCK WALL
F RATING = 3-HR
T RATING = 1/4-HR



- FLOOR OR WALL ASSEMBLY:
 - LIGHTWEIGHT OR NOMINAL WEIGHT CONCRETE FLOOR/WALL (MINIMUM 4-1/2" THICK).
 - ANY UL CLASSIFIED CONCRETE BLOCK WALL.
 - THROUGH PENETRATING ITEM TO BE ONE OF THE FOLLOWING:
 - MAXIMUM 4" NOMINAL DIAMETER STEEL PIPE (SCHEDULE 20 OR HEAVIER).
 - MAXIMUM 4" NOMINAL DIAMETER COPPER PIPE.
 - MAXIMUM 4" NOMINAL DIAMETER BRASS PIPE.
 - MAXIMUM 4" NOMINAL DIAMETER ALUMINUM PIPE.
 - MAXIMUM 4" NOMINAL DIAMETER INDEPENDENT FIRESTOP SEALANT.
 - MIN. 1/2" BRAD HIGH PERFORMANCE INDEPENDENT FIRESTOP SEALANT AT PIPE POINT OF CONTACT.
- NOTES: 1. MAXIMUM DIAMETER OF DRINKING = 1 1/2"
2. MAXIMUM SPACING = MINIMUM OF MAXIMUM 3'-11 1/2"
3. FIRESTOP SEALANT IS REQUIRED ON EACH SIDE OF A WALL ASSEMBLY.

PENETRATION FIRESTOP

NTS Sprinkler Design Data

Project Name:	Sahel Center	System:
Project Street Address:	4501 Creedmoor Road, Raleigh, NC	Sys. Sq. Ft.: 621,000
Suite:	Floor#: varies	Ceiling Height: varies
Designed By:	JSB	Phone: 919-835-2225
Occupancy:	Mixed Use	Hazard: Light and Ordinary Hazard

Design Summary

Design Method	Sys#1	Sys#2	Sys#3	Sys#4	Sys#5	Sys#6	Sys#7	Sys#8	Sys#9	Sys#10	Sys#11	Sys#12	Sys#13	Sys#14	Sys#15	Sys#16	Sys#17	Sys#18	Sys#19	Sys#20	Sys#21	Sys#22	Sys#23	Sys#24	Sys#25	Sys#26	Sys#27	Sys#28	Sys#29	Sys#30	
Design Area #	low zone	high zone	42nd floor	41st floor	37th floor	33rd floor	19th floor	18th floor	17th floor	16th floor	15th floor	14th floor	8th floor	7th floor	7th floor	6th floor	4th floor	4th floor	4th floor	2nd floor	2nd floor	1st floor	1st floor	1st floor	3rd floor	3rd floor	3rd floor	4th floor	5th floor	5th floor	6th floor
Location	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	North tower	
Type of System	wet storage	wet storage	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	wet	
Hazard Class	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 2	OH 1	OH 1	OH 1	OH 1	OH 1	OH 1	OH 1	OH 1	OH 1	OH 2	OH 2	OH 1	OH 1	OH 1	OH 1	OH 1	
Design Area	NFPA-14	NFPA-14	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	NFPA-13	
Sprinkler Spacing	-	-	130 max	18 x 18	18 x 18	18 x 18	130max	18 x 18	130max	18 x 18	130max	18 x 18	130max	18 x 18	130max	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130
Density	-	-	.2	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	25.6gpm/14.5	
K-factor	-	-	5.6	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
Hose Allowance	500+250+250	500+250	250	100	100	100	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
# Design Sprinklers	-	-	15	4	4	4	16	9	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Special Application Spk.	-	-	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Requirement @	Pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump
R.P.M. Req'd	1000	750	590.63	179.635	179.635	178.607	531.72	176.1	176.91	581.34	171.91	176.92	526.48	498.31	1427.85	1337.89	1337.89	1337.89	153.78	1271.73	1100.72	1377.36	1304.23	1310.4	1133.13	1150.32	1330.63	1073.71	1330.63	1105.7	
P.S.I. Req'd	221.84	316.653	328.115	313.578	296.254	278.509	197.273	231.124	262.097	218.585	241.086	254.214	212.027	226.101	82.4	83.29	61.24	56.19	52.56	50.09	71.56	58.02	72.804	84.61	43.893	59.805	51.315	65.86	61.077		
Safety Factor @	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump	pump
Safety Factor (FS)	18.971	10.182	19.6	48.683	66.007	83.762	150.025	43.164	130.911	46.711	33.196	20.068	55.718	44.501	10.24	12.22	33.01	40.87	42.73	41.71	22.03	36.76	20.481	11.767	53.119	46.763	27.886	43.539	43.539		
Dry Sys. Volume (gal)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Design Summary

Design Method	Sys#31	Sys#32	Sys#33	Sys#34	Sys#35	Sys#36	Sys#37	Sys#38
Design Area #	8th floor	-	-	-	-	-	-	-
Location	north tower	-	-	-	-	-	-	-
Type of System	dry	-	-	-	-	-	-	-
Hazard Class	OH1	-	-	-	-	-	-	-
Criteria From	NFPA-13	-	-	-	-	-	-	-
Design Area	1955	-	-	-	-	-	-	-
Sprinkler Spacing	130	-	-	-	-	-	-	-
Density	.15	-	-	-	-	-	-	-
K-factor	11.2	-	-	-	-	-	-	-
Hose Allowance	250	-	-	-	-	-	-	-
# Design Sprinklers	12	-	-	-	-	-	-	-
Special Application Spk.	yes	-	-	-	-	-	-	-
Requirement @	test	-	-	-	-	-	-	-
R.P.M. Req'd	1330.63	-	-	-	-	-	-	-
P.S.I. Req'd	69.756	-	-	-	-	-	-	-
Safety Factor @	test	-	-	-	-	-	-	-
Safety Factor (FS)	24.150	-	-	-	-	-	-	-
Dry Sys. Volume (gal)	425	-	-	-	-	-	-	-

Water Supply Information

Tested by	BNK	Date/Time	9-3-07	Pressure Hydrant	Creedmoor-Seers
Hydrant Elevation	228	Flow Hydrant # 1	Creedmoor	Flow Hydrant #2	495
Static (PSI)	106 psi	Residual (PSI)	92 psi	Flow (gpm)	1470 gpm

Copy of Water Test Data Included with Calculation is required

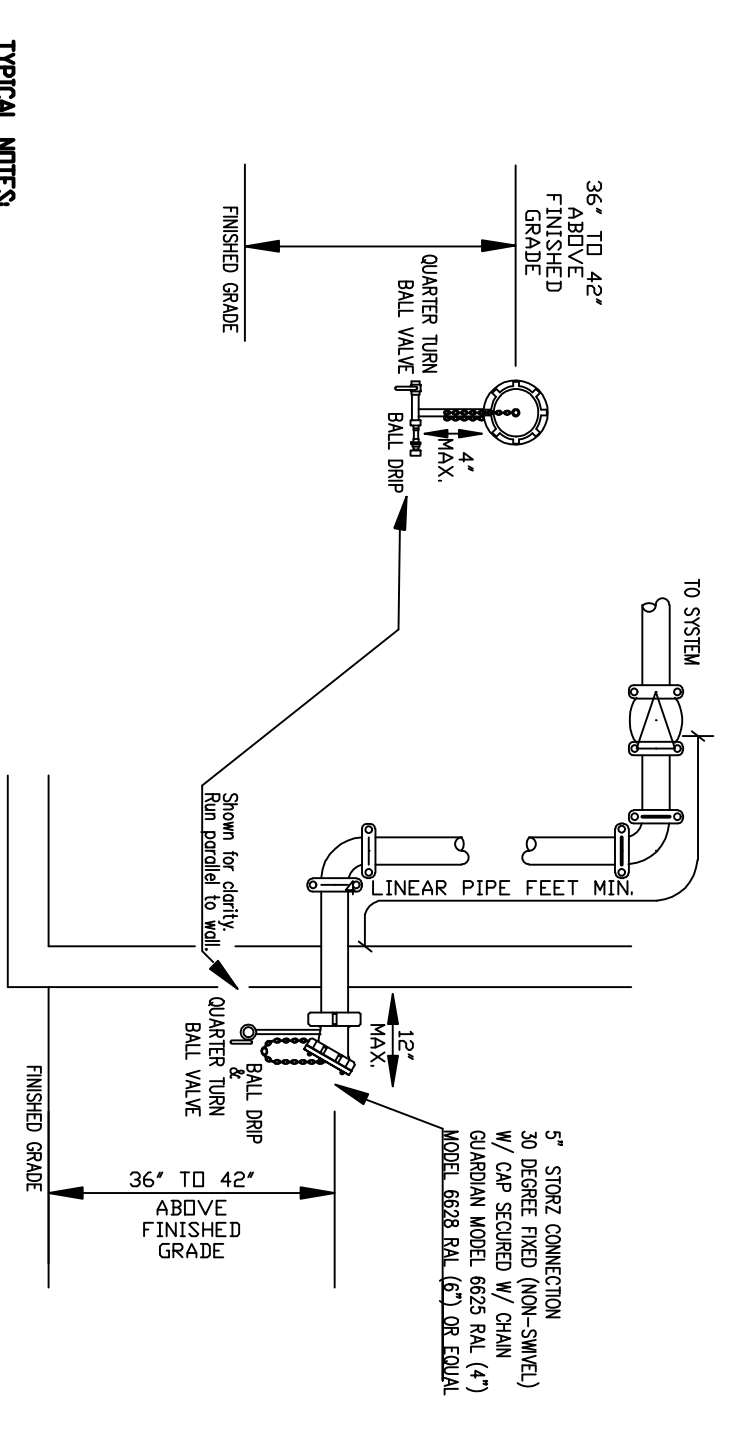
Fire Pump Data

Rated G.P.M.	1500	Rated Pressure	200 psi	Incorporator	Hydromor
Discharge/Electric	1500	Minimum Pressure	150 psi	Style of Pump	Vertical
Combined Discharge	1500	Certified pump curve required	-	Flow (gpm)	1500

If Storage is Greater than 12 Feet Complete Commodity Storage Design Information

Commodity Description	Storage Height	Storage Type (RackBin, Pile)	Clearance
Commodity Name	Open/Close	Wet/Dry System	
Stability/Vulnerable	Array		
Figure #	Curve	Density	Height
		Area	Factor
		Penalty	Design
		Final	Design

Is system compliant with Chapter 23 (FFO) Is storage area layout, rack, and pile plan included?



FIRE EXTINGUISHER CABINET SCHEDULE

SYMBOL	MODEL/TITLE	SERIES	PROTECTION	FINISH	DOOR STYLE	KEY LETTERING
EX-1	UL 200	UL 200	UL 200	UL 200	UL 200	UL 200
EX-2	UL 300	UL 300	UL 300	UL 300	UL 300	UL 300
EX-3	UL 400	UL 400	UL 400	UL 400	UL 400	UL 400

FIRE EXTINGUISHER SCHEDULE

SYMBOL	MODEL/TITLE	CAPACITY	UL RATING	REMARKS
EX-1	UL 200	2.1	UL 200	UL 200
EX-2	UL 300	3.4	UL 300	UL 300
EX-3	UL 400	4.7	UL 400	UL 400

FLUSH FDC DETAIL

NTS

LEGEND RATED WALLS

SMOKE GUARD BARRIERS	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE
HARD WOOD FIRE BARRIER (PER NFPA 706 FLOOR-TO-V/S OF SLAB)	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE
NON WOOD FIRE BARRIER WALL (PER NFPA 706 FLOOR-TO-V/S OF SLAB)	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE
SMOKE BARRIER PARTITION WALL (PER NFPA 706 FLOOR-TO-V/S OF SLAB)	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE
NON WOOD FIRE BARRIER (PER NFPA 706 FLOOR-TO-V/S OF SLAB)	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE	1/2" MIN. THICK CONCRETE

TYPES OF SPRINKLERS

SYMBOL	MAKE	MODEL	SN	NO.	SIZE	FINISH	TEMP.	TITLE

REVISION DESCRIPTION

NO.	DATE	REVISION DESCRIPTION	BY

CONTRACTOR SEAL

CONTRACTOR: **ABP** Fire Protection, LLC

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Raleigh, NC 27601-2637
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PROJECT: Sahel Center
4501 Creedmoor Road
Raleigh, North Carolina

DATE: 12-3-2007
SCALE: 1/8" = 1'-0"
SHEET #: FPI

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Arthur K. Lamson, Jr., N.I.C.E.T., Level III #2046275
I certify that to the best of my knowledge this plan, prepared under my supervision, is in accordance with applicable NFPA standards, current building codes.