

# SYMBOLS

# ABBREVIATIONS

# FIRE PROTECTION

## FIRE ALARM

## FIRE ALARM NOTES

SYMBOL	DESCRIPTION
	FIRE ALARM CONTROL PANEL
	SUB-FIRE ALARM CONTROL UNIT
	PRE-ACTION CONTROL PANEL
	REMOTE COMMAND CONSOLE
	FIRE PUMP CONTROLLER
	FIRE ALARM TERMINAL CABINET
	NOTIFICATION APPLIANCE EXTENDER PANEL
	REMOTE FIRE ALARM POWER SUPPLY
	FIRE ALARM ANNUCIATOR
	PRINTER
	SURGE SUPPRESSOR
	POST INDICATOR VALVE
	ALARM CHECK VALVE PRESSURE SWITCH
	SPRINKLER WATER FLOW SWITCH
	SPRINKLER SUPERVISORY SWITCH
	LIQUID LEVEL INDICATOR SWITCH
	ISOLATOR MODULE
	DUCT SMOKE DETECTOR
	SMOKE DETECTOR
	BEAM TYPE SMOKE DETECTOR, CEILING MOUNTED (BT = TRANSMITTER, BR = REFLECTOR)
	HEAT DETECTOR
	MANUAL PULL STATION
	ADDRESSABLE INPUT MODULE
	ADDRESSABLE OUTPUT MODULE
	STROBE, CEILING MOUNTED
	STROBE, WALL MOUNTED
	HORN
	HORN/STROBE
	SPEAKER/STROBE
	CEILING MOUNTED HORN/STROBE
	CEILING MOUNTED SPEAKER/STROBE
	FIRE SMOKE DAMPER
	2-WAY COMMUNICATIONS SYSTEM CALL STATION, CORNELL OR APPROVED. INSTALL AT 43" AFF.
	2-WAY COMMUNICATIONS SYSTEM MASTER STATION, CORNELL OR APPROVED. INSTALL AT 43" AFF.
	2-WAY COMMUNICATIONS SYSTEM POWER SUPPLY, CORNELL OR APPROVED.
	2-WAY COMMUNICATIONS SYSTEM REMOTE STATION, CORNELL OR APPROVED. INSTALL AT 43" AFF.
	FIRE SPRINKLER BELL
	SPEAKER ONLY
	CONDUIT

<b>A.</b>	A FIRE ALARM CONTROL UNIT (FACP) SHALL BE PROVIDED TO MONITOR ALL FIRE SPRINKLER SYSTEM RELATED FIRE PUMP SUPERVISORY SIGNALS, WATER FLOW AND VALVE TAMPER SWITCHES, MANUAL PULL STATIONS, SMOKE DETECTORS, HEAT DETECTORS, AND AUTOMATIC SUPPRESSION SYSTEMS. THE NEW SYSTEM SHALL BE A FULLY FIELD PROGRAMMABLE MICROPROCESSOR-BASED SYSTEM CAPABLE OF TWO-WAY COMMUNICATION OVER SIGNALING LINE CIRCUITS BETWEEN ADDRESSABLE INTERFACING CONTROL MODULES AND THE FACP.
<b>B.</b>	ALL PANELS AND PERIPHERAL DEVICES SHALL BE THE STANDARD PRODUCT OF A SINGLE MANUFACTURER AND SHALL DISPLAY THE MANUFACTURER'S NAME ON EACH COMPONENT. EQUIPMENT AND COMPONENTS SHALL BEAR THE UL OR FM LABEL OR MARKING, AND ALL MATERIALS SHALL BE NEW AND IN GOOD CONDITION, FREE OF DEFECTS, SCRATCHES, CORROSION AND CONTAMINATION. USED EQUIPMENT SHALL NOT BE ALLOWED.
<b>C.</b>	THE FACP PRIMARY POWER SUPPLY SHALL BE PROTECTED BY A SEPARATE UL-LISTED FAST-ACTING ELECTRICAL TRANSIENT SURGE SUPPRESSOR THAT INCORPORATES LOW Z EARTH GROUNDING. THE DEVICE SHALL MEET THE REQUIREMENTS OF UL-1449.
<b>D.</b>	ALL LOW VOLTAGE CIRCUITS LEADING FROM THE FACP, INCLUDING INITIATING AND NOTIFICATION CIRCUITS, AS WELL AS TELEPHONE LINES, SHALL BE PROTECTED BY A SEPARATE UL-LISTED FAST-ACTING ELECTRICAL TRANSIENT SURGE SUPPRESSOR WHICH INCORPORATES LOW Z EARTH GROUNDING. THE DEVICE SHALL MEET THE REQUIREMENTS OF UL-497B.
<b>E.</b>	SELECTION OF CABLE TYPES AND WIRE WITH RESPECT TO CONDUCTOR SIZE, SHIELDING REQUIREMENTS, AND SEPARATION BETWEEN CIRCUITS SHALL BE IN FULL COMPLIANCE WITH THE REQUIREMENTS OF THE MANUFACTURER OF THE FACP. WITHOUT EXCEPTION, ALL CIRCUIT WIRING SHALL BE SPECIFICALLY LISTED FOR USE WITH FIRE ALARM SYSTEMS.
<b>F.</b>	THE FACP SHALL BE DESIGNED FOR FUTURE EXPANSION AND MODIFICATION. IN NO CASE SHALL CIRCUIT AND/OR MODULE LOADING EXCEED EIGHTY (80) PERCENT OF THE DESIGN CAPACITY AS SPECIFIED BY THE MANUFACTURER.
<b>G.</b>	THE DESIGN, EQUIPMENT, MATERIALS, INSTALLATION, AND WORKMANSHIP SHALL BE IN STRICT ACCORDANCE WITH THE REQUIRED AND ADVISORY PROVISIONS OF NFPA 70 (2014 EDITION), ABMA/ADA AND WITH ALL OTHER REQUIREMENTS IDENTIFIED IN THE SPECIFICATIONS. THE ADVISORY PROVISIONS (APPENDICES) OF THE NFPA PUBLICATIONS REFERRED TO HEREIN SHALL BE CONSIDERED TO BE MANDATORY AS THOUGH THE WORD "SHALL" HAD BEEN SUBSTITUTED FOR "SHOULD" WHEREVER IT APPEARS. IF THERE ARE ANY CONFLICTS BETWEEN THESE SPECIFICATIONS AND THE REFERENCED STANDARDS AND PUBLICATIONS, THE MOST STRINGENT REQUIREMENT SHALL APPLY.
<b>H.</b>	THE FIRE ALARM SUB-CONTRACTOR (CONTRACTOR) SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ANY AND ALL PERMITS REQUIRED PRIOR TO BEGINNING WORK AT THE DIRECTION OF THE GENERAL CONTRACTOR.
<b>I.</b>	THE CONTRACTOR SHALL PROVIDE, AS PART OF THE INSTALLED COST OF THIS FIRE ALARM SYSTEM, A WARRANTY AND SERVICE AGREEMENT TO COVER THE INSTALLATION OF THE COMPLETE SYSTEM FOR A PERIOD OF AT LEAST ONE YEAR FOLLOWING FINAL SYSTEM ACCEPTANCE.
<b>J.</b>	ALL EQUIPMENT SHALL BE INSTALLED IN AN AESTHETIC AND SKILLED MANNER IN ACCORDANCE WITH NFPA CODES AND STANDARDS AND OTHER APPLICABLE STANDARDS REFERENCED IN THE PROJECT SPECIFICATIONS. FINAL APPEARANCE OF ALL SYSTEMS AND EQUIPMENT SHALL BE NEAT AND CLEAN.
<b>K.</b>	THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THE BUILDING AND SITE INCLUDING, BUT NOT LIMITED TO, BLIND SPACES, SHIELDING, LIGHTS, GRILLS AND DIFFUSERS, PIPING, DUCT WORK, DOORS, WINDOWS, EQUIPMENT PLATFORMS, WALLS (FIRE-RATED AND NON-FIRE-RATED), BEAMS, JOISTS, COLUMNS, HVAC EQUIPMENT, ELECTRICAL PANELS AND EQUIPMENT, CEILING, AREAS WITHOUT CEILING, WALL CONSTRUCTION, FLOORS AND ALL CONSTRUCTION, EQUIPMENT AND BUILDING APPURTENANCES.
<b>L.</b>	THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING, DOCUMENTING, AND CERTIFYING REQUISITE INSPECTION AND TESTS IN ACCORDANCE WITH APPLICABLE CODES AND STANDARDS FOR ALL EQUIPMENT FURNISHED UNDER THIS PROJECT. AFTER COMPLETING HIS TESTING, THE CONTRACTOR SHALL DEMONSTRATE FULL OPERATIONAL CAPABILITY OF THE FIRE ALARM SYSTEM, AS WELL AS FULL COMPLIANCE WITH ALL DESIGN DOCUMENTS, CODES AND STANDARDS, TO THE SATISFACTION OF THE OBC/SP/IR/PE.
<b>M.</b>	SEE MECHANICAL DRAWINGS, HVAC ZONE MAPS, FOR REFERENCE WHEN PROGRAMMING AND SEQUENCING OF FSD CLOSURES AND HVAC SHUT DOWN.
<b>N.</b>	THIS DRAWING IS ISSUED FOR REVIEW AND IS INTENDED TO DESCRIBE THE GENERAL DESIGN INTENT BY WHICH THE FIRE ALARM PLANNER CAN CORRECTLY PLAN THE SYSTEMS. SOME PARTS OF THE SYSTEM MAY NOT BE DEPICTED, AND ADDITIONAL DEVICES MAY BE REQUIRED. REFER TO SPECIFICATION SECTION 28.310 FOR COMPLETE PERFORMANCE REQUIREMENTS.

## GENERAL SYMBOLS

SYMBOL	DESCRIPTION
	KEYED NOTE
	REVISION TRIANGLE
	EQUIPMENT TAG
	MATCHLINE
	DRAWING TITLE
	SECTION REFERENCE
	DETAIL REFERENCE
	ENLARGED PLAN REFERENCE

ABBREV.	DESCRIPTION
AFH	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLER UNIT SHUTDOWN
AIM	ADDRESSABLE INPUT MODULE
ALT	ELEVATOR RECALL, ALTERNATE
AOM	ADDRESSABLE OUTPUT MODULE
AS	AUTOMATIC SPRINKLER
BOB	BOTTOM OF BEAM
BOD	BOTTOM OF DECK
BOP	BOTTOM OF PIPE
BOR	BOTTOM OF RISER
BV	BUTTERFLY VALVE
C	CENTERLINE
CAC	COMPOUND ACCESS CONTROL FACILITIES
CV	CHECK VALVE
DDCV	DOUBLE DETECTOR CHECK VALVE ASSEMBLY
DIP	DUCTILE IRON PIPE
DN	DROP NIPPLE
(E)	EXISTING
EC	EXTENDED COVERAGE
EL	ELEVATION
F	FAHRENHEIT
FAA	FIRE ALARM ANNUCIATOR
FACP	FIRE ALARM CONTROL PANEL
FDC	FIRE DEPARTMENT CONNECTION
FF	FINISHED FLOOR
FFL	FLOOR FLANGE
FHC	FIRE HOSE CABINET
FHS	FIRE HOSE STATION
FLT	FIRE PUMP FAULT
FS	FLOW SWITCH
FSD	FIRE SMOKE DAMPER
FEET	FEET
G	GRADE
GPM	GALLONS PER MINUTE
GSO	SUPPORT ANNEX
GV	GATE VALVE
H	HANGER
HDPE	HIGH DENSITY POLYETHYLENE
HSW	HORIZONTAL SIDE WALL
HV	HOSE VALVE
ID	INSIDE DIAMETER
IN	INCHES
IE	INVERT ELEVATION
KH	KITCHEN HOOD INTERFACE
LOW	FIRE PUMP LOW FUEL
MAX	MAXIMUM
MIN	MINIMUM
(N)	NOT IN CONTRACT
NAC	NOTIFICATION APPLIANCE CIRCUIT
NIC	NOT IN CONTRACT
NO	NUMBER
NTS	NOT TO SCALE
OBJ	OPEN BAR JOIST
OD	OUTSIDE DIAMETER
OS&Y	OUTSIDE SCREW & YOKE
PIV	POST INDICATOR VALVE
PRI	ELEVATOR RECALL, PRIMARY
PRV	PRESSURE RELEASE VALVE
PS	PRESSURE SWITCH
(R)	REMOVE
(RL)	RELOCATE
RM	RISER NIPPLE
RUN	ROOF MANIFOLD
S	FIRE PUMP RUNNING
SLC	SOUNDER BASE
ST	SIGNALING LINE CIRCUIT
STS	ELEVATOR, SHUNT TRIP SUPERVISION
TMK	LOW SPACE TEMP
TNK	WATER TANK LEVEL
UTL	UTILITY BUILDING
VT	VALVE TAMPER SWITCH
WHS	WAREHOUSE
WP	WEATHERPROOF

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<ol style="list-style-type: none"> <li>PROVIDE 100% FIRE SPRINKLER COVERAGE FOR BUILDING AREA SHOWN ON CONTRACT DOCUMENTS. FIRE SPRINKLER PIPING SHALL BE DESIGNED IN ACCORDANCE WITH LOCAL BUILDING CODES, NFPA 13 AND OWNERS INSURANCE UNDERWRITERS.</li> <li>THE FIRE SUPPRESSION SYSTEM, AS SHOWN ON THE CONTRACT DOCUMENTS, IS SCHEMATIC IN NATURE AND INDICATES THE AREAS TO BE COVERED BY THE SUPPRESSION SYSTEMS. THE FINAL DESIGN OF THE SYSTEM SHALL BE PERFORMED BY A LICENSED INDIVIDUAL CERTIFIED TO A MAXIMUM LEVEL III, IN THE SUB-FIELD OF "AUTOMATIC SPRINKLER SYSTEM LAYOUT," THROUGH THE NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES (NICET).</li> <li>PIPE SIZES SHOWN ARE SUBJECT TO CHANGE BASED ON HYDRAULIC CALCULATIONS PERFORMED BY FIRE PROTECTION CONTRACTOR. FINAL PIPING LAY-OUT &amp; SIZE SHALL BE DETERMINED BY FIRE PROTECTION CONTRACTOR.</li> <li>COORDINATE WORK WITH ALL OTHER TRADES.</li> <li>ONLY PIPING SERVING SPRINKLERS WITHIN ELECTRICAL ROOMS SHALL BE ROUTED THROUGH SUCH ROOMS. PIPING WITHIN SHALL NOT SERVE SPRINKLERS OUTSIDE OF THESE ROOMS.</li> <li>ROUTE PIPING CONCEALED THROUGHOUT EXCEPT WHERE INDICATED.</li> <li>ALL HORIZONTAL PIPING IS ABOVE CEILING UNLESS NOTED OTHERWISE.</li> <li>WHERE HEADS ARE NOT SHOWN, CONTRACTOR SHALL DETERMINE LOCATION, CENTER IN CEILING TILES IN LAY-IN CEILING AREAS, ALIGN WITH LIGHTS AND OTHER CEILING ELEMENTS IN HARD CEILING AREAS. COORDINATE EXACT LOCATION WITH ARCHITECT DURING SHOP DRAWINGS SUBMITTAL PROCESS.</li> <li>WHERE NOT SHOWN, PIPING LAYOUT AND SIZE SHALL BE DETERMINED BY FIRE PROTECTION CONTRACTOR. ALL PIPING TO BE ROUTED CONCEALED, UNLESS OTHERWISE INDICATED.</li> <li>SHOW ALL DUCTWORK AND OTHER OBSTRUCTIONS IN ROOMS THAT ARE WITHOUT CEILING ON SHOP DRAWINGS. PROVIDE COVERAGE AROUND AND UNDER ALL OBSTRUCTIONS AS REQUIRED BY NFPA 13, (AND 72) INCLUDING BUT NOT LIMITED TO COVERAGE UNDER DUCTWORK 4" AND UNDER HEADS THAT ARE BELOW OBSTRUCTIONS SHALL BE PROVIDED WITH WIRE CAGE PROTECTORS.</li> <li>CONTRACTOR SHALL VERIFY LOCATION OF ANY PIPING THAT MAY CONFLICT WITH ROUTING OF FIRE PROTECTION PIPING PRIOR TO COMMENCEMENT OF WORK. CONTRACTOR SHALL SUBMIT REPORT OF CONFLICT DIRECTLY TO ENGINEER.</li> <li>NOTIFY AND COORDINATE WITH OWNERS REPRESENTATIVE PRIOR TO SHUT-DOWN OF ANY FIRE PROTECTION UTILITY. SHUT-DOWN TIME TO BE MINIMUM. NOTIFICATION SHALL BE IN WRITING A MINIMUM OF 48 HOURS PRIOR TO SHUT-DOWN.</li> </ol>	<table border="1"> <tbody> <tr> <td>AD</td> <td>AREA DRAIN</td> </tr> <tr> <td>AFF</td> <td>ABOVE FINISHED FLOOR</td> </tr> <tr> <td>AHU</td> <td>AIR HANDLING UNIT</td> </tr> <tr> <td>APPROX</td> <td>APPROXIMATE</td> </tr> <tr> <td>AVG</td> <td>AVERAGE</td> </tr> <tr> <td>BA</td> <td>BREATHING AIR BUILDING</td> </tr> <tr> <td>BLOC</td> <td>BOTTOM OF</td> </tr> <tr> <td>BOP</td> <td>BOTTOM OF PIPE</td> </tr> <tr> <td>BYP</td> <td>BY-PASS</td> </tr> <tr> <td>C</td> <td>CELSIUS</td> </tr> <tr> <td>CA</td> <td>COMPRESSED AIR</td> </tr> <tr> <td>CO</td> <td>CLEANOUT</td> </tr> <tr> <td>CONW</td> <td>CONNECTION</td> </tr> <tr> <td>CW</td> <td>COLD WATER</td> </tr> <tr> <td>DCW</td> <td>DOMESTIC COLD WATER</td> </tr> <tr> <td>DWV</td> <td>DRAIN, WASTE &amp; VENT</td> </tr> <tr> <td>EL</td> <td>ELEVATION</td> </tr> <tr> <td>EX</td> <td>EXISTING</td> </tr> <tr> <td>F</td> <td>FIRE LINE</td> </tr> <tr> <td>G.C.O.</td> <td>GRADE CLEANOUT</td> </tr> <tr> <td>HD</td> <td>HYDRAULIC DRAIN</td> </tr> <tr> <td>HP</td> <td>HORSE POWER</td> </tr> <tr> <td>HW</td> <td>HOT WATER</td> </tr> <tr> <td>HWCP</td> <td>HOT WATER CIRCULATING PUMP</td> </tr> <tr> <td>HWS</td> <td>HOT WATER RETURN</td> </tr> <tr> <td>HWSP</td> <td>HOT WATER SUPPLY</td> </tr> <tr> <td>IN WC</td> <td>INCHES, WATER COLUMN</td> </tr> <tr> <td>INVERT</td> <td>INVERT</td> </tr> <tr> <td>KW</td> <td>KILOWATT</td> </tr> <tr> <td>LB</td> <td>POUNDS</td> </tr> <tr> <td>LF</td> <td>LINEAR FEET</td> </tr> <tr> <td>LP</td> <td>LOW PRESSURE</td> </tr> <tr> <td>MAX</td> <td>MAXIMUM</td> </tr> <tr> <td>MIN</td> <td>MINIMUM</td> </tr> <tr> <td>NA</td> <td>NOT APPLICABLE</td> </tr> <tr> <td>NC</td> <td>NORMALLY CLOSED</td> </tr> <tr> <td>NIC</td> <td>NOT IN CONTRACT</td> </tr> <tr> <td>NPW</td> <td>NON-POTABLE WATER</td> </tr> <tr> <td>NO</td> <td>NORMALLY OPEN</td> </tr> <tr> <td>NTS</td> <td>NOT TO SCALE</td> </tr> <tr> <td>OS&amp;Y</td> <td>OUTSIDE SCREW AND YOKE</td> </tr> <tr> <td>PDI</td> <td>PLUMBING DRAINAGE INSTITUTE PUMP DISCHARGE</td> </tr> <tr> <td>PDSCH</td> <td>PUMP DISCHARGE</td> </tr> <tr> <td>PRG</td> <td>PRESSURE REDUCING STATION</td> </tr> <tr> <td>PRV</td> <td>PRESSURE REDUCING VALVE</td> </tr> <tr> <td>PLBG</td> <td>PLUMBING PRESSURE</td> </tr> <tr> <td>PTRV</td> <td>PRESSURE TEMPERATURE RELIEF VALVE</td> </tr> <tr> <td>PW</td> <td>PROTECTED WATER</td> </tr> <tr> <td>REF</td> <td>REFERENCE</td> </tr> <tr> <td>REFRIG</td> <td>REFRIGERATOR</td> </tr> <tr> <td>RPZA</td> <td>REDUCED PRESSURE ZONE ASSEMBLY</td> </tr> <tr> <td>SAN SPEC</td> <td>SANITARY SPECIFICATION</td> </tr> <tr> <td>N</td> <td>SPRINKLER</td> </tr> <tr> <td>T</td> <td>TEMPERATURE SENSOR</td> </tr> <tr> <td>T&amp;P</td> <td>TEMPERATURE AND PRESSURE VALVE</td> </tr> <tr> <td>TEMP TOP</td> <td>TEMPERATURE TOP OF PIPE</td> </tr> <tr> <td>TP</td> <td>TRAP PRIMER OR TRAP PRIMER LINE</td> </tr> <tr> <td>TSTA</td> <td>THERMOSTAT</td> </tr> <tr> <td>V</td> <td>VENT</td> </tr> <tr> <td>VERT</td> <td>VERTICAL VENT THROUGH ROOF</td> </tr> <tr> <td>WG</td> <td>WATER GAGE</td> </tr> <tr> <td>WHA</td> <td>WATER HAMMER ARRESTER</td> </tr> </tbody> </table>	AD	AREA DRAIN	AFF	ABOVE FINISHED FLOOR	AHU	AIR HANDLING UNIT	APPROX	APPROXIMATE	AVG	AVERAGE	BA	BREATHING AIR BUILDING	BLOC	BOTTOM OF	BOP	BOTTOM OF PIPE	BYP	BY-PASS	C	CELSIUS	CA	COMPRESSED AIR	CO	CLEANOUT	CONW	CONNECTION	CW	COLD WATER	DCW	DOMESTIC COLD WATER	DWV	DRAIN, WASTE & VENT	EL	ELEVATION	EX	EXISTING	F	FIRE LINE	G.C.O.	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## BID DOCUMENTS

<b>CONSULTANTS</b> STRUCTURAL / CIVIL ENGINEER: HSB, INC. 1225 N. LOOP WEST, SUITE 900 HOUSTON, TX 77008 (713) 864-2900 M.E.P. ENGINEER: SPUR DESIGN 1511 WESTPORT ROAD KANSAS CITY, MO 64111 (417) 642-6100		<b>ARCHITECT</b> FIRE PROTECTION / TELECOM ENGINEER: SPUR DESIGN 400 W. CESAR CHAVEZ STREET, SUITE 500 AUSTIN, TX 78701 (512) 472-8721 		APPROVED: DIRECTOR APPROVED: ASSOCIATE DIRECTOR APPROVED: ASSISTANT DIRECTOR APPROVED: CHIEF ENGINEER	<b>SHEET TITLE</b> FIRE ALARM & SUPPRESSION SYMBOLS & ABBREVIATIONS LEGEND	<b>PROJECT TITLE</b> NEW ADMINISTRATION BUILDING <b>PROJECT LOCATION</b> 2002 HOLCOMBE BOULEVARD, HOUSTON, TX 77030 <b>DATE</b> 06-27-2017 <b>CHECKED</b> RSK <b>DRAWN</b> JWS	<b>VA PROJECT NUMBER</b> <b>BUILDING NUMBER</b> <b>DRAWING NUMBER</b> FP-001 <b>Dwg.</b>	<b>Office of Construction and Facilities Management</b> U.S. Department of Veterans Affairs
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	Control Unit Annunciation						Notification						Emergency Function			
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Duct smoke detector	1		X	X			X	X	X					X	X	
Smoke detector	2	X	X				X	X	X					X		X
Smoke detector (hoistway, machine room, lobby)	3	X	X				X	X	X			X		X		X
Manual fire alarm pull station	4	X	X				X	X	X			X	X	X		X
Heat detector (hoistway and machine room)	5	X	X				X	X	X				X	X		X
Alarm check valve pressure switch	6	X	X				X	X	X				X			X
Sprinkler control valve tamper switch	7			X	X		X		X							
Fire alarm AC power failure	8					X	X					X				
Fire alarm system low battery	9					X	X					X				
Open circuit	10					X	X					X				
Ground fault	11					X	X					X				
Notification appliance circuit fault	12					X	X					X				

**BID DEDUCT ALTERNATE #3 NOTES:**

CONVERT SUITE C TO CONDITIONED STORAGE SPACE: IN SUITE C 209, BREAK ROOM 205, & COPIER ROOM 213

- INSTALL CEILING MOUNTED NOTIFICATION DEVICES TO MATCH NEW FLOOR CONFIGURATION.
- PROVIDE CEILING MOUNTED NOTIFICATION DEVICE IN AREA WITHOUT DROP CEILING.
- INSTALL SMOKE DETECTOR IN FRONT OF ELEVATOR DOORS TO ACTIVATE ELEVATOR RECALL.
- INSTALL SMOKE DETECTORS IN ELECTRICAL ROOM AND IT CLOSET.

**BID DEDUCT ALTERNATE #4 NOTES:**

CONVERT SUITE D TO CONDITIONED STORAGE SPACE: IN SUITE D 210, BREAK ROOM 206, & COPIER ROOM 214

- INSTALL CEILING MOUNTED NOTIFICATION DEVICES TO MATCH NEW FLOOR CONFIGURATION.
- PROVIDE CEILING MOUNTED NOTIFICATION DEVICE IN AREA WITHOUT DROP CEILING.
- INSTALL SMOKE DETECTOR IN FRONT OF ELEVATOR DOORS TO ACTIVATE ELEVATOR RECALL.
- INSTALL SMOKE DETECTORS IN ELECTRICAL ROOM AND IT CLOSET.

**GENERAL NOTES**

- THIS DRAWING IS ISSUED FOR PERMIT AND IS INTENDED TO DESCRIBE THE GENERAL DESIGN INTENT BY WHICH THE FIRE ALARM PLANNER CAN CORRECTLY PLAN THE SYSTEM(S). SOME PARTS OF THE SYSTEM MAY NOT BE DEPICTED, AND ADDITIONAL DEVICES MAY BE REQUIRED. REFER TO SPECIFICATION SECTION 28 3111 FOR COMPLETE PERFORMANCE REQUIREMENTS.
- DUCT SMOKE DETECTORS ARE TO BE INSTALLED IN SUPPLY AND RETURN AIR SYSTEMS WITH A CAPACITY GREATER THAN 500 CFM, PER IMC AND NFPA 90A. SEE HVAC CONTROL(S) DRAWING(S) FOR RELATED INFORMATION.
- LOCATION OF PULL STATION SUBJECT TO APPROVAL OF AHJ
- IF BID DEDUCT ALTERNATE #3, #4, OR #5 IS SELECTED, THE SPACE MUST COMPLY WITH THE VA FIRE PROTECTION DESIGN MANUAL, INTERNATIONAL BUILDING CODE, AND APPLICABLE NFPA CODES. PROVIDE ADEQUATE COVERAGE OF NOTIFICATION DEVICES THROUGHOUT. REFER TO SHEET AS-103 FOR FLOOR PLANS AND AS-201 FOR CEILING PLANS.

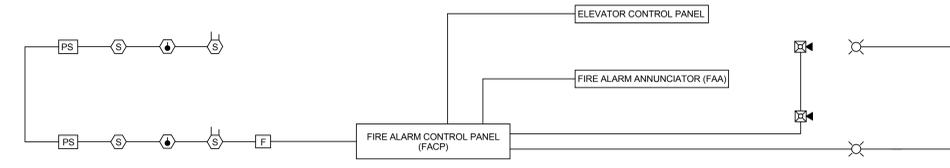
**BID DEDUCT ALTERNATE #5 NOTES:**

ALTERNATE SECOND FLOOR COMMON SPACE: IN ENCLAVE 200, ELECTRICAL ROOM 216, IT CLOSET 216, CONFERENCE ROOM 217, RESTROOMS 218, 219, 220, 221, STORAGE 222, AND CORRIDORS 223, 224, 226, 228.

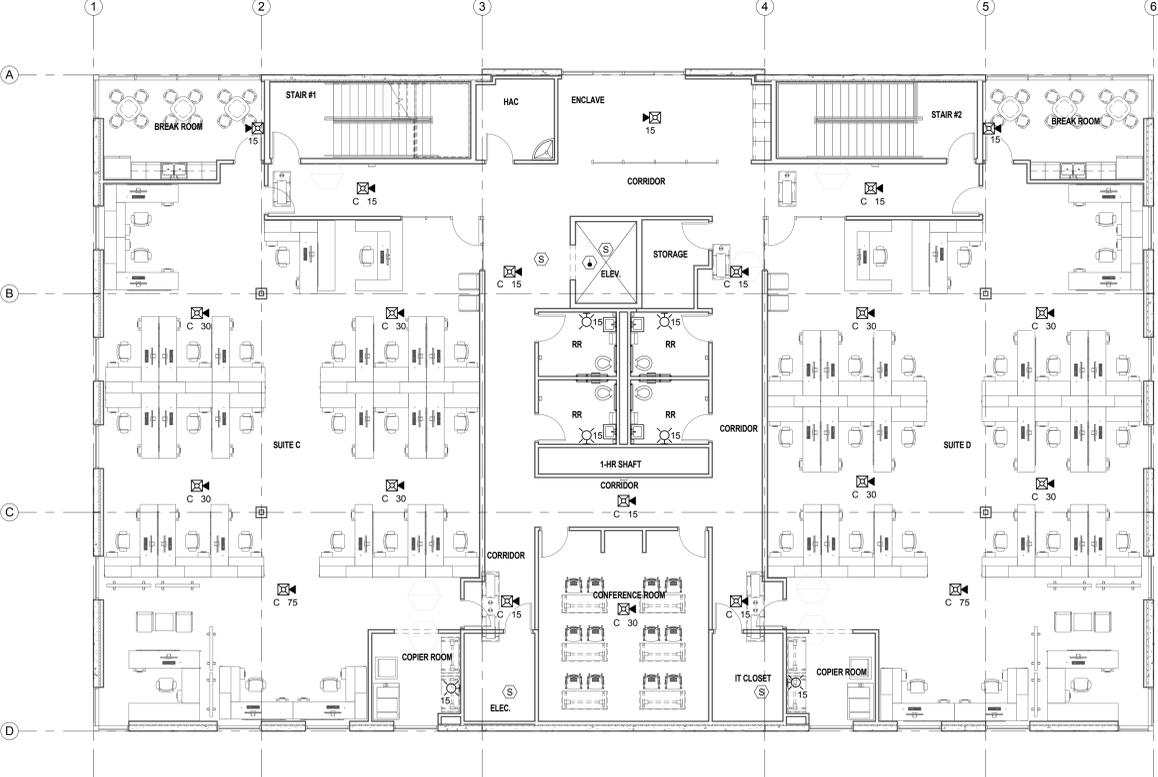
- INSTALL CEILING MOUNTED NOTIFICATION DEVICES TO MATCH NEW FLOOR CONFIGURATION.
- PROVIDE CEILING MOUNTED NOTIFICATION DEVICE IN AREA WITHOUT DROP CEILING.
- INSTALL SMOKE DETECTOR IN FRONT OF ELEVATOR DOORS TO ACTIVATE ELEVATOR RECALL.
- INSTALL SMOKE DETECTORS IN ELECTRICAL ROOM AND IT CLOSET.

**BID DEDUCT ALTERNATE #6 NOTES:**

- REMOVE HEAT AND SMOKE DETECTORS RELATED TO ELEVATOR RECALL.

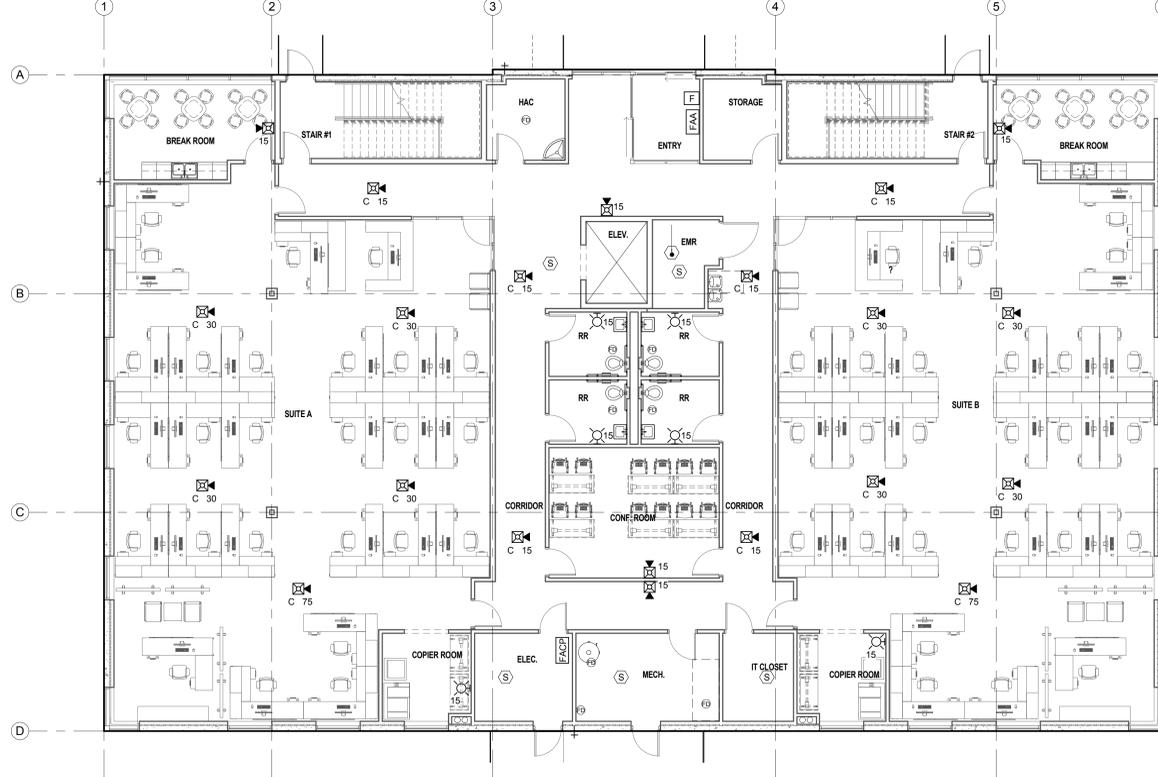


**4 FIRE ALARM MATRIX**  
SCALE: NONE



**2 FIRE ALARM - SECOND LEVEL**  
SCALE: 1/8" = 1'-0"

**3 FIRE ALARM RISER DIAGRAM**  
SCALE: NONE



**1 FIRE ALARM - GROUND LEVEL**  
SCALE: 1/8" = 1'-0"

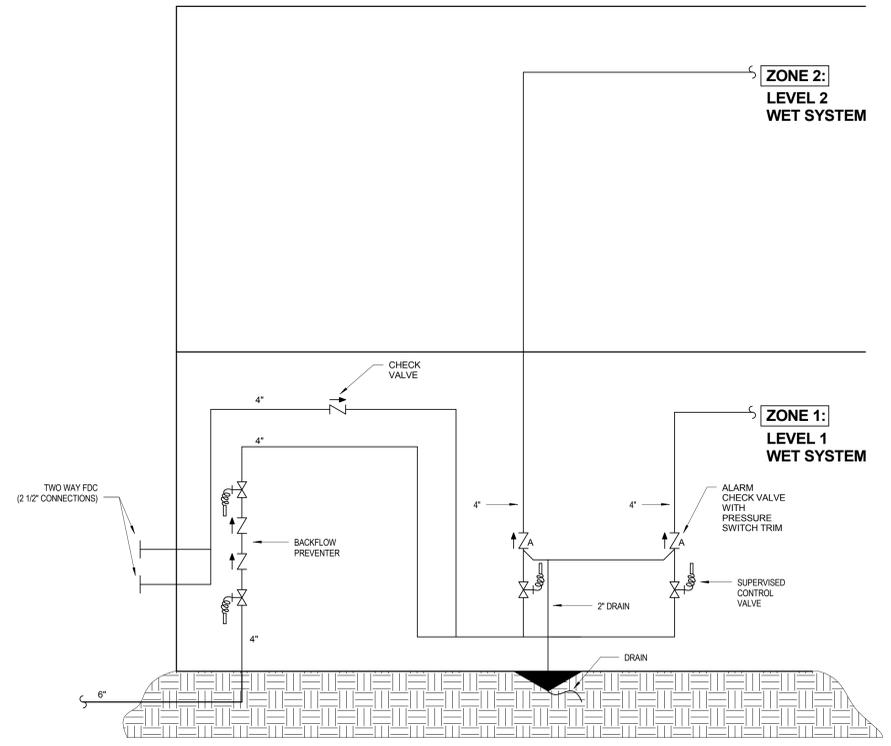
<b>CONSULTANTS</b>  STRUCTURAL / CIVIL ENGINEER H2B, INC. 1225 N. LOOP WEST, SUITE 900 HOUSTON, TX 77008 (713) 964-2900		<b>M.E.P. ENGINEER</b>  SPUR DESIGN 1511 WESTPORT ROAD KANSAS CITY, MO 64111 (405) 842-6100		<b>FIRE PROTECTION / TELECOM ENGINEER</b>  PAGE 400 W. CESAR CHAVEZ STREET, SUITE 500 AUSTIN, TX 78701 (512) 472-8721		<b>ARCHITECT</b>   <small>330 NW 10th St, SUITE A Oklahoma City, OK 73103 spur-design.com</small> <small>1511 Westport Road Kansas City, MO 64111 spur-design.com</small>		APPROVED: DIRECTOR  APPROVED: ASSOCIATE DIRECTOR  APPROVED: ASSISTANT DIRECTOR  APPROVED: CHIEF ENGINEER		<b>SHEET TITLE</b> FIRE ALARM - FLOOR PLAN & RISER DIAGRAM		<b>PROJECT TITLE</b> NEW ADMINISTRATION BUILDING		VA PROJECT NUMBER  BUILDING NUMBER  DRAWING NUMBER <b>FA-101</b>		<b>Office of Construction and Facilities Management</b>  	
REVISION #      DATE		DATE 06-27-2017		CHECKED RSK		DRAWN JDS		Dwg.		DATE 06-27-2017		CHECKED RSK		DRAWN JDS		Dwg.	

three inches = one foot  
 one and one-half inches = one foot  
 one inch = one foot  
 three-quarters inch = one foot  
 one-half inch = one foot  
 three-eighths inch = one foot  
 one-quarter inch = one foot  
 one-eighth inch = one foot

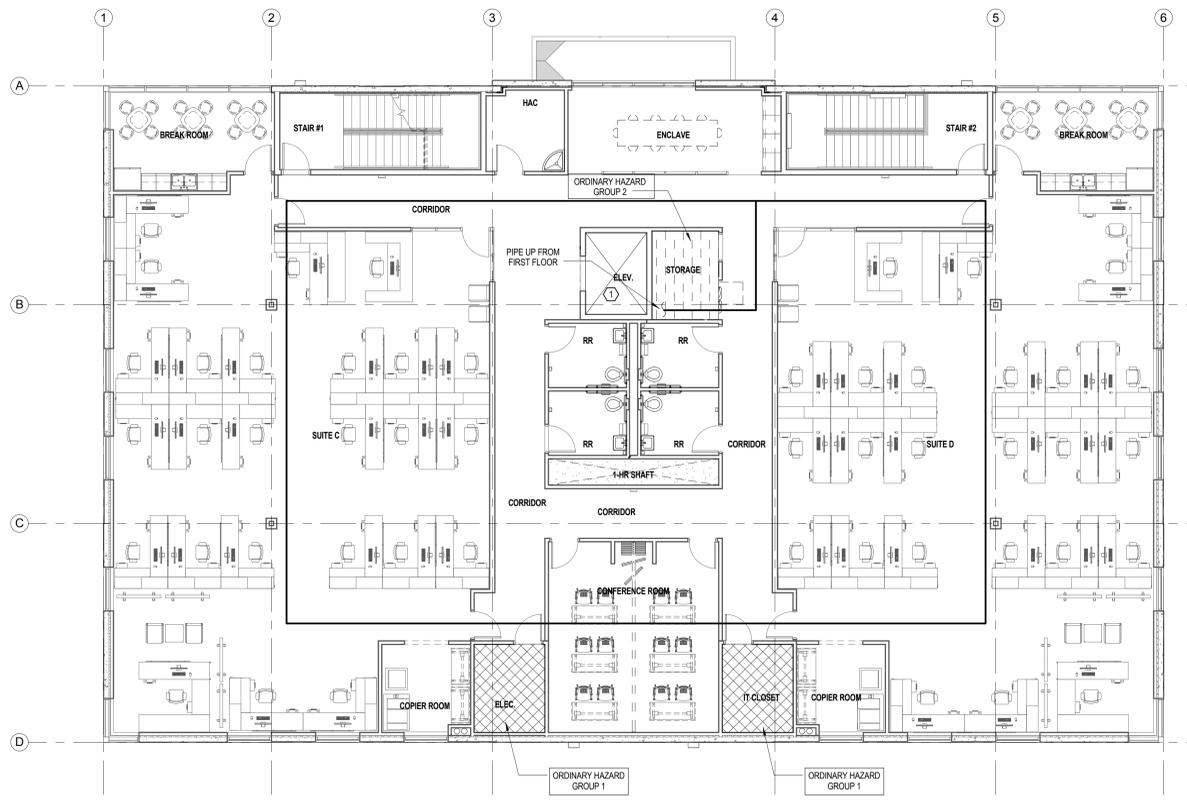
- BID DEDUCT ALTERNATE #3 NOTES:**
- CONVERT SUITE C TO CONDITIONED STORAGE SPACE. IN SUITE C 209, BREAK ROOM 206, & COPIER ROOM 213
- INSTALL SPRINKLER SYSTEM WITH FULL FLOOR COVERAGE TO MATCH NEW FLOOR CONFIGURATION AND CEILINGS.
  - PROVIDE UPRIGHT SPRINKLERS IN AREAS WITHOUT DROP CEILINGS AND IN UNFINISHED AREAS. INSTALL CONCEALED SPRINKLERS IN FINISHED AREAS WITH DROP CEILINGS.
- BID DEDUCT ALTERNATE #4 NOTES:**
- CONVERT SUITE D TO CONDITIONED STORAGE SPACE. IN SUITE D 210, BREAK ROOM 208, & COPIER ROOM 214
- INSTALL SPRINKLER SYSTEM WITH FULL FLOOR COVERAGE TO MATCH NEW FLOOR CONFIGURATION AND CEILINGS.
  - PROVIDE UPRIGHT SPRINKLERS IN AREAS WITHOUT DROP CEILINGS AND IN UNFINISHED AREAS. INSTALL CONCEALED SPRINKLERS IN FINISHED AREAS WITH DROP CEILINGS.
- BID DEDUCT ALTERNATE #5 NOTES:**
- ALTERNATE SECOND FLOOR COMMON SPACE. IN ENCLAVE 200, ELECTRICAL ROOM 215, IT CLOSET 216, CONFERENCE ROOM 217, RESTROOMS 218, 219, 220, 221, STORAGE 222, AND CORRIDORS 223, 224, 225, 226.
- INSTALL SPRINKLER SYSTEM WITH FULL FLOOR COVERAGE TO MATCH NEW FLOOR CONFIGURATION AND CEILINGS.
  - PROVIDE UPRIGHT SPRINKLERS IN AREAS WITHOUT DROP CEILINGS AND IN UNFINISHED AREAS. INSTALL CONCEALED SPRINKLERS IN FINISHED AREAS WITH DROP CEILINGS.

- BID DEDUCT ALTERNATE #6 NOTES:**
- PROVIDE SPRINKLER COVERAGE IN AREAS WHERE ELEVATOR AND ASSOCIATED EQUIPMENT IS REMOVED.

- GENERAL NOTES**
- ALL AREAS NOT IDENTIFIED WITH OCCUPANCY HAZARD NOTE ARE LIGHT HAZARD OCCUPANCIES. HAZARD OCCUPANCY CLASSIFICATIONS SHALL USE THE FOLLOWING DENSITIES:  
 LIGHT HAZARD - 0.1 GPM/SQFT OVER 1500 GPM/SQFT  
 ORDINARY HAZARD (GROUP 1) - 0.15 GPM/SQFT OVER 1500 GPM/SQFT  
 ORDINARY HAZARD (GROUP 2) - 0.2 GPM/SQFT OVER 1500 GPM/SQFT
  - 100% SPRINKLER PROTECTION PROVIDED WITH WET PIPE SYSTEM.
  - PROVIDE INTERMEDIATE TEMPERATURE SPRINKLER AT TOP OF ELEVATOR HOIST WAY AND ELEVATOR MACHINE ROOM.
  - FIRE SUPPRESSION PIPING LAYOUT SHOWN IS RECOMMENDED AND MUST BE COORDINATED WITH ALL OTHER DISCIPLINES IF ALTERED.
  - IF BID DEDUCT ALTERNATE #3, #4, OR #5 IS SELECTED, THE SPACE MUST COMPLY WITH THE VA FIRE PROTECTION DESIGN MANUAL, INTERNATIONAL BUILDING CODE, AND APPLICABLE NFPA CODES. PROVIDE ADEQUATE SPRINKLER COVERAGE THROUGHOUT. REFER TO AS-103 FOR FLOOR PLANS AND AS-201 FOR CEILING PLANS.
- KEYED NOTES**
- PROVIDE SPRINKLER AT TOP OF HOISTWAY.



**3 FIRE PROTECTION RISER DIAGRAM**  
SCALE: NONE



**2 FIRE PROTECTION - SECOND LEVEL**  
SCALE: 1/8" = 1'-0"

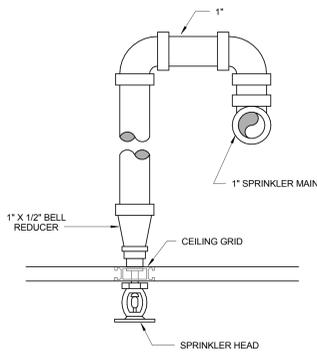


**1 FIRE PROTECTION - GROUND LEVEL**  
SCALE: 1/8" = 1'-0"

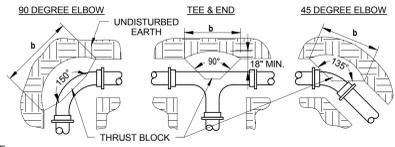
<p><b>CONSULTANTS</b></p> <p>STRUCTURAL / CIVIL ENGINEER          H2B, INC.          1225 N. LOOP WEST, SUITE 900          HOUSTON, TX 77008          (713) 864-2900</p> <p>M.E.P. ENGINEER          SPUR DESIGN          1511 WESTPORT ROAD          KANSAS CITY, MO 64111          (415) 642-6100</p> <p>FIRE PROTECTION / TELECOM ENGINEER          PAGE          400 W. CESAR CHAVEZ STREET, SUITE 500          AUSTIN, TX 78701          (512) 472-8721</p>	<p><b>ARCHITECT</b></p> <p><b>SPUR DESIGN</b></p> <p>330 NW 10th St, SUITE A          Oklahoma City, OK 73103          spur-design.com</p> <p>1511 Westport Road          Kansas City, MO 64111          spur-design.com</p>	<p>APPROVED: DIRECTOR</p> <p>APPROVED: ASSOCIATE DIRECTOR</p> <p>APPROVED: ASSISTANT DIRECTOR</p> <p>APPROVED: CHIEF ENGINEER</p>	<p>SHEET TITLE  <b>FIRE PROTECTION - FLOOR PLAN &amp; RISER DIAGRAM</b></p> <p>APPROVED: CHIEF ENGINEER</p>	<p>PROJECT TITLE  <b>NEW ADMINISTRATION BUILDING</b></p> <p>PROJECT LOCATION          2002 HOLCOMBE BOULEVARD, HOUSTON, TX 77030</p> <p>DATE          06-27-2017</p> <p>CHECKED          RSK</p> <p>DRAWN          JDS</p>	<p>VA PROJECT NUMBER</p> <p>BUILDING NUMBER</p> <p>DRAWING NUMBER  <b>FP-101</b></p> <p>Dwg.</p>	<p><b>Office of Construction and Facilities Management</b></p> <p>VA U.S. Department of Veterans Affairs</p>
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BID DOCUMENTS



**1 ARM-OVER SPRINKLER DETAIL**  
SCALE: NONE

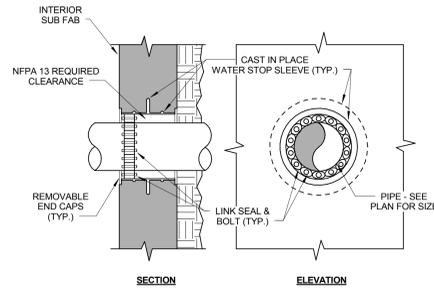


**NOTE:**

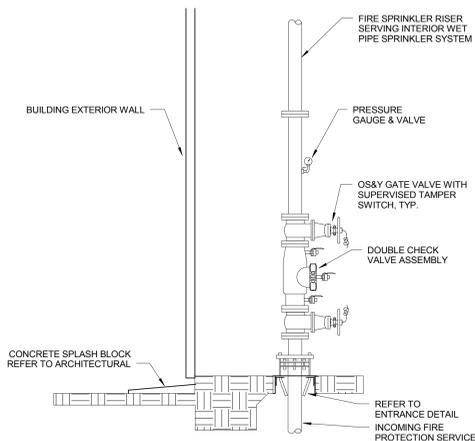
1. BEARING AREA:  $A(b) = \text{WIDTH} \times \text{HEIGHT} = b \times h$  SQUARE CONFIGURATION PREFERRED HOWEVER RECTANGULAR ACCEPTABLE IF  $b$  IS LESS THAN OR EQUAL TO  $2h$ . WHERE ADEQUATE BEARING CANNOT BE OBTAINED PROVIDE TIE RODS IN LIEU OF THRUST BLOCK. THRUST BLOCK TO BEAR ON UNDISTURBED EARTH. OTHERWISE, PROVIDE FILL BETWEEN BEARING THRUST BLOCK AND UNDISTURBED EARTH. COMPACT FILL TO AT LEAST 90% STANDARD PROCTOR DENSITY AND INCREASE BEARING AREA BY A FACTOR OF 1.5.
2. MINIMUM THRUST BLOCK ANGLE INDICATED ABOVE.
3. TAKE CARE IN PLACING CONCRETE SO THAT PIPE AND FITTINGS ARE NOT ENCASED. VERIFY SOIL BEARING STRENGTH WITH SOILS ENGINEER.
4. THRUST BLOCK MATERIAL: 3,000 PSI CONCRETE AT 28 DAYS.
5. REFER TO NFPA 24, ANNEX A, 10.8.2 FOR ADDITIONAL DESIGN REQUIREMENTS.

NORMAL PIPE SIZE [IN]	MINIMAL THRUST BLOCK BEARING AREA, $A(b) = b \times h$ [SQ FT]		
	TEE & END	90 DEGREE BEND	45 DEGREE BEND
6"	7.5	10.6	5.7
8"	12.9	18.2	9.8
10"	19.4	27.4	14.8

**2 BEARING THRUST BLOCK DETAIL**  
SCALE: NONE



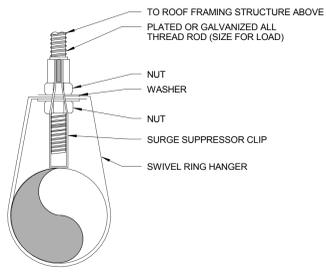
**3 CAST-IN-PLACE LINK SEAL WALL PENETRATION (TYP.) DETAIL**  
SCALE: NONE



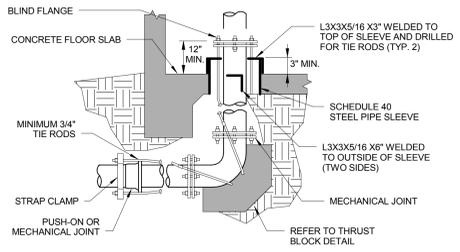
**NOTE:**

1. INSTALL WITH ALL APPURTENANCES REQUIRED BY AND IN COMPLIANCE WITH NFPA 13.
2. PIPING IS SHOWN SCHEMATICALLY.
3. COORDINATE INSTALLATION WITH ARCHITECTURAL, STRUCTURAL, AND OTHER EQUIPMENT.
4. REFER TO PLAN FOR LOCATIONS OF DRAINS AND FIRE DEPARTMENT CONNECTIONS.
5. SLEEVE ALL WALL AND FLOOR PENETRATIONS PER CODE.
6. PROVIDE 36" HORIZONTAL SPOOL PIECE FOR FUTURE FIRE PUMP.

**4 FIRE PROTECTION BUILDING ENTRANCE DETAIL**  
SCALE: NONE



**5 SWIVEL RING HANGER WITH SURGE SUPPRESSOR (TYP.) DETAIL**  
SCALE: NONE



**NOTES:**

1. RODS, CLAMPS, BOLTS, WASHERS, STRAPS, ETC. SHALL CONFORM TO NFPA 24.
2. MINIMIZE THE LENGTH OF PIPING UNDER STRUCTURE.
3. CAST PIPE SLEEVE INTO STRUCTURE. COORDINATE SLEEVE INSTALLATION WITH STRUCTURAL ENGINEER.
4. PROVIDE BURIAL DEPTH TO TOP OF PIPE AS PER NFPA 24 OR MINIMUM 36".
5. SEAL SPACE BETWEEN SLEEVE AND PIPE WATERTIGHT.
6. PROVIDE BLIND FLANGE FOR INSTALLATION OF UNDERGROUND PIPING. REMOVE ENDPLATE TO CONTINUE PIPING INSTALLATION.

**6 UTILITY ENTRANCE DETAIL**  
SCALE: NONE



BID DOCUMENTS

**Office of Construction and Facilities Management**



<b>CONSULTANTS</b>  STRUCTURAL / CIVIL ENGINEER    M.E.P. ENGINEER H2B, INC.    SPUR DESIGN 1225 N. LOOP WEST, SUITE 900    1511 WESTPORT ROAD HOUSTON, TX 77008    KANSAS CITY, MO 64111 (713) 864-2900    (405) 642-6100		<b>ARCHITECT</b>  <b>SPUR DESIGN</b>  330 NW 10th St, Suite A Oklahoma City, OK 73103 (405) 442-4200		APPROVED: DIRECTOR  APPROVED: ASSOCIATE DIRECTOR  APPROVED: ASSISTANT DIRECTOR  APPROVED: CHIEF ENGINEER		<b>SHEET TITLE</b> <b>FIRE PROTECTION DETAILS</b>  APPROVED: CHIEF ENGINEER		<b>PROJECT TITLE</b> <b>NEW ADMINISTRATION BUILDING</b>  <b>PROJECT LOCATION</b> 2002 HOLCOMBE BOULEVARD, HOUSTON, TX 77030		VA PROJECT NUMBER  BUILDING NUMBER  DRAWING NUMBER <b>FP-401</b>  Dwg.	
REVISION #    DATE		<b>FIRE PROTECTION / TELECOM ENGINEER</b>  PAGE 400 W. CESAR CHAVEZ STREET, SUITE 500 AUSTIN, TX 78701 (512) 472-8721		1511 Westport Road Kansas City, MO 64111 spur-design.com		DATE 06-27-2017		CHECKED RSK		DRAWN JDS	