

Sprinkler Design Data

Project Name:		System:
Project Street Address:		Sys. Sq. Ft.:
Suite:	Floor#:	Ceiling Height:
Designed By:	Phone:	Total Bldg. Hgt.:
Occupancy:	Hazard:	

Design Summary

	System #	System #	System #	System #	System #
Design Method					
Design Area #					
Location					
Type of System					
Hazard Class					
Criteria From					
Design Area					
Sprinkler Spacing					
Density					
K-factor					
Hose Allowance					
# Design Sprinklers					
Special Application Spk.					
Requirement ☉					
G.P.M. Req'd					
P.S.I. Req'd					
Safety Factor ☉					
Safety Factor (PSI)					
Dry Sys. Volume (gal)					

Water Supply Information

Tested by		Date/Time		Pressure Hydrant	
Hydrant Elevation		Flow Hydrant # 1		Flow Hydrant #2	
Static (PSI)		Residual (PSI)		Flow (gpm)	

Copy of Water Test Data Included with Calculation is required

Fire Pump Data

Rated G.P.M.		Rated Pressure		Horsepower	
Diesel/Electric		Churn Pressure		Style of pump	
Combined Discharge		150% Flow (suction)		150% Flow (gpm)	

Certified pump curve required

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

Comodity Description		Storage Height		Storage Type (Rack,Bin,Pile)		Clearance	
Comodity Class		Open/Close		Wet/Dry		System	
Stable/Unstable		Array					
Figure #	Curve #	Density	Height Factor	Clear Factor	Array Factor	Dry Penalty	Design
		Area					
		Initial					
		Secon					
		-dary					
Is system compliant with Chapter 23 (FPC)				Is storage area layout, rack, and pile plan included?			

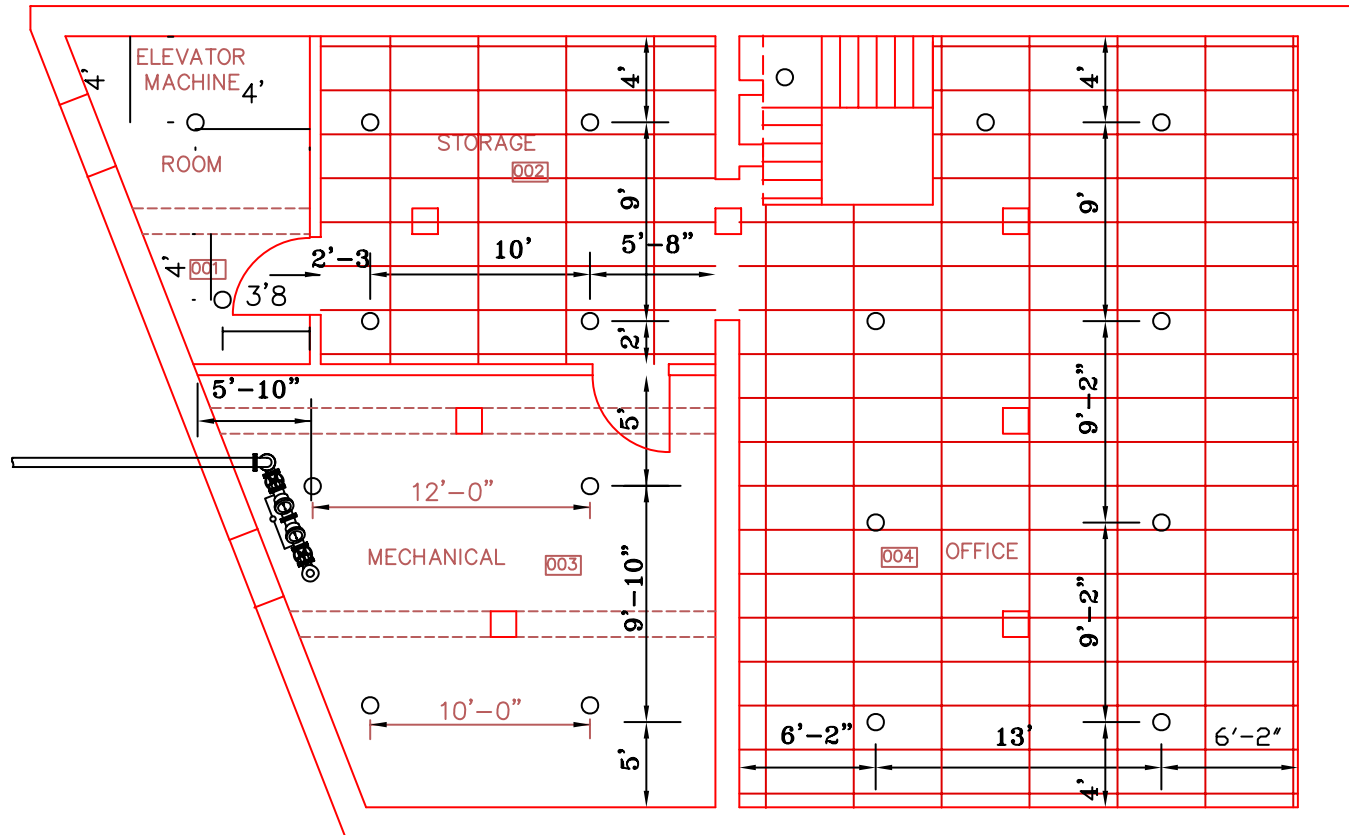
DRAWING NO.
FP-1

DATE:

REVISIONS:
5-1-06
W Warren

DESCRIPTION:
SPRINKLER DESIGN DATA

CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602



SPRINKLER REFLECTIVE CEILING PLAN

SCALE: NTS

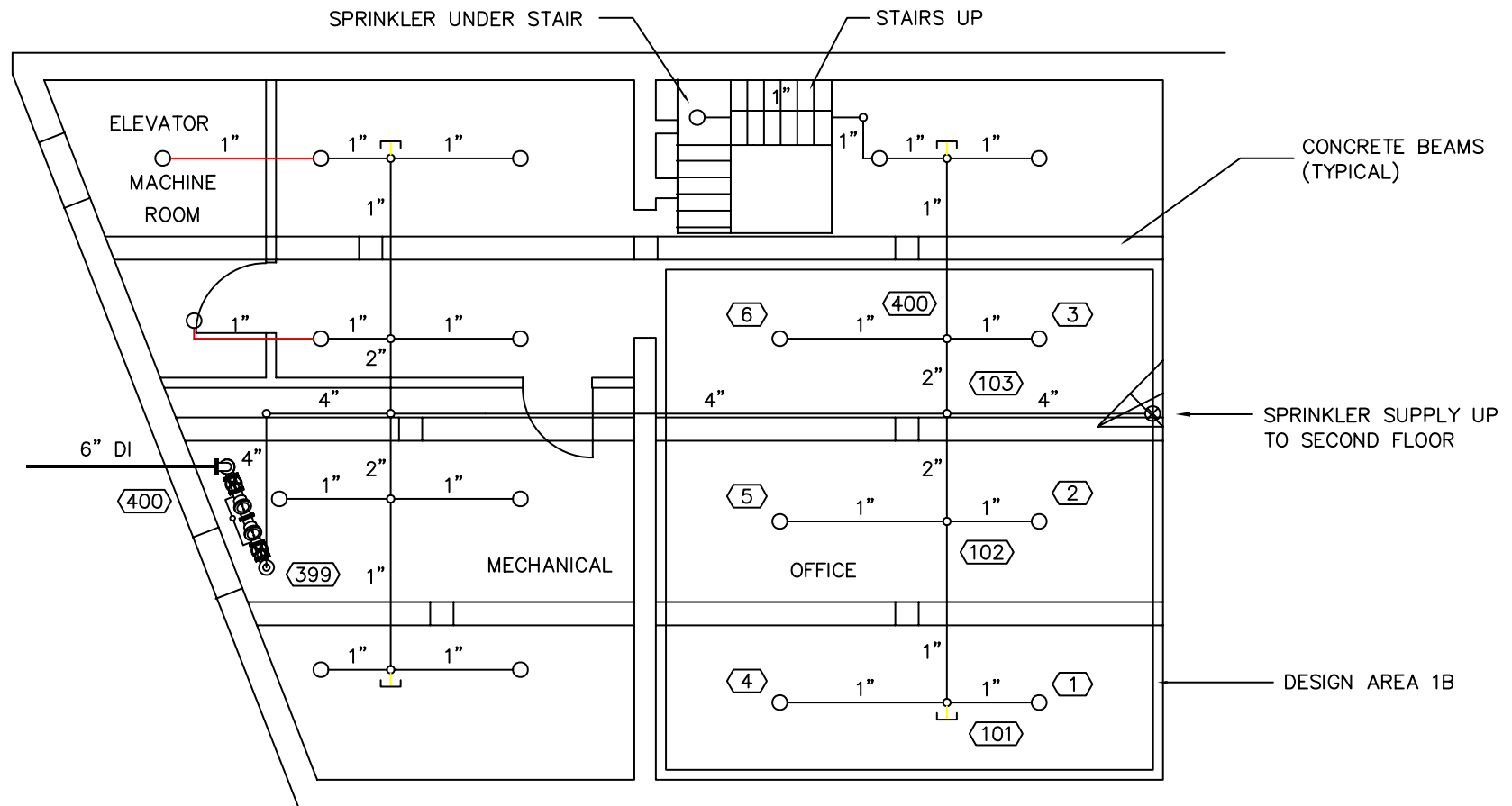
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310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
SPRINKLER REFLECTIVE CEILING

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DATE:

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FP-2



SPRINKLER PIPING PLAN

SCALE: NTS

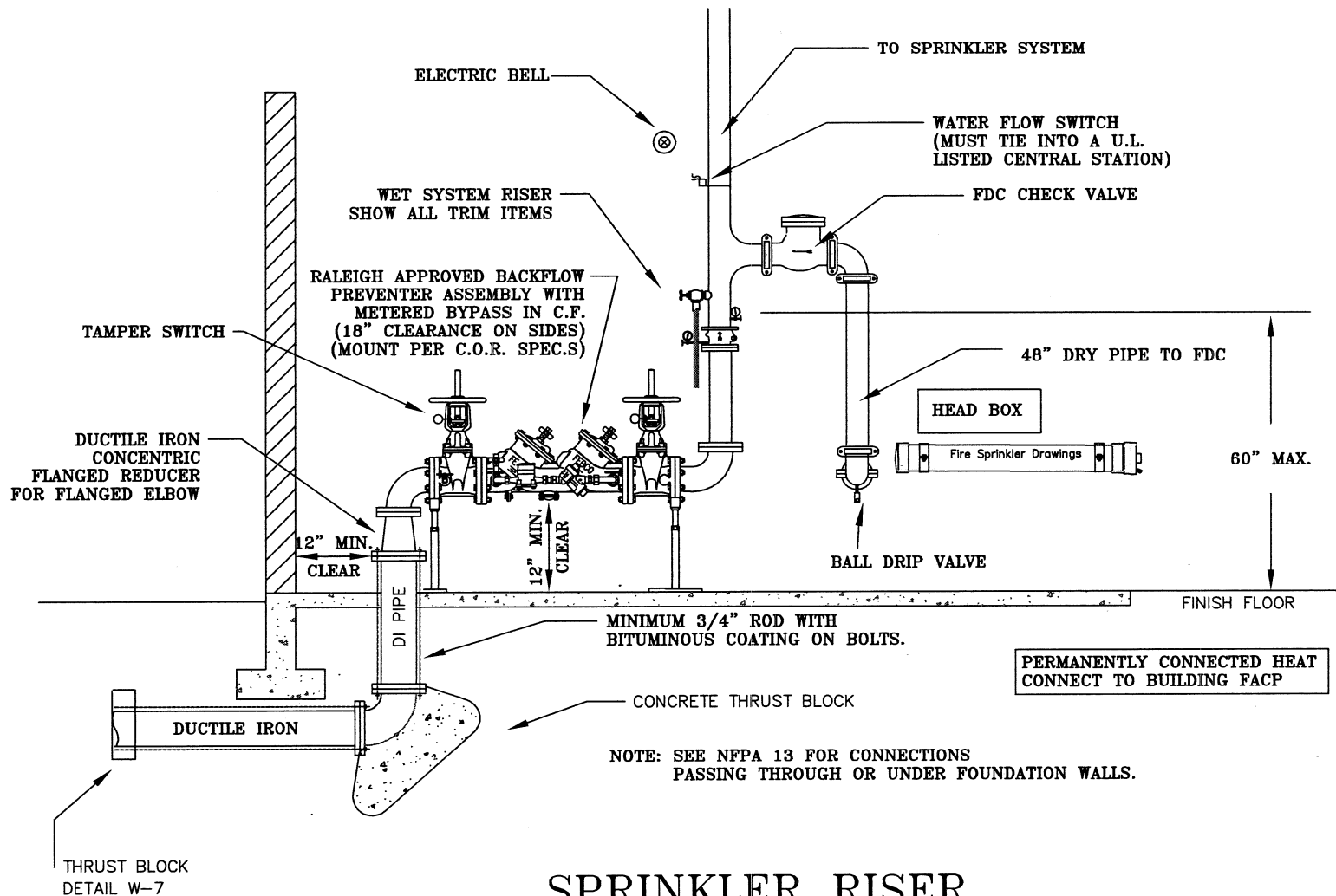
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FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
SPRINKLER PIPING PLAN

REVISIONS:
5-1-06
W Warren

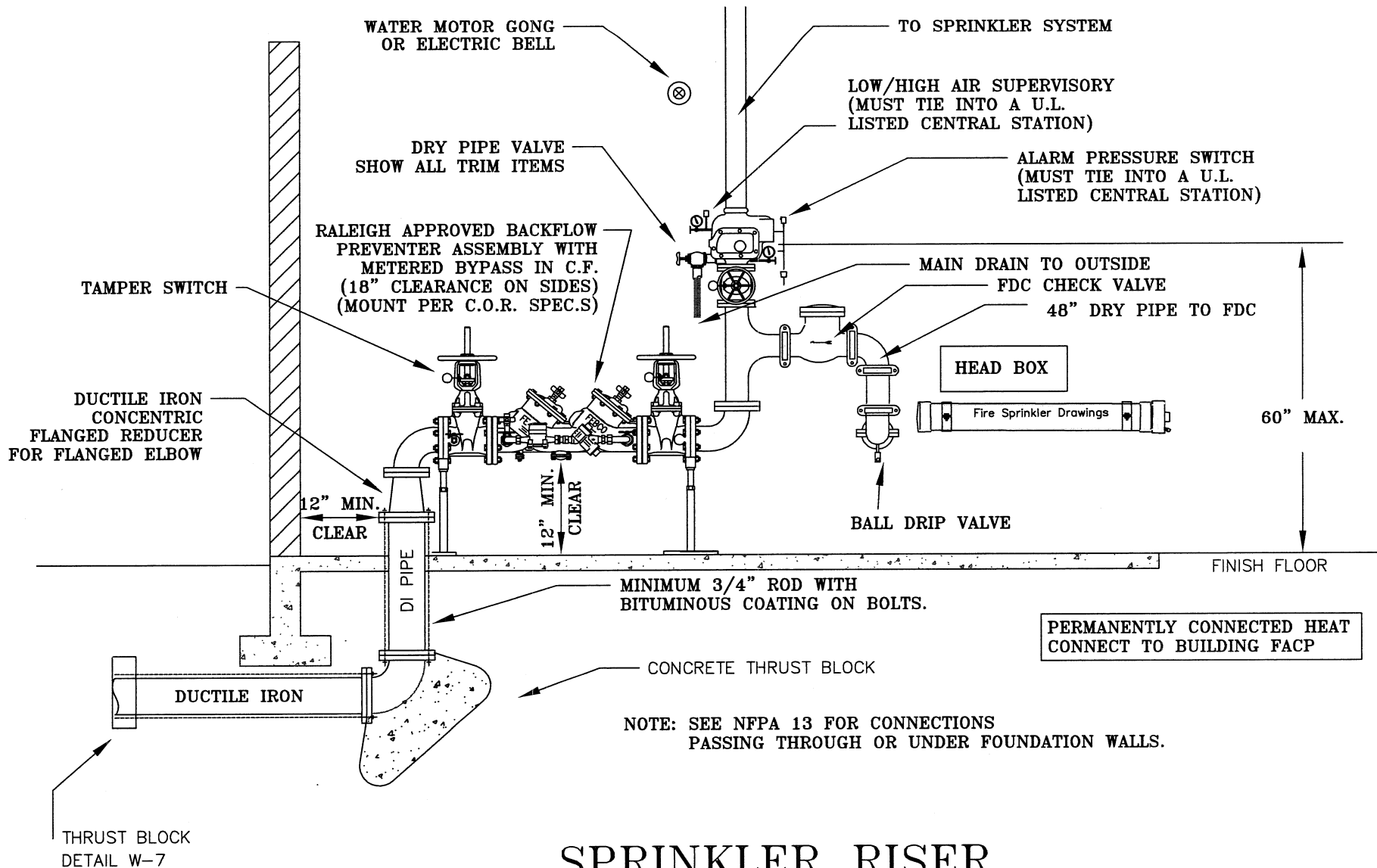
DATE:

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FP-3



SPRINKLER RISER

NOT TO SCALE



SPRINKLER RISER

NOT TO SCALE

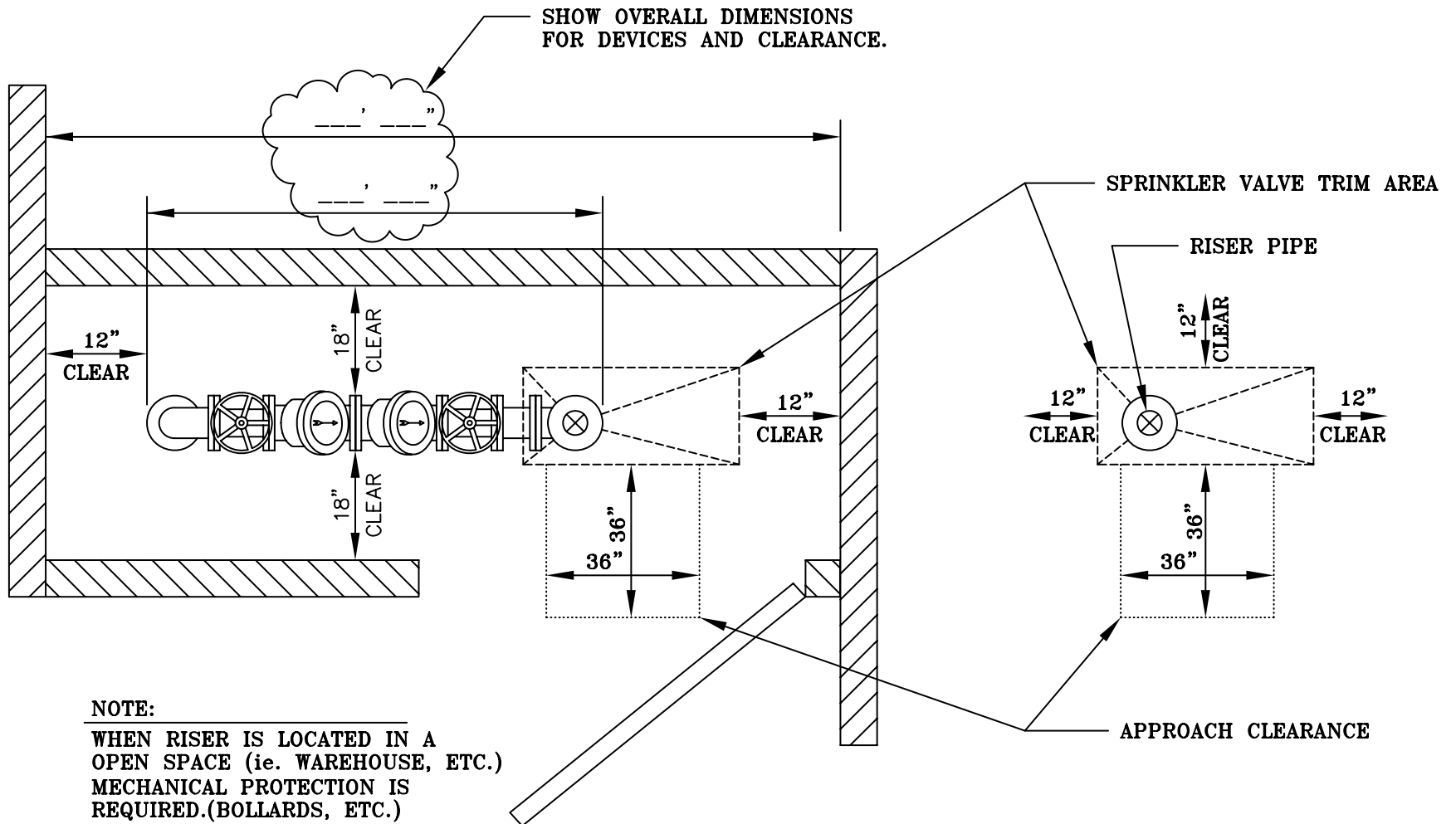
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FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
SPRINKLER RISER DETAIL (DRY)

REVISIONS:
5-1-06

DATE:

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FP-4A



RISER CLEARANCE

NOT TO SCALE

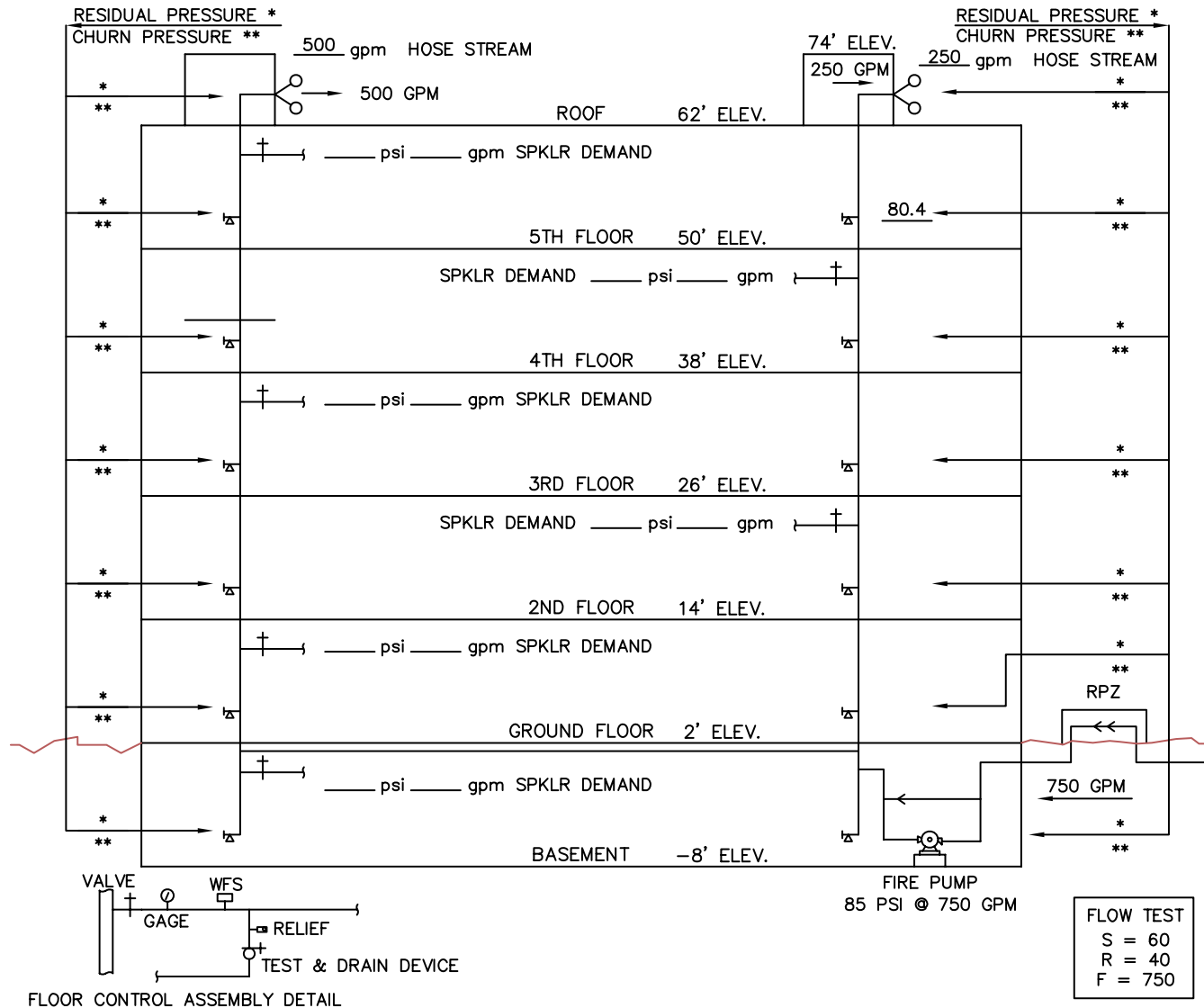
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DESCRIPTION:
RISER CLEARANCE DETAIL

REVISIONS:
5-1-06
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DATE:

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FP-5



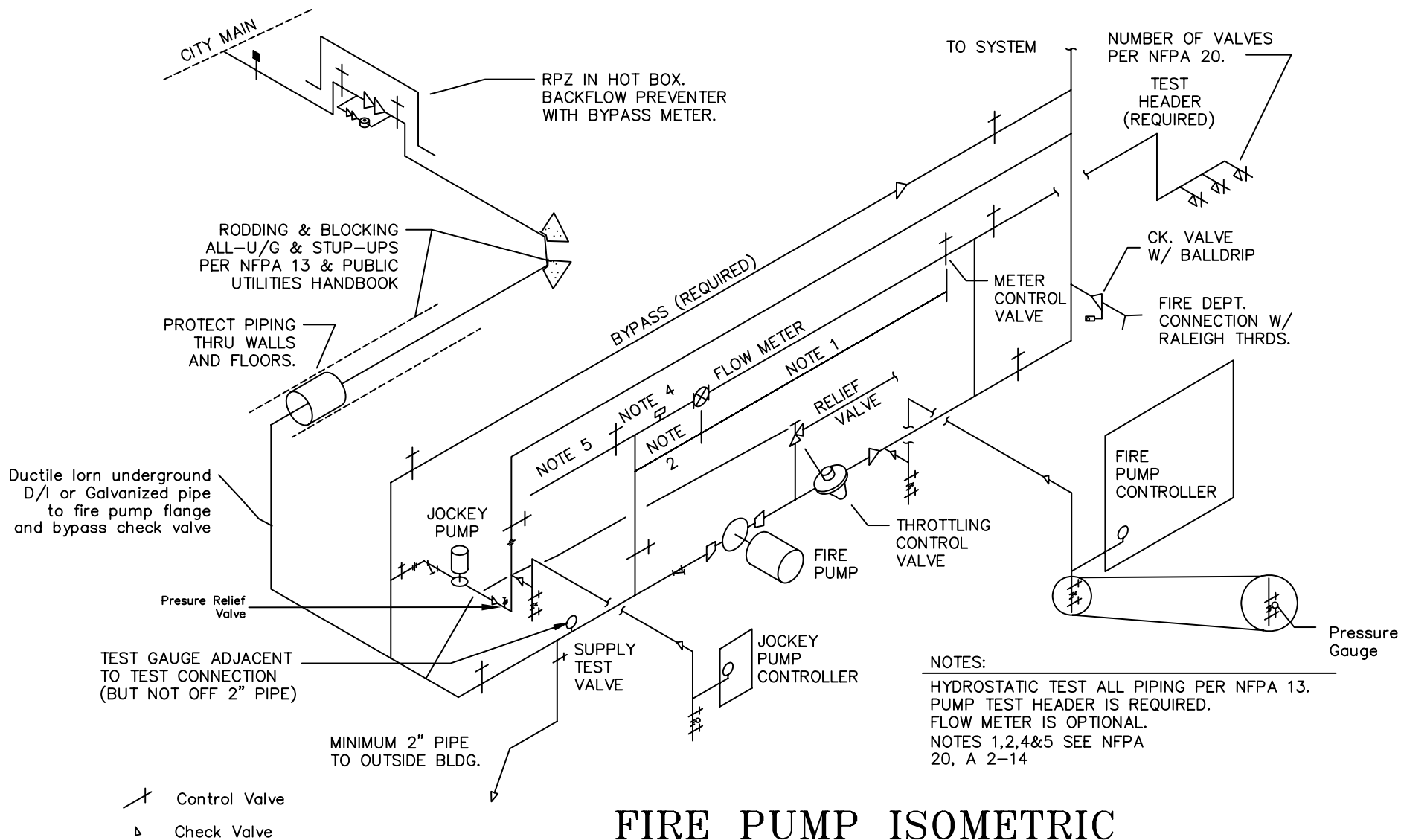
CITY OF RALEIGH FIRE DEPARTMENT
 FIRE PROTECTION DIVISION
 310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
STANDPIPE PRESSURE SUMMARY

REVISIONS:
5-1-06
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DATE:

DRAWING NO.
FP-6



FIRE PUMP ISOMETRIC

N.T.S.

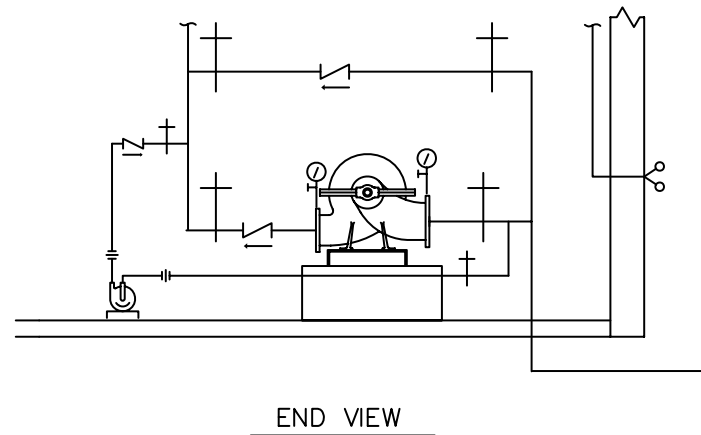
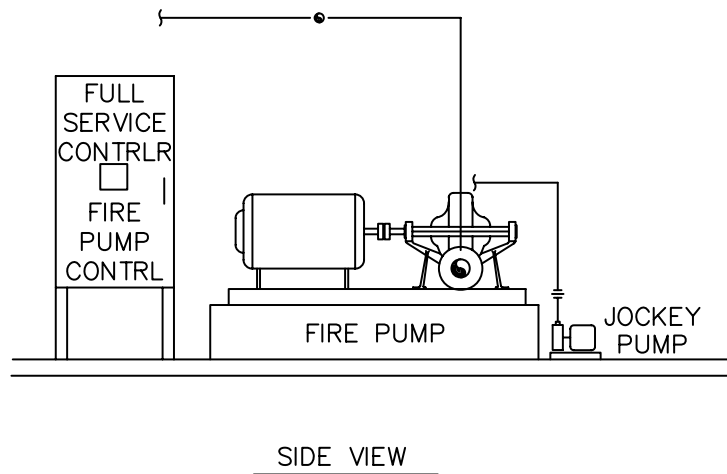
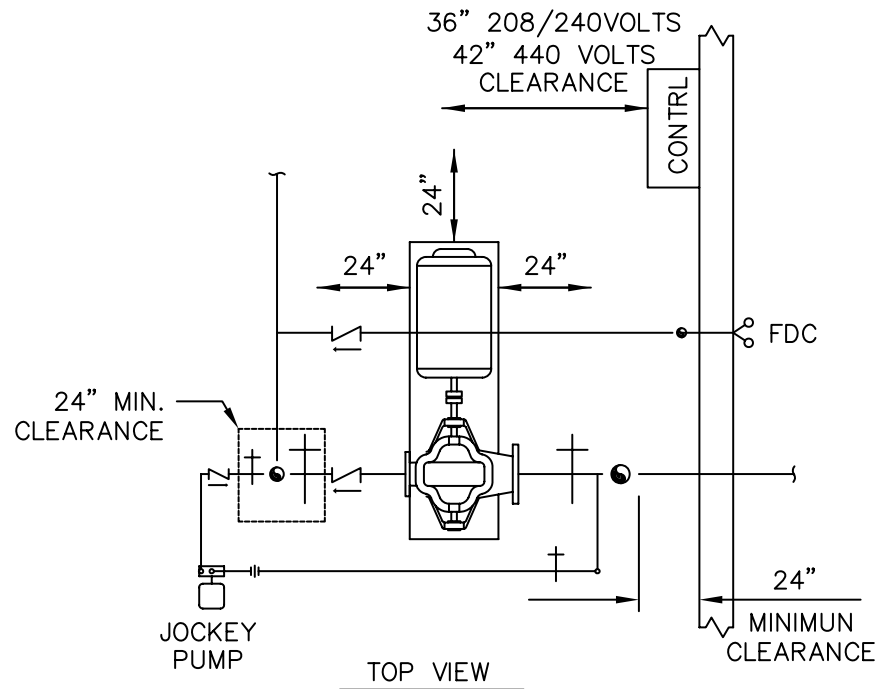
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DESCRIPTION:
FIRE PUMP ISOMETRIC

REVISIONS:
5-1-06
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FP-7



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DESCRIPTION:
FIRE PUMP ELEVATIONS

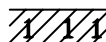
REVISIONS:
5-1-06
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DATE:

DRAWING NO.
FP-8

SPRINKLER LEGEND

○	EXISTING SPRINKLER	1/2" / 155° / SSP / 5.6K / TOTAL 250 /
R⊗	EXISTING SPRINKLER TO BE REMOVED & PLUGGED	___ / ___ / ___ / ___ / TOTAL 10 /
 ○	EXISTING SPRINKLER TO BE RELOCATED	___ / ___ / ___ / ___ / TOTAL 30 /
●	NEW CHROME PENDENT SPRINKLER VIKING FAST-RESPONSE MODEL M WITH MODEL F1 CHROME ESCUTCHEON	1/2" / 155° / SSP / 5.6K / TOTAL 16 /
⦿	NEW BRASS UPRIGHT SPRINKLER CENTRAL MODEL A	3/4" / 165° / SSU / 8.0K / TOTAL 20 /
◁	NEW CHROME HORIZONTAL SIDEWALL SPRINKLER	1/2" / 165° / <u>QR</u> / 5.5K / TOTAL 6 /
⦿	New Extended Coverage Pendent Semi Recessed	3/4" / 155° / SSP / 11.4K / TOTAL 28 /
QR ●	New Chrome Pendent Sprinkler Quick Response	1/2" / 155° / QR / 5.5K / TOTAL 10 /
ES ●	New ESFR Upright Sprinkler	1" / 155° / ESFR / 25.2K / TOTAL 30 /

————	EXISTING PIPE
—XXX—	EXISTING PIPE TO BE REMOVED
————	NEW PIPE
	2-HOUR RATED FIRE WALL
	1-HOUR RATED FIRE WALL

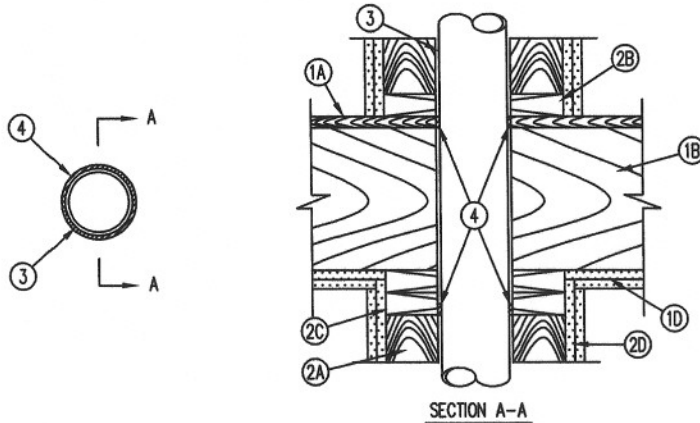
EQUIPMENT SCHEDULE

- Ⓐ ELECTRIC FIRE PUMP 30HP 480V 3PH – 1000 GPM AT 40 PSI
- Ⓑ FIRE PUMP CONTROLLER WITH LOW FUEL ALARM
AND LOW ROOM TEMPERATURE ALARM
- Ⓒ JOCKEY PUMP 3/4HP 480V 3PH – 2 GPM AT 40 PSI
- Ⓓ JOCKEY PUMP CONTROLLER
- Ⓔ FLOW METER UL/FM APPROVED
- Ⓕ CONCENTRIC REDUCER
- Ⓖ ECCENTRIC INCREASER
- Ⓗ CASING RELIEF VALVE
- Ⓘ ORIFICE UNION

”A TYPICAL EQUIPMENT SCHEDULE”

System No. F-C-1009
F Rating - 1 and 2 Hr (See Item 1)
T Rating - 1 Hr and 2 Hr (See Item 1)
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - 4 CFM/sq ft

FC1009



SECTION A-A

1. Floor-Ceiling Assembly - The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The F Rating of the firestop system is equal to the rating of the floor-ceiling and wall assemblies. The general construction features of the floor-ceiling assembly are summarized below:

- A. Flooring System - Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe.
- B. Wood Joists* - Nom 10 in. deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with ends firestopped.
- C. Furring Channels - (Not Shown) - (As required) Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the Fire Resistance Directory.
- D. Gypsum Board* - Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design. Diam of opening to be max 1 in. larger than diam of pipe.
- E. Sole Plate - Nom 2 by 4 in., 2 by 6 in. or parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity to be 1 in. greater than diam of through penetrant.
- F. Top Plate - The double top plate shall consist of two nom 2 by 4 in., 2 by 6 in. or two sets of parallel 2 by 4 in. lumber plates, tightly butted. Diam of opening is to be max 1 in. larger than diam of pipe. As an alternate, the opening may be square-cut with a max dimension 1 in. greater than the diam of the pipe. Plates may be discontinuous over opening, terminating at two opposing edges of opening. Max length of discontinuity to be 1 in. greater than diam of through penetrant.

HILTI®
FIRESTOP SYSTEMS

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 December 10, 2004



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System No. F-C-1009
F Rating - 1 and 2 Hr (See Item 1)
T Rating - 1 Hr and 2 Hr (See Item 1)
L Rating At Ambient - Less Than 1 CFM/sq ft
L Rating At 400 F - 4 CFM/sq ft

FC1009

- D. Steel Plate - When lumber plates are discontinuous, nom 1-1/2 in. wide No. 20 gauge (or heavier) galv steel plates shall be installed to connect each discontinuous lumber plate and to provide a form for the fill material. Steel plates sized to lap 2 in. onto each discontinuous lumber plate and secured to lumber plates with steel screws or nails.
- E. Gypsum Board* - Thickness, type, number of layers and fasteners shall be as specified in individual Wall and Partition Design.
- 2. Chase Wall - The through penetrant (Item 3) shall be routed through a 1 or 2 hr fire-rated single, double or staggered wood stud/gypsum board chase wall having a fire rating consistent with that of the floor-ceiling assembly. Depth of chase wall to be min 1 in. greater than the diameter of the through penetrant. The chase wall shall be constructed of the materials and in the manner specified in the individual U300 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
 - A. Studs - Nom 2 by 4 in., 2 by 6 in. or double nom 2 by 4 in. lumber studs. Nom 2 by 4 in. studs are allowed for through-penetrants (Item 3) not exceeding nom 2 in. diam.
- 3. Through Penetrants - One metallic pipe, conduit or tubing to be installed within the firestop system. Pipe, conduit or tubing to be rigidly supported on both sides of floor assembly. The annular space within the firestop system shall be min 0 in. (point contact) to max 1 in.. The following types and sizes of metallic pipes or conduits may be used:
 - A. Steel Pipe - Nom 4 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - B. Iron Pipe - Nom 4 in. diam (or smaller) cast or ductile iron pipe.
 - C. Conduit - Nom 4 in. diam (or smaller) steel electrical metallic tubing or steel conduit.
 - D. Copper Tubing - Nom 4 in. diam (or smaller) Type L (or heavier) copper tubing.
 - E. Copper Pipe - Nom 4 in. diam (or smaller) Regular (or heavier) copper pipe.
- 4. Fill, Void or Cavity Material* - Sealant - Min 3/4 in. thickness of fill material applied within the annulus, flush with the top surface of the floor or the sole plate. A generous bead of fill material also applied within the annulus of the top plate, flush with bottom surface of lower top plate. HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - CP601S, CP606 or FS-One Sealant. (Note: L Ratings apply only when FS-One Sealant is used.)

*Bearing the UL Classification Mark

Note: CPVC Pipe Compatibility

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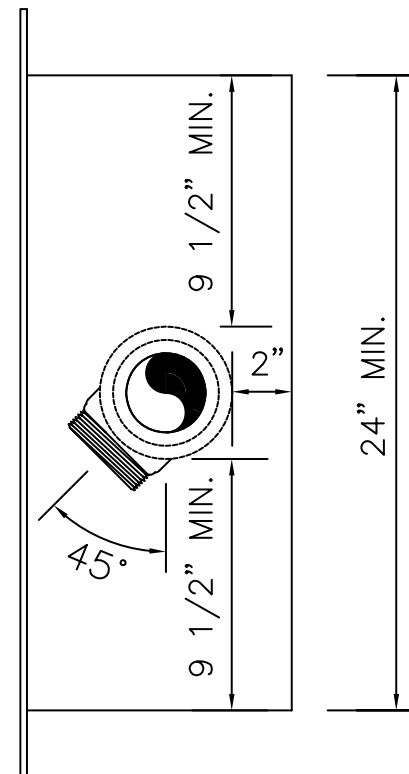
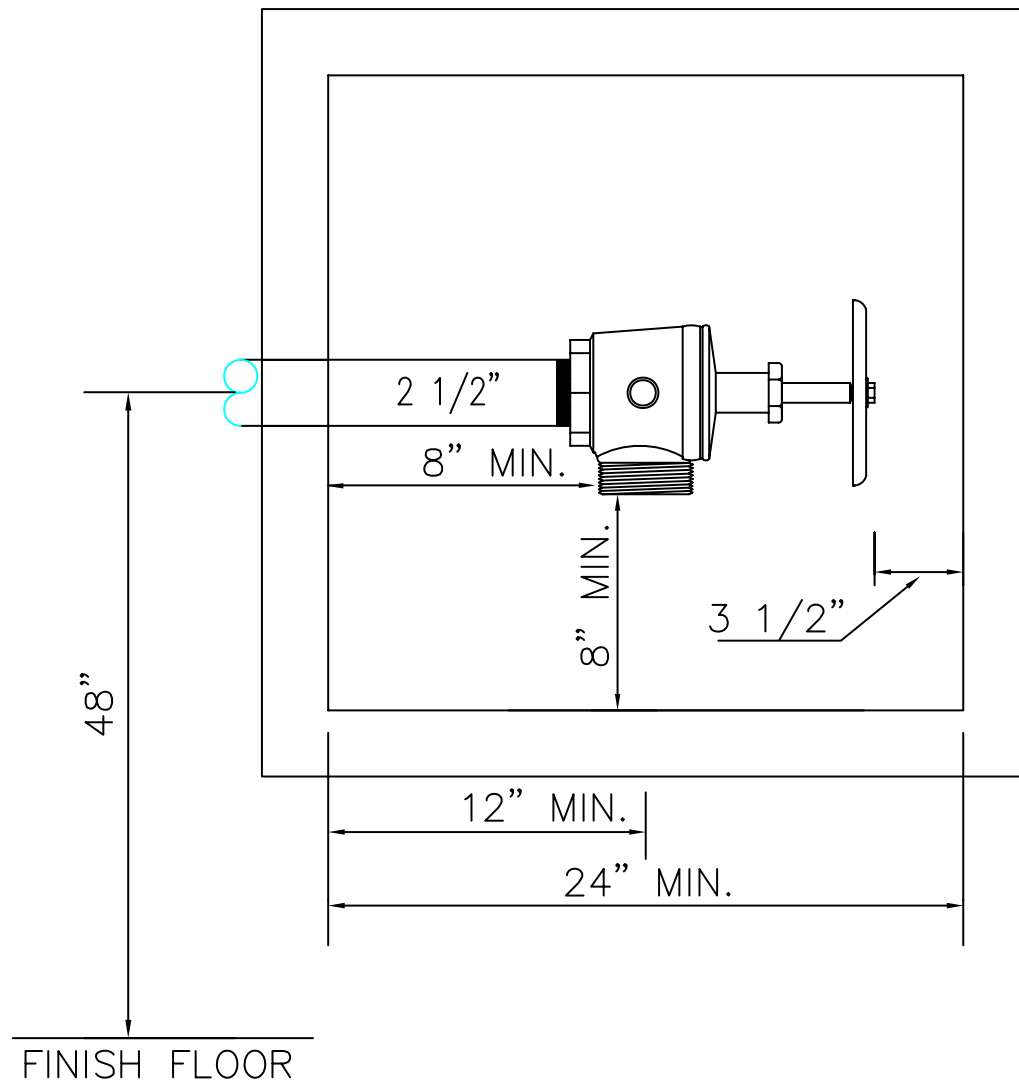
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 FIRE PROTECTION DIVISION
 310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
FIRE STOP DETAIL

REVISIONS:
5-1-06
 W Warren U

DATE:

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FP-11



3.340 x 6 SHARP "V" FORM THREAD
CITY OF RALEIGH THREAD

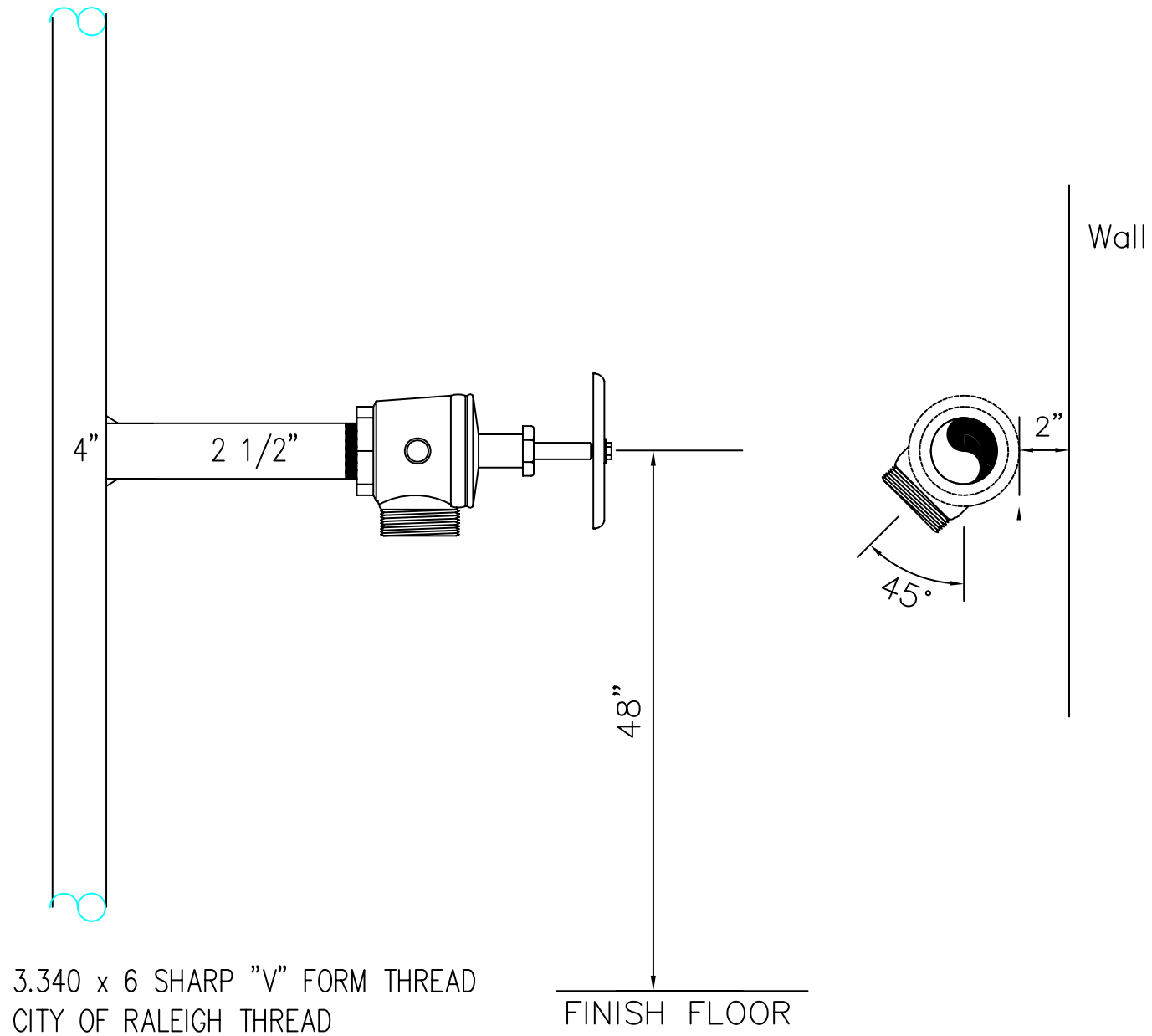
CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
FIRE DEPT. HOSE VALVE CABINET

REVISIONS:
5-1-06
W Warren

DATE:

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FP-12A



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FIRE PROTECTION DIVISION
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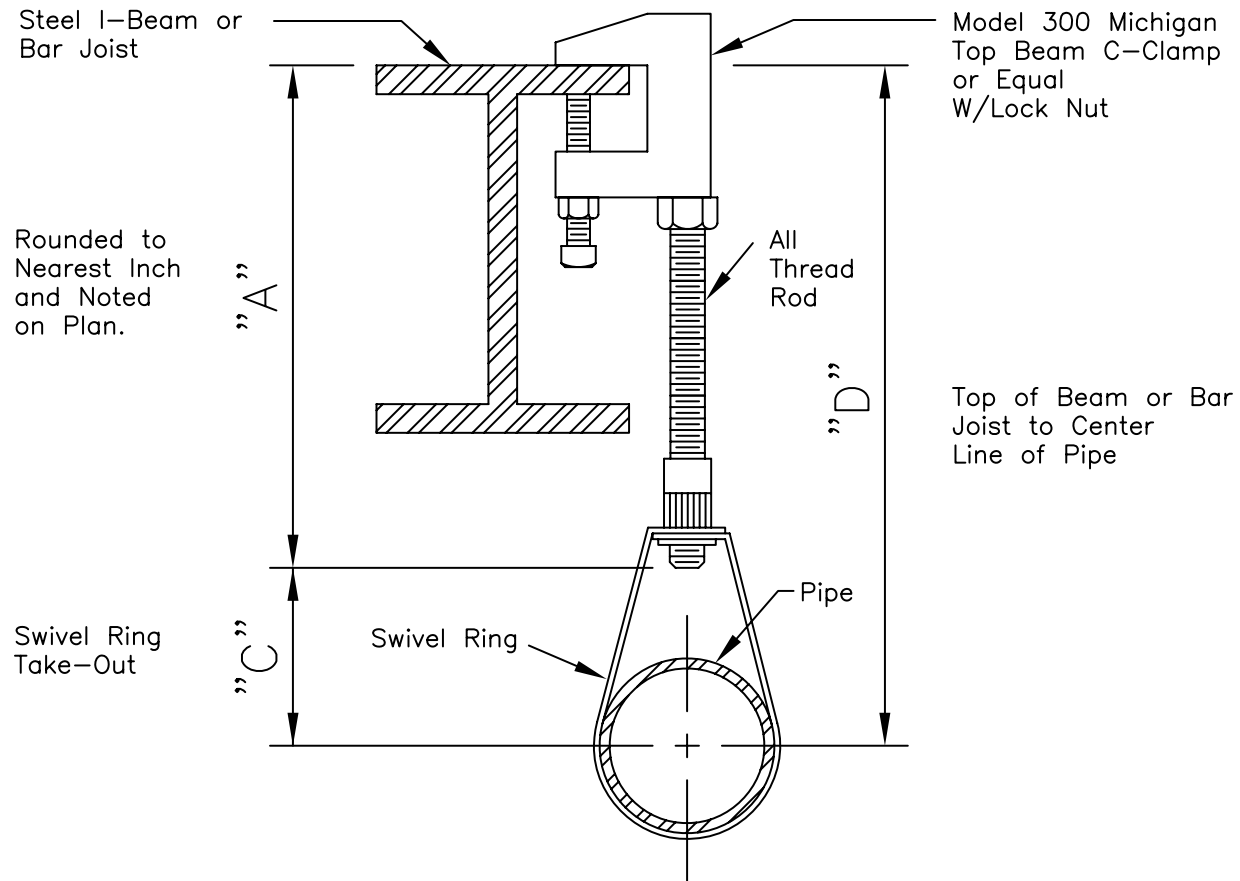
DESCRIPTION:
FIRE DEPT. HOSE VALVE

REVISIONS:
5-1-06
W Warren

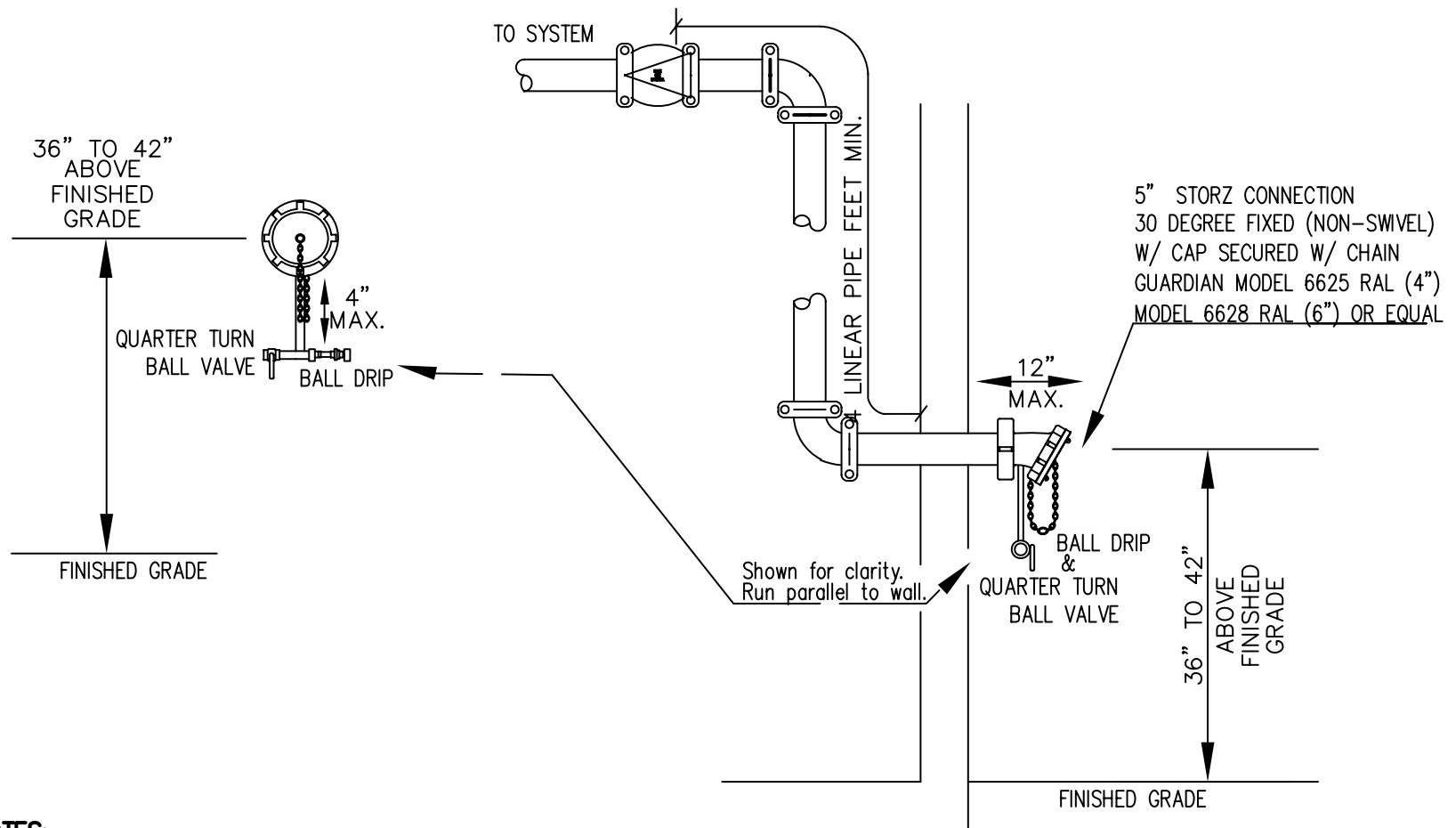
DATE:

DRAWING NO.
FP-12B

Top Beam C-Clamp



Note on Plan: Hanger Number and "A" Dimension



TYPICAL NOTES:

- 1)-ALL EXPOSED PIPING AND FITTINGS TO BE GALVANIZED
WITH EXCEPTION OF STORZ CONNECTION
- 2)-40' MAX. FROM FDC TO APPARATUS ACCESS LOCATION
- 3)-FOR NFPA 13R SYSTEMS (2 1/2" RISER AND SMALLER) SINGLE.
FDC W/ RALEIGH THREADS (3.340 X 6 SHARPE V FORM)
- 4)-WHEN BUILDING HT. IS GREATER THAN 200' USE RAL. SIAMESE

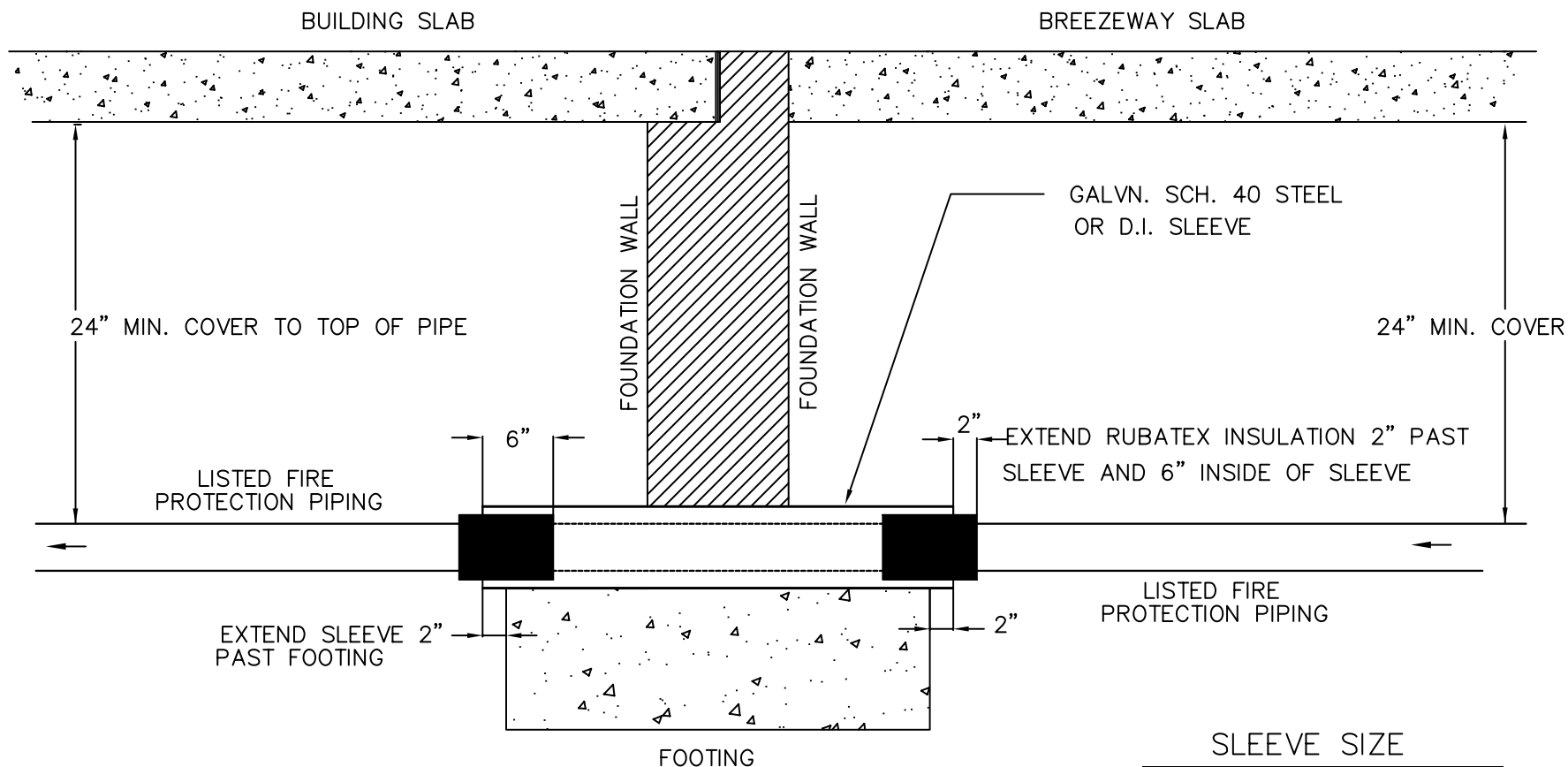
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DESCRIPTION:
FLUSH FDC DETAIL REQUIRMENTS

REVISIONS:
5-1-06
W Warren

DATE:
S B

DRAWING NO.
FP-14



NOTE:
 IF PIPE IS RUN UNDER FOOTING WITH NO PROTECTION
 MINIMUM CLEARANCE TO TOP OF PIPE IS 3' —

SLEEVE SIZE
 2" TO TOP OF PIPE
 2" TO BOTTOM OF PIPE
 + PIPE SIZE
 = SLEEVE SIZE

PIPE ON TOP OF FOOTING

NOT TO SCALE

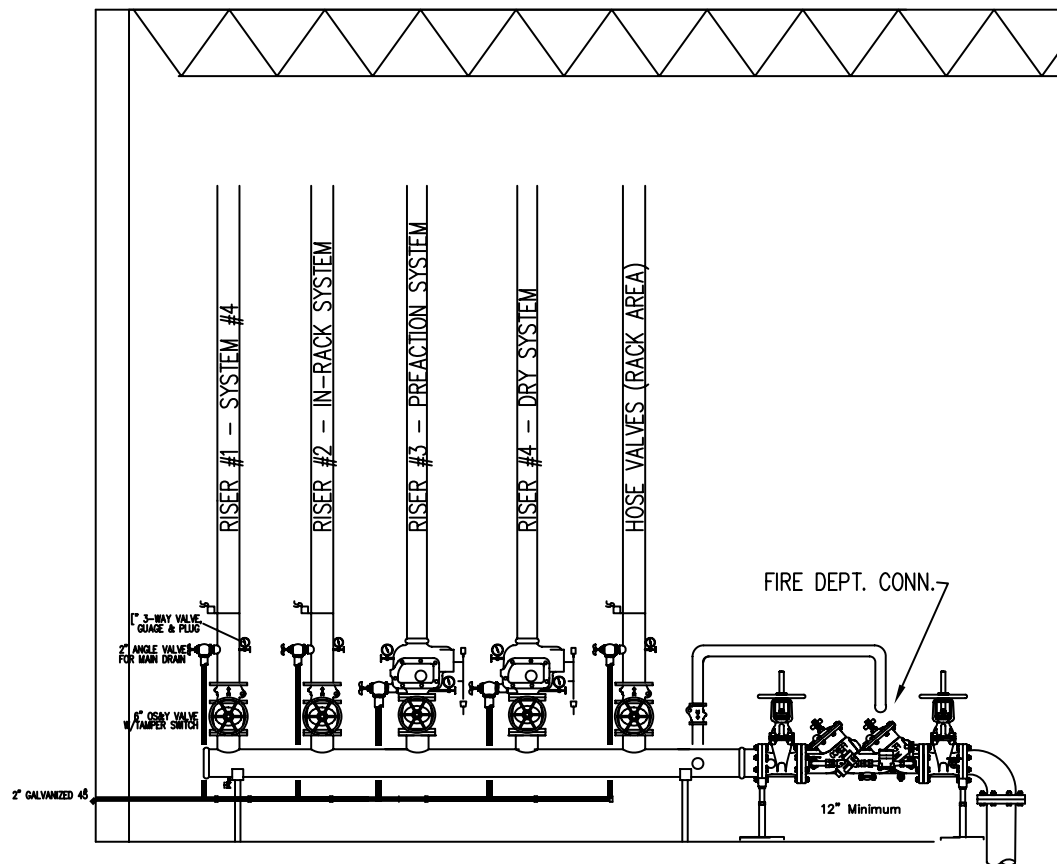
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 FIRE PROTECTION DIVISION
 310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
 Underground fire protection

REVISIONS:
 6-1-06
 W. Warren LL

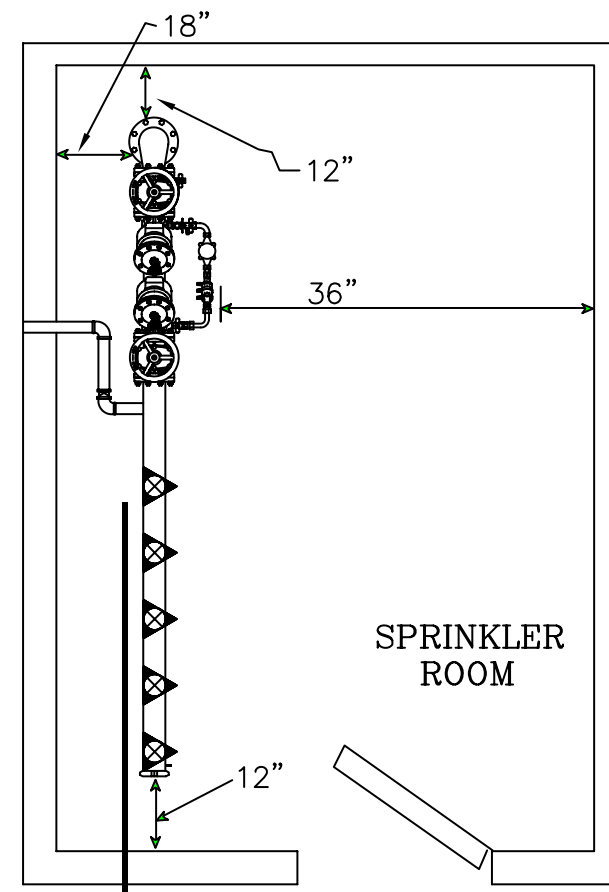
DATE:

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 FP-21



RISER ELEVATIONS

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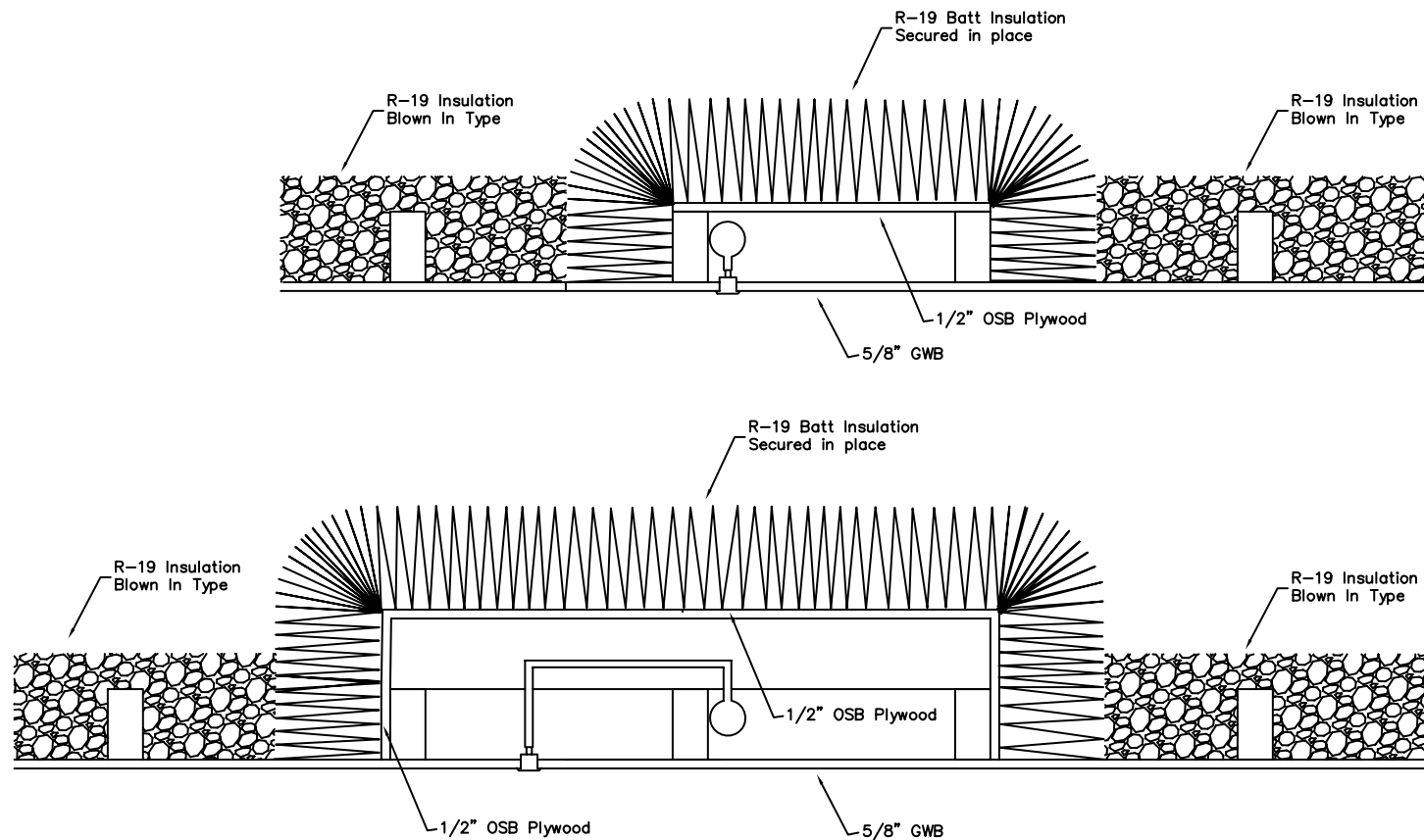
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DESCRIPTION:
RISER DETAIL MULTIPLE RISER

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W WARREN LL

DATE:

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FP-22



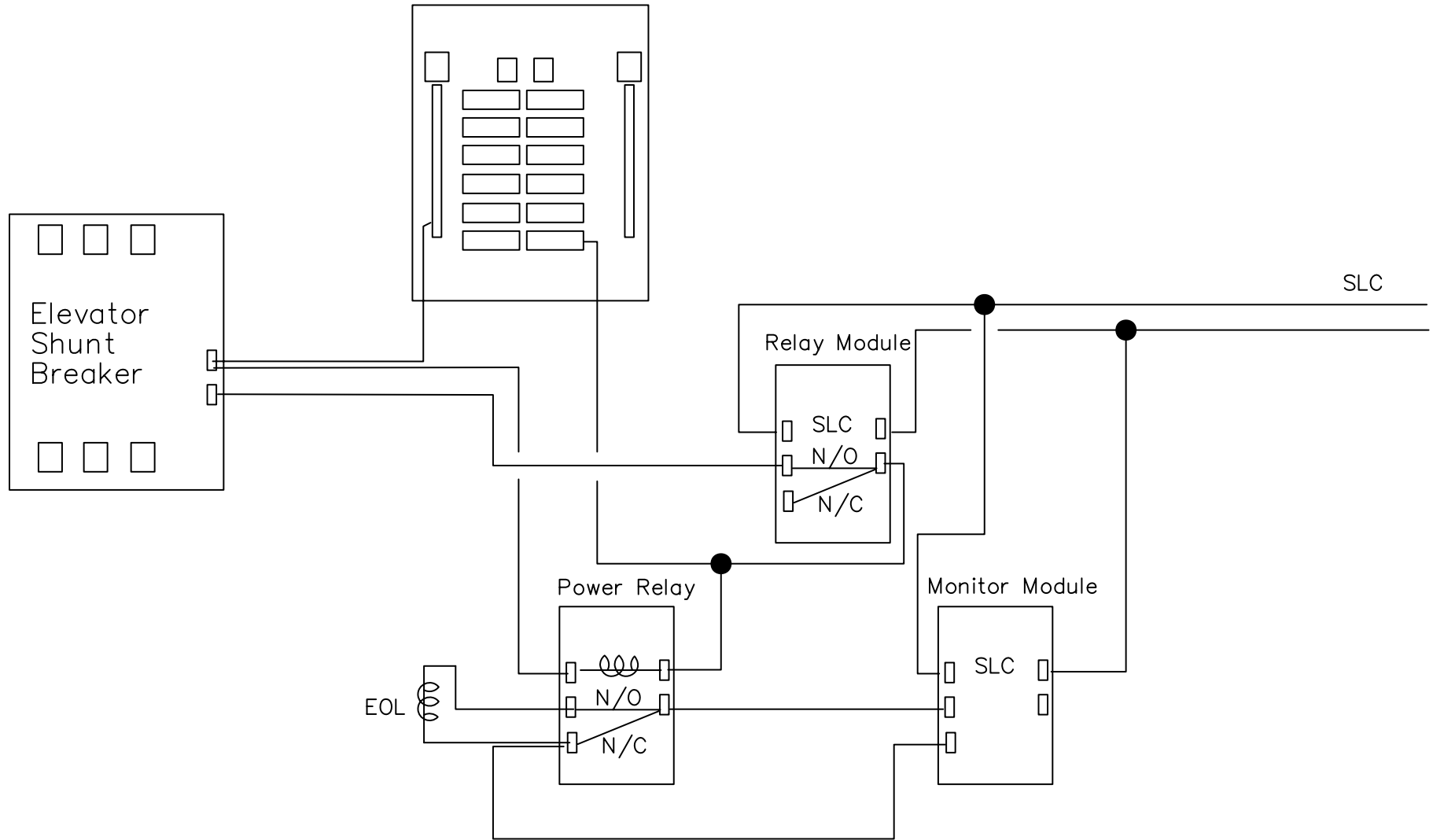
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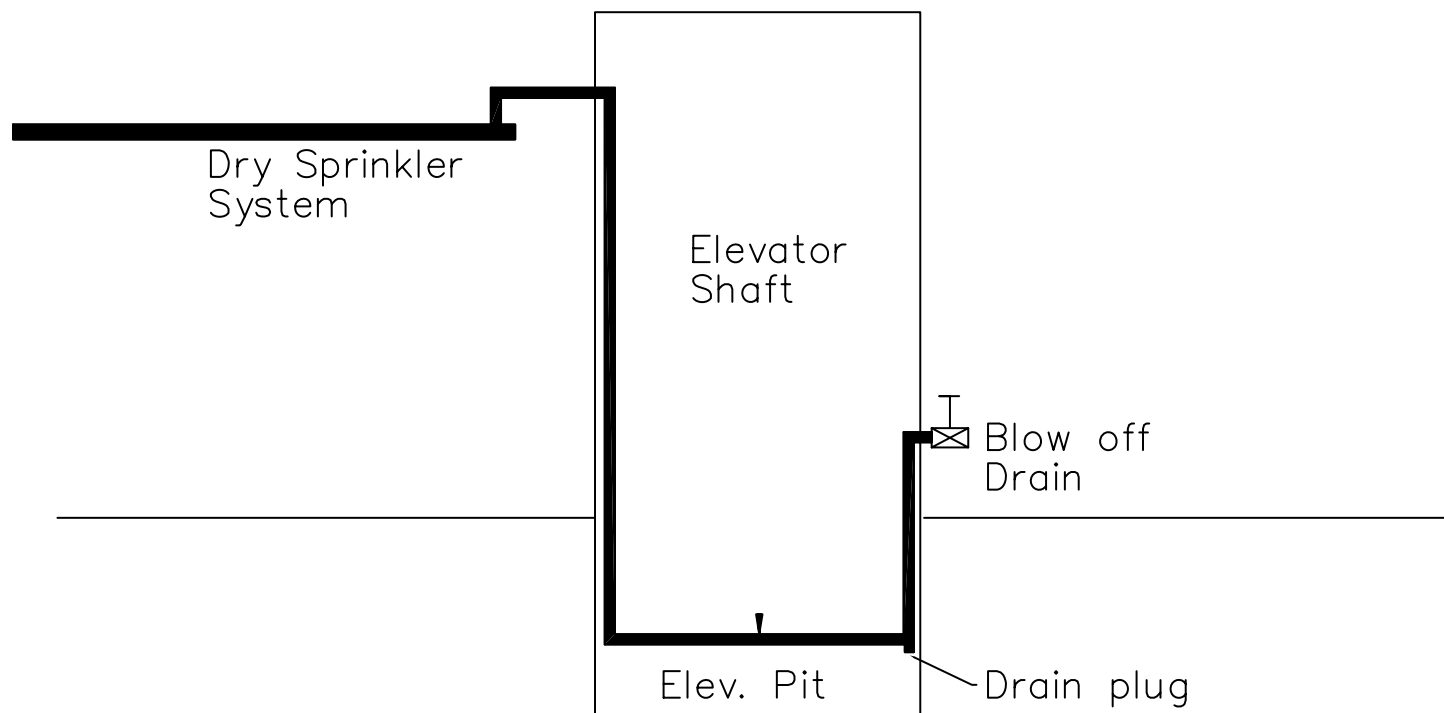
DESCRIPTION:
Insulation Detail

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DATE:

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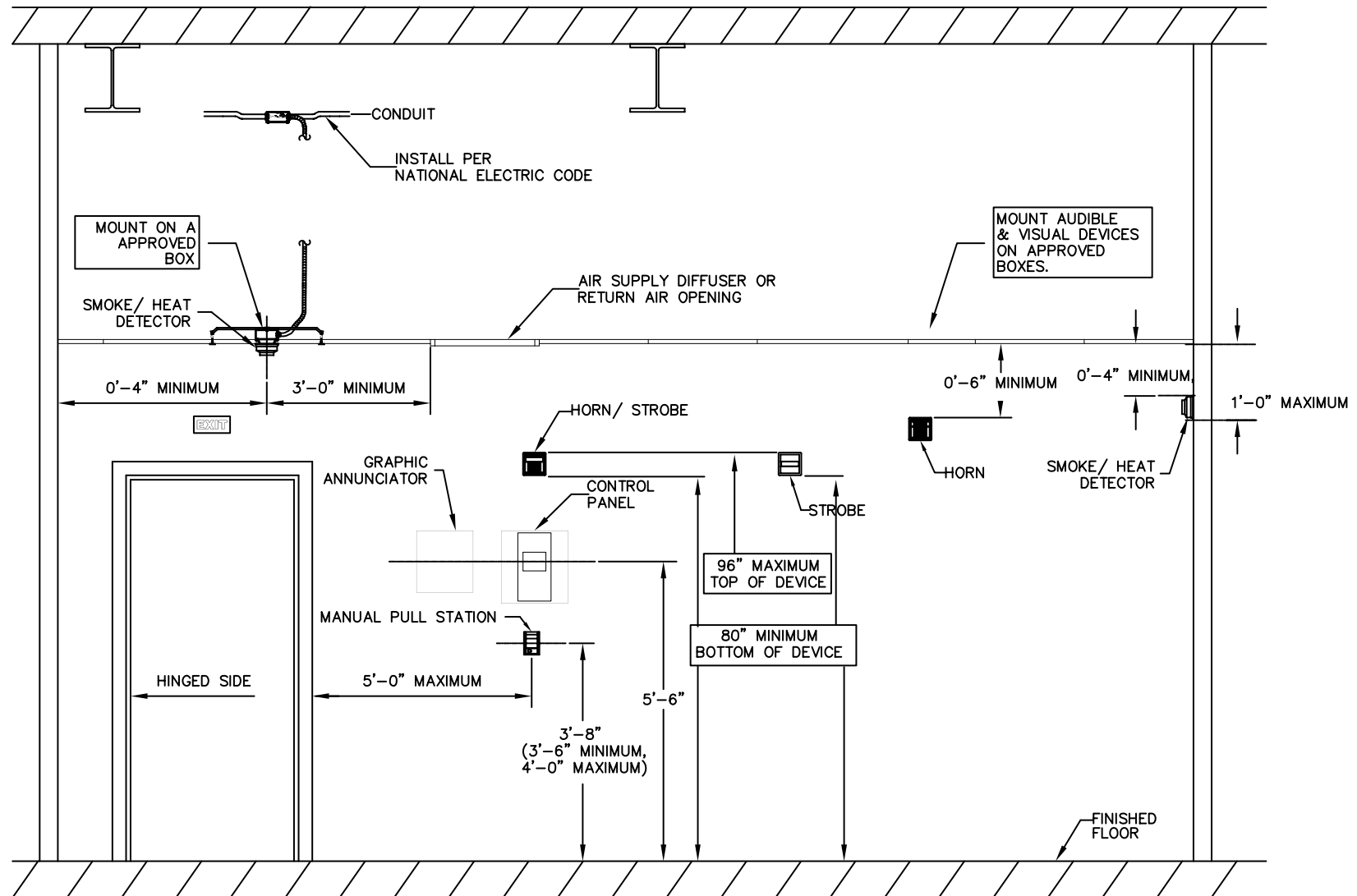
DESCRIPTION:
Elevator Shaft Dry System Detail

REVISIONS:
6-1-06
W. Warren L.L.

DATE:

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FP-25

NFPA 72 AND ADA DEVICE INSTALLATION REQUIREMENTS



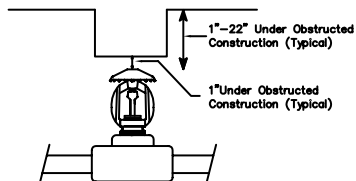
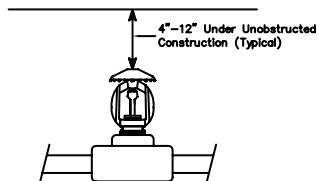
CITY OF RALEIGH FIRE DEPARTMENT
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DESCRIPTION:
FIRE ALARM DEVICE MOUNTING

REVISIONS:
7-1-06
W. WARREN LL

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FP-26



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HANGER INSTALLATION REQUIREMENTS

NOMINAL PIPE SIZE	MAXIMUM DISTANCE BETWEEN HANGERS								
	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"
BLAZEMASTER CPVC	5' 6"	6' 0"	6' 6"	7' 0"	8' 0"	9' 0"	10' 0"	N/A	N/A
THREADABLE LIGHTWALL	N/A	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	N/A	N/A
STEEL PIPE (10/ 40)	N/A	12' 0"	12' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"

100 PSI STATIC PRESSURE ON SYSTEM REQUIRES UP-LIFT RESTRAINT WITHIN
12 INCHES HORIZONTALLY OF HEAD FOR ARM-OVERS AND END OF BRANCH LINE

THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER
ON THE LINE SHALL NOT EXCEED 36" FOR 1" PIPE, 48" FOR 1 1/4" PIPE AND 60" FOR 1 1/2" PIPE OR LARGER

THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARMOVER TO A SPRINKLER,
SPRINKLER DROP, OR SPRIG-UP SHALL NOT EXCEED 24"

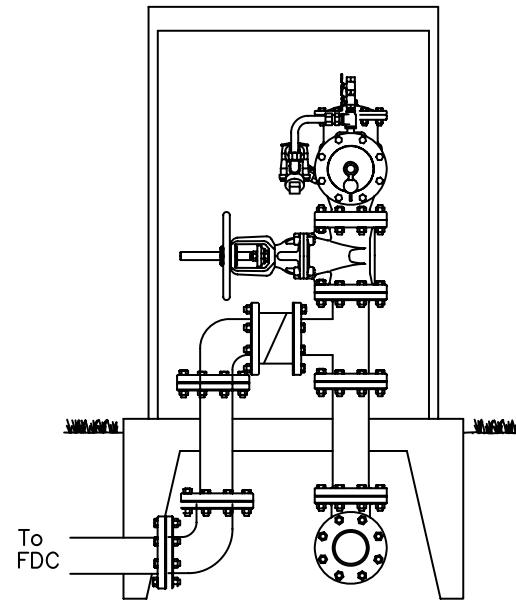
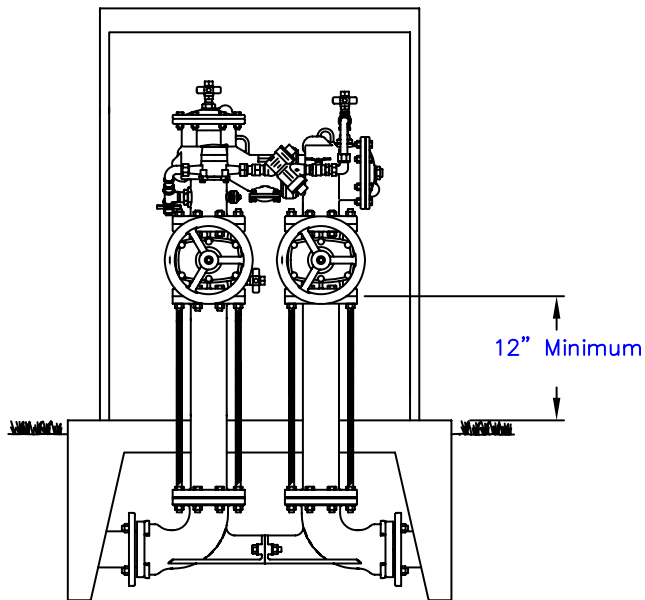
TRAPEZE INSTALLATION REQUIREMENTS

SPAN OF TRAPEZE (Schedule 10)	NOMINAL PIPE SIZE SUPPORTED							
	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"
1 FT. 6 IN.	1"	1"	1"	1"	1"	1"	1-1/4"	1-1/4"
2 FT. 0 IN.	1"	1"	1"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"
2 FT. 6 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	2"
3 FT. 0 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	1-1/2"	2"
4 FT. 0 IN.	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"
5 FT. 0 IN.	2"	2"	2"	2"	2"	2"	2-1/2"	2-1/2"
6 FT. 0 IN.	2"	2"	2"	2"	2"	2-1/2"	2-1/2"	3"
7 FT. 0 IN.	2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"
8 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"
9 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	4"
10 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	3"	4"

Correct details as required
for each installation

TYPICAL NOTES:

- 1)-ALL PIPING AND FITTINGS TO BE DUCTILE IORN, GALVANIZED BRASS, STAINLESS STEEL, OR ALUMINIUM
- 2)-40' MAX. FROM FDC TO APPARATUS ACCESS LOCATION
- 3)-FDC TO FACE FIRE APPARATUS ACCESS LOCATION (DRIVEWAY)
- 4)-DO NOT BLOCK APPARATUS ACCESS TO BUILDING WITH HOSE LAY FROM HYDRANT TO FDC
- 5)-MINIMUM DISTANCE 3 FEET BEHIND CURB, PROTECT FROM VEHICLES
- 6)-PROVIDE HEAT AND ALARM SUPERVISION TO HOT BOX (2 CONDUITS)
- 7)-COMPLY WITH PUBLIC UTILITIES HANDBOOK REQUIREMENTS



CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
HOTBOX DETAIL REQUIREMENTS

REVISIONS:
5-1-06
W Warren L

DATE:
4-1-06
L L

DRAWING NO.
FP-27

OVERALL MATRIX

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX		SYSTEM OUTPUTS																								
		FACP ANNUNCIATION					NOTIFICATION					REQUIRED FIRE SAFETY CONTROL														
SYSTEM INPUTS		ACTUATE COMMON ALARM SIGNAL INDICATOR ACTUATE AUDIBLE ALARM SIGNAL ACTUATE COMMON SUPERVISORY SIGNAL ACTUATE AUDIBLE SUPERVISORY SIGNAL INDICATOR ACTUATE COMMON TROUBLE SIGNAL ACTUATE AUDIBLE TROUBLE SIGNAL INDICATOR ACTUATE ZONE OR DEVICE ADDRESS SIGNAL DISPLAY CHANGE OF STATUS TRANSMIT FIRE ALARM SIGNAL TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION RELEASE MAGNETICALLY HELD DOORS RECALL ELEVATOR TO RECALL FLOOR RECALL ELEVATOR TO ALTERNATE FLOOR DELAYED WARNING TO RECALL DOORS CLOSE ALL SMOKE DAMPERS UNLOCK EXITS AND CONTROL DOORS ACTUATE FLOOR PRESSURIZATION ACTUATE STAIRWELL PRESSURIZATION ACTUATE SMOKE EXHAUST																								
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y
1	FIRE ALARM SYSTEM AC POWER FAILURE			●								●														1
2	FIRE ALARM SYSTEM LOW BATTERY					●	●					●														2
3	OPEN CIRCUIT					●	●					●														3
4	GROUND FAULT					●	●					●														4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●					●														5
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●		●							●						6
7	CORRIDOR SMOKE DETECTORS	●	●					●	●	●	●		●	●					●	●		●	●	●		7
8	AREA SMOKE DETECTORS	●	●					●	●	●	●		●	●					●	●		●	●	●		8
9	HVAC AIR DUCT SMOKE DETECTORS			●	●			●				●									●					9
10	AREA HEAT DETECTORS	●	●					●	●	●	●		●	●					●	●		●	●	●		10
11	HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM	●	●					●	●	●	●		●	●					●	●						11
12	SPRINKLER TAMPER SWITCH			●	●			●				●														12
13	SPRINKLER WATER FLOW IN BUILDING	●	●					●	●	●	●		●	●					●	●						13
14	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	●	●					●	●	●	●		●	●		●	●		●	●						14
15	ELEV EQUIP RM AREA SMOKE DETECTOR	●	●					●	●	●	●		●	●					●	●						15
16	ELEV SHAFT AND ELEV EQUIP RM HEAT DETECTORS	●	●					●	●	●	●		●	●				●	●		●	●				16
17	ELEV LOBBY SMOKE DETECTORS - UPPER FLOORS	●	●					●	●	●	●		●	●					●	●		●	●	●		17
18	ELEV LOBBY SMOKE DETECTOR - RECALL FLOOR	●	●					●	●	●	●		●		●	●			●	●		●	●	●		18
19	ELEV CONTROLLER POWER SHUNT TRIP STATUS			●	●			●				●														19
20	FIRE PUMP POWER FAILURE/PHASE REVERSAL			●	●			●				●														20
21	FIRE PUMP RUNNING	●	●					●	●	●	●		●	●					●	●						21
22	FIRE PUMP SYSTEM NOT IN AUTOMATIC			●	●			●				●														22
23	LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEL			●	●			●				●														23
24	LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC			●	●			●				●														24
25	AREA OF REFUGE TWO-WAY COMMUNICATIONS STATUS			●	●			●				●														25
26	-																									26
27	-																									27

MATRIX — ASSISTED LIVING FACILITY

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX		SYSTEM OUTPUTS																			
		FACP ANNUNCIATION										NOTIFICATION					REQUIRED FIRE SAFETY CONTROL				
SYSTEM INPUTS		ACTUATE COMMON ALARM SIGNAL INDICATOR ACTUATE AUDIBLE ALARM SIGNAL ACTUATE COMMON SUPERVISORY SIGNAL ACTUATE AUDIBLE SUPERVISORY SIGNAL ACTUATE COMMON TROUBLE SIGNAL ACTUATE AUDIBLE TROUBLE SIGNAL ACTUATE ZONE OR DEVICE ADDRESS DISPLAY CHANGE OF STATUS TRANSMIT FIRE ALARM SIGNAL TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION RELEASE TROUBLE SIGNAL TO CENTRAL STATION CLOSE MAGNETICALLY HELD DOORS UNLOCK EXITS AND CONTROL DOORS SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT																			
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1	FIRE ALARM SYSTEM AC POWER FAILURE			●	●							●									1
2	FIRE ALARM SYSTEM LOW BATTERY					●	●					●									2
3	OPEN CIRCUIT					●	●					●									3
4	GROUND FAULT					●	●					●									4
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					●	●					●									5
6	BUILDING MANUAL PULL STATIONS	●	●					●	●	●	●			●		●					6
7	CORRIDOR SMOKE DETECTORS	●	●					●	●	●	●			●	●	●					7
8	AREA SMOKE DETECTORS	●	●					●	●	●	●			●	●	●					8
9	HVAC AIR DUCT SMOKE DETECTORS			●	●			●				●				●					9
10	AREA HEAT DETECTORS	●	●					●	●	●	●			●	●	●					10
11	HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM	●	●					●	●	●	●			●	●	●					11
12	SPRINKLER TAMPER SWITCH			●	●			●				●									12
13	SPRINKLER WATER FLOW IN BUILDING	●	●					●	●	●	●			●	●	●					13
14	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	●	●					●	●	●	●			●	●	●					14
15	FIRE PUMP POWER FAILURE/PHASE REVERSAL			●	●			●				●									15
16	FIRE PUMP RUNNING	●	●					●	●	●	●			●	●	●					16
17	FIRE PUMP SYSTEM NOT IN AUTOMATIC			●	●			●				●									17
18	LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEL			●	●			●				●									18
19	LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC			●	●			●				●									19
20	-																				20
21	-																				21

CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
Fire Alarm Matrix

REVISIONS:

DATE:
6-30-09

DRAWING NO.
FP-31b

MATRIX — MULTIFAMILY DWELLING STANDARD 3 OR 4 STORY PRODUCT

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX		SYSTEM OUTPUTS																			
		FACP ANNUNCIATION					NOTIFICATION					REQUIRED FIRE SAFETY CONTROL									
SYSTEM INPUTS		ACTUATE COMMON ALARM SIGNAL INDICATOR																			
		ACTUATE AUDIBLE ALARM SIGNAL																			
SYSTEM INPUTS		ACTUATE COMMON SUPERVISORY SIGNAL																			
		ACTUATE AUDIBLE SUPERVISORY SIGNAL																			
SYSTEM INPUTS		ACTUATE COMMON TROUBLE SIGNAL																			
		ACTUATE AUDIBLE TROUBLE SIGNAL																			
SYSTEM INPUTS		ACTUATE ZONE OR DEVICE ADDRESS SIGNAL																			
		DISPLAY GENERAL EVACUATION SIGNAL																			
SYSTEM INPUTS		TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION																			
		TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION																			
SYSTEM INPUTS		TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION																			
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CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
Fire Alarm Matrix

REVISIONS:

DATE:
6-30-09

DRAWING NO.
FP-31c

MATRIX – SPRINKLED OFFICE BUILDING NOT HIGH-RISE

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX		SYSTEM OUTPUTS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS SIGNAL	DISPLAY GENERAL EVACUATION SIGNAL	TRANSMIT FIRE ALARM SIGNAL	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	RELEASE MAGNETICALLY HELD DOORS	RECALL ELEVATOR TO CENTRAL STATION	RECALL ELEVATOR TO RECALL FLOOR	DELAYED WARNING TO ELEVATOR CABS	UNLOCK EXITS AND CONTROL DOORS	SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
Fire Alarm Matrix

REVISIONS:

DATE:
6-30-09

DRAWING NO.
FP-31d

MATRIX – SPRINKLED OFFICE HIGH RISE BUILDING

FIRE ALARM SYSTEM INPUT/OUTPUT MATRIX		SYSTEM OUTPUTS																										
		FACP ANNUNCIATION													NOTIFICATION							REQUIRED FIRE SAFETY CONTROL						
		ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE ZONE OR DEVICE ADDRESS SIGNAL	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL	RELEASE SUPERVISORY SIGNAL	RELEASE MAGNETICALLY HELD DOORS	RECALL ELEVATOR TO CENTRAL STATION	RECALL ELEVATOR TO RECALL FLOOR	ACTUATE ELEVATOR TO RECALL FLOOR	DELAYED WARNING TO ALTERNATE RECALL FLOOR	UNLOCK EXITS AND CONTROL DOORS	SHUT DOWN RESPECTIVE AIR HANDLING EQUIPMENT	ACTUATE FLOOR PRESSURIZATION	ACTUATE STAIRWELL PRESSURIZATION	ACTUATE SMOKE EXHAUST							
SYSTEM INPUTS		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y		
1	FIRE ALARM SYSTEM AC POWER FAILURE			•	•							•															1	
2	FIRE ALARM SYSTEM LOW BATTERY					•	•						•														2	
3	OPEN CIRCUIT					•	•						•														3	
4	GROUND FAULT					•	•						•														4	
5	NOTIFICATION APPLIANCE CIRCUIT SHORT					•	•						•														5	
6	BUILDING MANUAL PULL STATIONS	•	•					•	•	•	•			•						•							6	
7	CORRIDOR SMOKE DETECTORS	•	•					•	•	•	•			•	•				•	•		•	•	•			7	
8	AREA SMOKE DETECTORS	•	•					•	•	•	•			•	•				•	•		•	•	•			8	
9	HVAC AIR DUCT SMOKE DETECTORS			•	•			•				•									•						9	
10	HOOD OR ROOM FIRE SUPPRESSION SYSTEM ALARM	•	•					•	•	•	•			•	•				•	•							10	
11	SPRINKLER TAMPER SWITCH			•	•			•				•															11	
12	SPRINKLER WATER FLOW IN BUILDING	•	•					•	•	•	•			•	•				•	•							12	
13	SPRINKLER WATER FLOW IN ELEV EQUIP RM OR SHAFT	•	•					•	•	•	•			•	•			•	•		•	•					13	
14	ELEV EQUIP RM AREA SMOKE DETECTOR	•	•					•	•	•	•			•	•			•	•		•	•					14	
15	ELEV SHAFT AND ELEV EQUIP RM HEAT DETECTORS	•	•					•	•	•	•			•	•			•	•								15	
16	ELEV LOBBY SMOKE DETECTORS - UPPER FLOORS	•	•					•	•	•	•			•	•				•	•		•	•	•			16	
17	ELEV LOBBY SMOKE DETECTOR - RECALL FLOOR	•	•					•	•	•	•			•		•	•		•	•		•	•	•			17	
18	ELEV CONTROLLER POWER SHUNT TRIP STATUS			•	•			•				•															18	
19	FIRE PUMP POWER FAILURE/PHASE REVERSAL			•	•			•				•															19	
20	FIRE PUMP RUNNING	•	•					•	•	•	•			•	•				•	•							20	
21	FIRE PUMP SYSTEM NOT IN AUTOMATIC			•	•			•				•															21	
22	LEGALLY REQUIRED GENERATOR SYSTEM LOW FUEL			•	•			•				•															22	
23	LEGALLY REQUIRED GENERATOR NOT IN AUTOMATIC			•	•			•				•															23	
24	AREA OF REFUGE TWO-WAY COMMUNICATIONS STATUS			•	•			•				•															24	
25	-																										25	
26	-																										26	
27																											27	

CITY OF RALEIGH FIRE DEPARTMENT
FIRE PROTECTION DIVISION
310 WEST MARTIN ST. RALEIGH, NC 27602

DESCRIPTION:
Fire Alarm Matrix

REVISIONS:

DATE:
6-30-09

DRAWING NO.
FP-31e