

GENERAL NOTES

- THE SCOPE OF THIS PROJECT IS TO PROVIDE AN ADDRESSABLE FIRE ALARM AND DETECTION SYSTEM AS DESCRIBED HEREIN. THE SYSTEM SHALL INCLUDE ALL WIRING, RACEWAYS, PULL BOXES, TERMINAL CABINETS, OUTLET AND MOUNTING BOXES, CONTROL EQUIPMENT, ALARM AND SUPERVISORY SIGNALS, INITIATING DEVICES, ALARM NOTIFICATION APPLIANCES, NOTIFICATION APPLIANCE BOOSTER PANELS, INTERFACE EQUIPMENT, AND ALL OTHER ACCESSORIES AND MISCELLANEOUS ITEMS INCLUDING SOFTWARE, SYSTEM PROGRAMMING, TESTING AND CONSTRUCTION PERMITS REQUIRED FOR A COMPLETE OPERATING SYSTEM. THE EQUIPMENT PROVIDED BY THE CONTRACTOR SHALL BE LISTED FOR THE INTENDED PURPOSE BY A NATIONAL RECOGNIZED TESTING LABORATORY AND SHALL BE MANUFACTURED BY NOTIFIER.
- ALL FIRE ALARM CIRCUITS SHALL BE SUPERVISED AS FOLLOWS IN ACCORDANCE WITH NFPA 72:
 - INITIATING - CLASS A
 - NOTIFICATION APPLIANCES - CLASS A, STYLE Z, SYNCHRONIZED
 - CONTROL - CLASS A
 - SIGNALING LINE CIRCUITS - CLASS A
- MOUNT ALL VISUAL WARNING STROBE/AUDIBLE NOTIFICATION APPLIANCES TO ACHIEVE MAXIMUM AUDIBILITY AND VISIBILITY IN ACCORDANCE WITH NFPA 72. PROVIDE CARE IN LOCATING VISUAL WARNING STROBE APPLIANCES TO INSURE VISIBILITY AND AVOID OBSTRUCTIONS.
- UNLESS OTHERWISE NOTED, THE PROJECT ELECTRICAL CONDUIT STANDARD IS ELECTRICAL METALLIC TUBING (EMT) AND SHALL BE PROVIDED THROUGHOUT THE PROJECT.
- CONDUIT SHALL BE INSTALLED AS UNOBTRUSIVELY AS POSSIBLE, AS CLOSE AS POSSIBLE TO FLOOR/ CEILING SLAB AND PARALLEL AND AT RIGHT ANGLES TO STRUCTURAL STEEL OR CONCRETE ELEMENTS.
- CONDUIT INCLUDING RISERS UP TO 2 INCHES IN DIAMETER SHALL UTILIZE COMPRESSION TYPE STEEL FITTINGS AND CONNECTORS. UNLESS OTHERWISE NOTED ALL CONDUIT PROVIDED SHALL BE 3/4 INCH MINIMUM EMT TRADE SIZE. VERTICAL RISERS SHALL BE ONE INCH DIAMETER EMT MINIMUM. LIMITED USE OF 1/2 INCH CONDUIT IS PERMITTED ON HORIZONTAL RUNS WHEN A REDUCED DIAMETER IS REQUIRED FOR BETTER CONCEALMENT. WHERE NECESSARY, 1/2 INCH DIAMETER FLEXIBLE CONDUIT MAY BE FISHED OR USED FOR CONCEALED WORK. PLENUM RATED WIRING CONDUCTORS (TYPE FPLP) SHALL BE PROVIDED WHEN FLEX CONDUIT IS UTILIZED. PROVIDE WIRING CONDUCTORS INSTALLED IN EMT FOR THE FOLLOWING CIRCUITS EXCEPT AS OTHERWISE REQUIRED BY FIRE ALARM EQUIPMENT MANUFACTURER:
 - INITIATING NO 16/2 AWG,
 - NOTIFICATION APPLIANCES - 14/2 AWG
 - CONTROL 16/2 AWG
 - SIGNALING LINE CIRCUITS, 18/2 AWG, TWISTED PAIR
 - 120VAC - NO. 12 AWG WITH NO.12 AWG EQUIPMENT GROUND
- ARRANGE STROBE NAC POWER REQUIREMENTS AND CONDUCTOR SIZES NOT TO EXCEED A 10%, 2.4V VOLTAGE DROP. EACH VISUAL NOTIFICATION APPLIANCE CIRCUIT SHALL NOT EXCEED 80% OF ITS RATED OUTPUT. 70.7 VRMS AUDIO VOICE NAC CIRCUITS AND CONDUCTOR SIZES PROVIDED SHALL NOT ALLOW MORE THAN 0.5DB (12.5%) LOSS.
- "PROVIDE" SHALL MEAN CONTRACTOR SHALL FURNISH AND INSTALL COMPLETE AND READY FOR INTENDED USE.
- CONTRACTOR SHALL BE RESPONSIBLE FOR AVOIDING ALL CONFLICTS WITH LIGHT FIXTURES, HVAC DIFFUSERS, GRILLS, DUCTS, CONDUIT AND OTHER PIPING OR OTHER OBSTRUCTIONS ENCOUNTERED. COORDINATE ALL WORK WITH FIELD CONDITIONS.
- A MASS NOTIFICATION SYSTEM WILL NOT BE REQUIRED FOR THIS BUILDING. THIS BUILDING MEETS THE DEFINITION OF A LOW OCCUPANCY BUILDING IN ACCORDANCE WITH UFC 4-010-01.
- THE BUILDING FIRE ALARM SYSTEM SHALL BE CONNECTED TO THE SITE FIRE ALARM MONITORING SYSTEM THROUGH THE FIBER OPTIC NETWORK ON SITE. THE NEAREST POINT TO CONNECT TO THE EXISTING FIBER OPTIC NETWORK IS LOCATED IN BUILDING 9 TO THE NORTH OF THE NEW STORAGE FACILITY. A COMMON CONDUIT HOUSING THE DDC, FIRE ALARM AND TELEPHONE LINES WILL BE PROVIDED FOR THE NEW STORAGE FACILITY. THE FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND MODULES AT THE NEW PANEL AND THE EXISTING BUILDING 9 PANEL TO FACILITATE THE CONNECTION OF THE NEW FIRE ALARM SYSTEM TO THE SITE FIBER OPTIC NETWORK. FINAL CONNECTIONS WILL BE MADE BY THE CONTRACTOR.

SYMBOLS LIST

SYMBOL	DESCRIPTION
NEW WORK LINE TYPE	
	MANUAL PULL STATION - FLUSH TYPE
	FIRE ALARM HORN STROBE NOTIFICATION DEVICE XX=CANDELA RATING, X=MOUNT LOCATION
	SMOKE DETECTOR XX=TYPE, X=MOUNTING
	VALVE TAMPER SWITCH CONNECTION
	WATER FLOW SWITCH CONNECTION
	ADDRESSABLE INPUT MODULE
	POWER SUPPLY, T=TYPE
	FIRE ALARM CONTROL PANEL
	KEY NOTE NUMBER INDICATOR
	DETAIL IDENTIFICATION BUBBLE
	SECTION IDENTIFICATION BUBBLE
	ELEVATION IDENTIFICATION BUBBLE

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
ACS	ACCESS CONTROL SYSTEM
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE
ARA	AREA OF RESCUE ASSISTANCE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
C	CEILING
CCTV	CLOSED CIRCUIT TELEVISION
CMU	CONCRETE MASONRY UNIT
COTR	CONTRACTING OFFICERS TECHNICAL REPRESENTATIVE
DC	DOOR CONTACT
DPDT	DOUBLE POLE DOUBLE THROW
DPS	DEPARTMENT OF PUBLIC SAFETY
E	ELEVATOR
EMT	ELECTRICAL METALLIC TUBING
FO	FIBER OPTIC
IDS	INTRUSION DETECTION SYSTEM
MM	MULTI MODE
MTD	MOUNTED
NAS	NAVAL AIR STATION
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NPT	NATIONAL PIPE THREAD
NTS	NOT TO SCALE
REX	REQUEST TO EXIT
RM	ROOM
SAPF	SPECIAL ACCESS PROGRAM FACILITY
SCIF	SENSITIVE COMPARTMENTED INFORMATION FACILITY
SMS	SECURITY MANAGEMENT SYSTEM
TBD	TO BE DETERMINED
TSP	TWISTED SHIELDED PAIR
TYP	TYPICAL
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
UTP	UNSHIELDED TWISTED PAIR
VAC	VOLTS ALTERNATING CURRENT
VDC	VOLTS DIRECT CURRENT
W	WALL

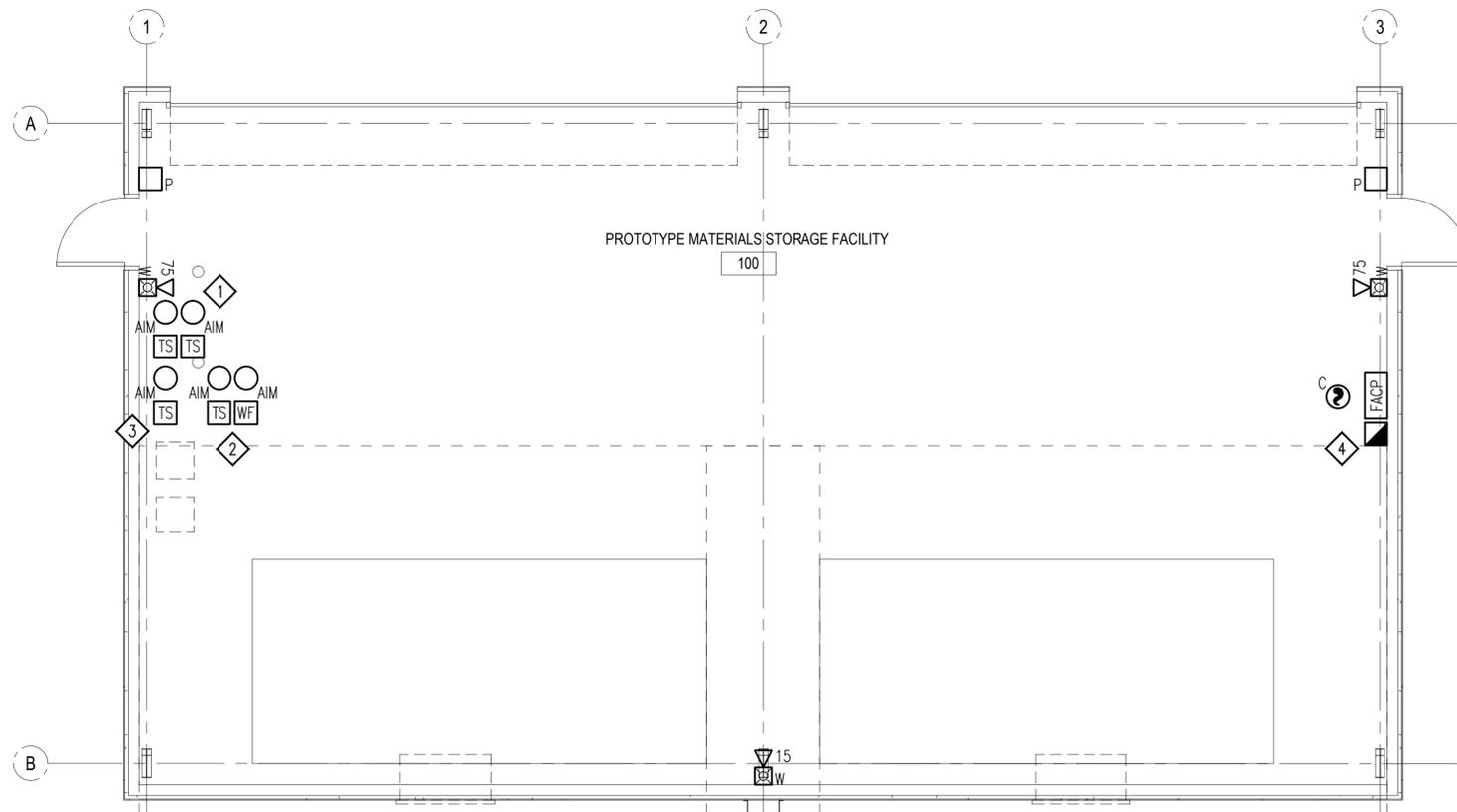
KEYNOTES

- PROVIDE ADDRESSABLE INTERFACE MODULES FOR FIRE ALARM MONITORING OF THE BACKFLOW PREVENTER VALVE TAMPER SWITCHES.
- PROVIDE ADDRESSABLE INTERFACE MODULES FOR FIRE ALARM SYSTEM MONITORING OF THE WAREHOUSE SPRINKLER ZONE WATER FLOW AND TAMPER SWITCH.
- PROVIDE ADDRESSABLE INTERFACE MODULE FOR THE BACKFLOW PREVENTER TEST HEADER CONTROL VALVE.
- A DEDICATED 120V CIRCUIT WILL BE PROVIDED IN PANEL L FOR THE FIRE ALARM SYSTEM. CONTRACTOR SHALL USE CIRCUIT L-21. REFER TO THE ELECTRICAL DRAWINGS FOR THE PANEL CIRCUIT SCHEDULE.

FIRE ALARM MATRIX	ANNUNCIATION	ALARM MONITORING	NOTIFICATION
	Alarm Annunciation FACU	Supervisory Annunciation FACU	Trouble Annunciation FACU
		Transmit Alarm signal to monitoring station through fiber optic network	Transmit Supervisory signal to monitoring station through fiber optic network
		Transmit Trouble signal to monitoring station through fiber optic network	Activate horns and Strobes Throughout Building
INITIATING DEVICES			
Manual Station	X		X
Smoke Detector	X	X	X
Sprinkler Flow Switch	X	X	X
Sprinkler Tamper Switch			X
Fire Alarm AC Power Fail	X	X	
Fire Alarm System Low Battery		X	X
Fire alarm panel open circuit		X	X
Fire alarm panel ground fault		X	X
Notification Appliance Circuit Short		X	X
SLC/Initiating Device Circuit Short		X	X

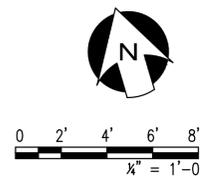
2 FIRE ALARM MATRIX

SCALE: NOT TO SCALE

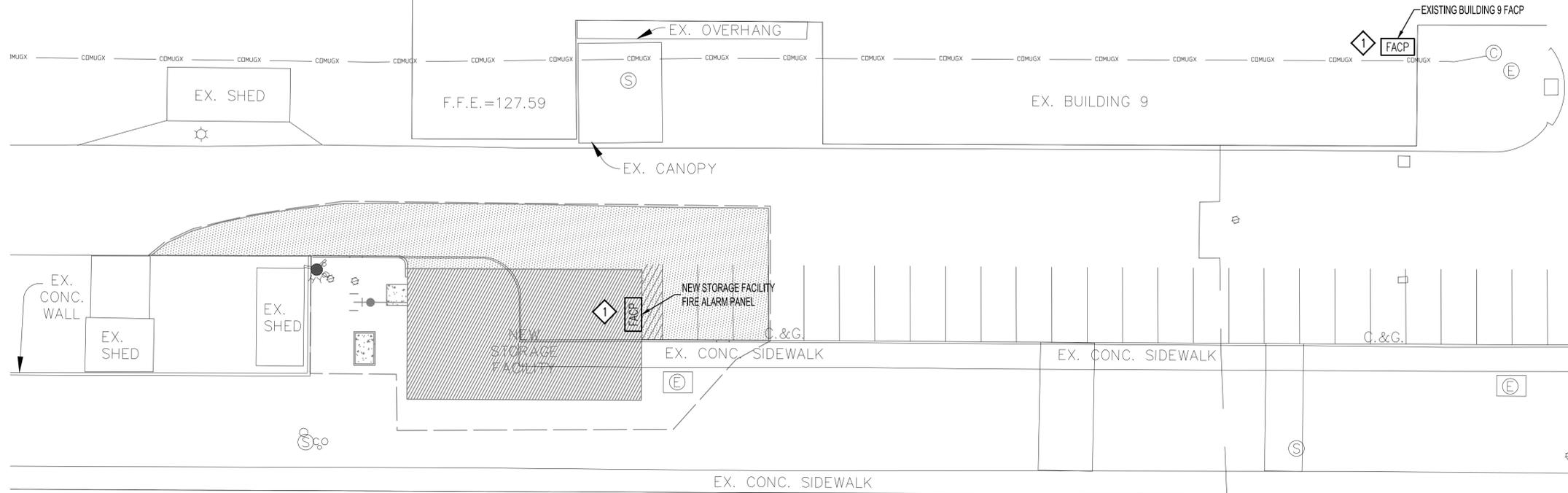


1 FIRE ALARM PLAN

SCALE: 1/4" = 1'-0"



DATE	01/23/15	APPR
DATE	12/11/14	DATE
DATE	09/09/13	DATE
DATE	07/09/13	DATE
DESCRIPTION	FINAL SUBMISSION	DESCRIPTION
DESCRIPTION	REVISED 95% SUBMISSION	DESCRIPTION
DESCRIPTION	95% SUBMISSION	DESCRIPTION
DESCRIPTION	CONCEPT SUBMISSION	DESCRIPTION
SYMBOL		SYMBOL
PENNONI ASSOCIATES INC. 14532 Lee Road Chantilly, VA 20151 T 703.449.6700 F 703.449.6713		
DES BDR	DRW ACJ	
REVIEWED BY	BDR	
PM/DM		
CHIEF ENGR/ARCH		
DEPARTMENT OF THE NAVY	NAVAL FACILITIES ENGINEERING COMMAND	BETHESDA, MD
NSF CARDEROCK	CARDEROCK	
	PROTOTYPE MATERIALS STORAGE FACILITY	
	FIRE ALARM PLAN	
CODE ID. NO. 80091	SIZE D	
SCALE:		
MAXIMO NO.		
STA. PROJ. NO.		
WORK ORDER NO.		
CONSTR. CONTR. NO.		
NAVAC DRAWING NO.		
SHEET	OF	
FA101		
DRAWING REVISION: 01 MAY 2006		



KEYNOTES

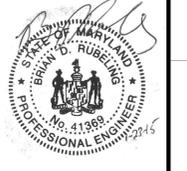
1 THE BUILDING FIRE ALARM SYSTEM SHALL BE CONNECTED TO THE SITE FIRE ALARM MONITORING SYSTEM THROUGH THE FIBER OPTIC NETWORK ON SITE. THE NEAREST POINT TO CONNECT TO THE EXISTING FIBER OPTIC NETWORK IS LOCATED IN BUILDING 9 TO THE NORTH OF THE NEW STORAGE FACILITY. A COMMON CONDUIT HOUSING THE DDC, FIRE ALARM AND TELEPHONE LINES WILL BE PROVIDED FOR THE NEW STORAGE FACILITY. THE FIRE ALARM CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL NECESSARY PARTS AND MODULES AT THE NEW PANEL AND THE EXISTING BUILDING 9 PANEL TO FACILITATE THE CONNECTION OF THE NEW FIRE ALARM SYSTEM TO THE SITE FIBER OPTIC NETWORK. FINAL CONNECTIONS WILL BE MADE BY THE CONTRACTOR. REFER TO SITE PLAN 2 ON SHEET E103 FOR MORE INFORMATION ON CONNECTING TO THE EXISTING SYSTEMS.

1 FIRE ALARM SITE PLAN
SCALE: 1/16" = 1'-0"

DATE	DESCRIPTION	BY	CHK	APPR
01/23/15	FINAL SUBMISSION			
12/11/14	REVISED 95% SUBMISSION			
09/09/13	95% SUBMISSION			
07/09/13	CONCEPT SUBMISSION			



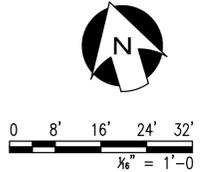
PENNONI ASSOCIATES INC.
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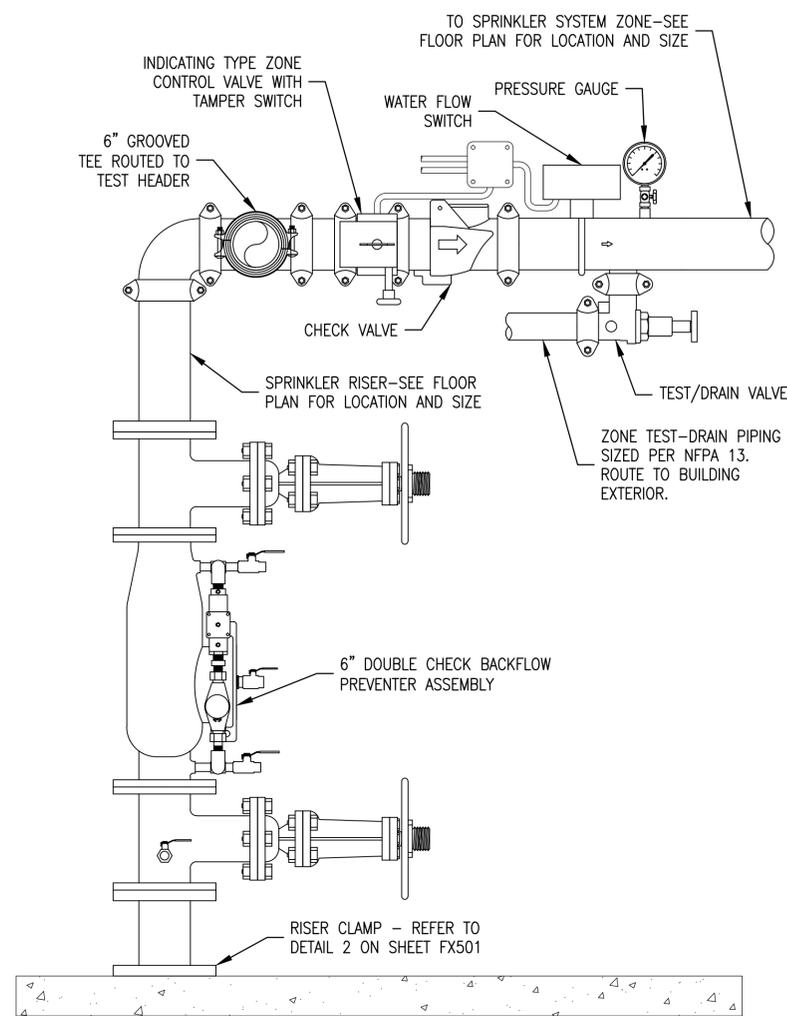


DES BDR	DRW ACJ
REVIEWED BY	BDR
PM/DM	
CHIEF ENG/ARCH	

DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
NSF CARDEROCK
NSF CARDEROCK
BETHESDA, MD
CARDEROCK
PROTOTYPE MATERIALS STORAGE FACILITY
FIRE ALARM SITE PLAN

CODE ID. NO. 80091	SIZE D
SCALE:	
MAXIMO NO.	
STA. PROJ. NO.	
WORK ORDER NO.	
CONSTR. CONTR. NO.	
NAVAC DRAWING NO.	
SHEET OF	
FA102	

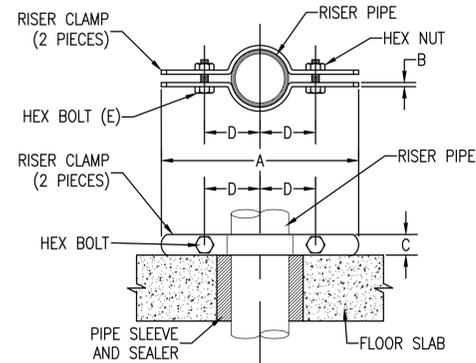




1 FIRE SUPPRESSION PLAN
SCALE: 1/4" = 1'-0"

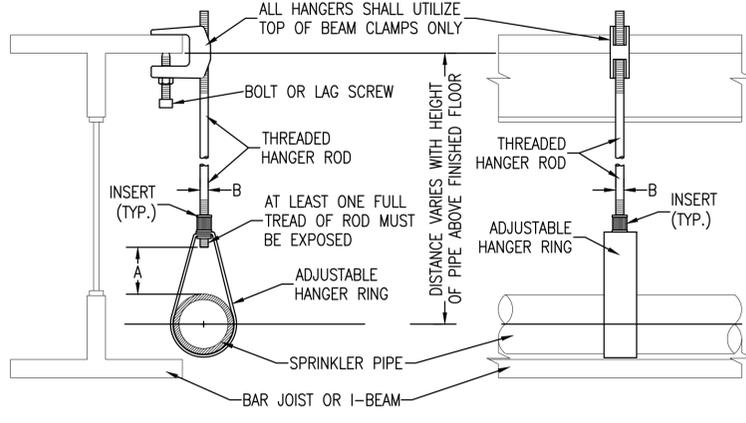
PIPE SIZE	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6	8	10	12
A	9 9/16	9 1/8	10 3/8	10 3/4	11	12	13	13 3/4	14 1/2	15 3/8	18 1/2	20 1/4	22 3/4
B	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	1/4	3/8	3/8	1/2
C	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/2	1 1/2	2	2	2	2	2	2
D	1 1/4	1 3/8	1 1/2	2	2 1/4	3	3 1/4	3 3/8	4 3/8	4 7/8	5 3/4	7 1/4	8 1/4
E	3/8	3/8	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	5/8	5/8	5/8

ALL SIZES ARE IN INCHES



2 RISER CLAMP
SCALE: NOT TO SCALE

ALL SIZES IN INCHES	NOMINAL PIPE SIZE									
	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	5"	6"	8"
HANGER TAKEOUT (A)	1/2"	3/4"	1"	1 1/4"	1 3/4"	2"	2 1/2"	3"	3 3/4"	5 1/4"
ROD DIAMETER (B)	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	3/8"	1/2"	1/2"	1/2"
SIZE OF BOLT / LAG SCREW	3/8"	3/8"	3/8"	3/8"	1/2"	1/2"	1/2"	1/2"	1/2"	5/8"



3 PIPE HANGER WITH TOP OF BEAM "C" CLAMP
SCALE: NOT TO SCALE

DATE	01/23/15
DATE	12/11/14
DATE	08/09/13
DATE	07/09/13
DESCRIPTION	FINAL SUBMISSION REVISED 95% SUBMISSION 95% SUBMISSION CONCEPT SUBMISSION
SYN	
PENNONI ASSOCIATES INC. 14532 Lee Road Chantilly, VA 20151 T 703.449.6700 F 703.449.6713	
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DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NSF CARDEROCK	NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON BETHESDA, MD
CARDEROCK PROTOTYPE MATERIALS STORAGE FACILITY	
FIRE SUPPRESSION DETAILS	
CODE ID. NO. 80091	SIZE D
SCALE:	
MAXIMO NO.	
STA. PROJ. NO.	
WORK ORDER NO.	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	
SHEET	OF
FX501	
<small>DRAWING REVISION: 01 MAY 2006</small>	

CODE REQUIREMENTS

PROJECT - BUILDING 9 WAREHOUSE

APPLICABLE CODES:

UFC 3-600-01 DESIGN: FIRE PROTECTION ENGINEERING FOR FACILITIES, 26-SEPTEMBER-2006
CHANGE 3, 1 MARCH 2013
UFC 3-600-10 FIRE PROTECTION ENGINEERING, AUGUST-2007

NFPA 10 PORTABLE FIRE EXTINGUISHERS, 2010 EDITION
NFPA 70 NATIONAL ELECTRICAL CODE, 2011 EDITION
NFPA 72 NATIONAL FIRE ALARM CODE, 2010 EDITION
NFPA 101 LIFE SAFETY CODE (LSC), 2012 EDITION
IBC INTERNATIONAL BUILDING CODE, 2012 EDITION

USE GROUPS, OCCUPANCY CLASSIFICATION, CONSTRUCTION TYPE, BUILDING HEIGHT & AREA:
(IBC, 2009 EDITION)

USE GROUP: Group S-2, LOW HAZARD STORAGE
SPRINKLERS: YES

ACTUAL CONSTRUCTION TYPE: TYPE II B
MINIMUM ALLOWABLE CONSTRUCTION TYPE: TYPE V B

ACTUAL HEIGHT OF BUILDING: 1 STORY AND APPROXIMATELY 33 FEET
ALLOWABLE HEIGHT OF BUILDING: 3 STORIES AND 55 FEET
ALLOWABLE AREA PER FLOOR: 26,000 SF
ACTUAL AREA FOR LARGEST FLOOR: 1,650 SF

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS BASED ON TYPE II B CONSTRUCTION (HOURS): (IBC)

STRUCTURAL FRAME	0
ALL BEARING WALLS	0
NON-BEARING EXTERIOR WALLS	0
NON-BEARING INTERIOR WALLS	0 (EXCEPT EXIT AND SHAFT ENCLOSURES & INCIDENTAL USE AREAS)
FLOOR CONSTRUCTION	0
ROOF CONSTRUCTION BELOW 20'	0

FIRE RESISTANCE RATING REQUIREMENTS FOR OPENINGS AND OTHER FEATURES (HOURS): (IBC)

EXIT ENCLOSURES: N/A

HOISTWAY AND SHAFTS: N/A

EXTERIOR EXPOSURE PROTECTION: FOR CONSTRUCTION TYPE II B, FIRE-RESISTANCE RATED BARRIERS ARE NOT REQUIRED FOR EXTERIOR WALLS WITH A FIRE SEPARATION DISTANCE GREATER THAN 10 FEET IN ACCORDANCE WITH IBC TABLE 602. THE NEW BUILDING IS 23 FEET FROM THE ADJACENT BUILDING.

LIFE SAFETY CODE SUMMARY:

MINIMUM CLEAR WIDTH OF EGRESS COMPONENTS: (NFPA 101, 2012 EDITION)

DOORS: 32 INCHES
CORRIDORS: 44 INCHES

OCCUPANT LOAD FACTORS: (NFPA 101)

STORAGE USE (MECH/ELECT): 500 SQUARE FEET PER PERSON

CALCULATED OCCUPANT LOAD WITHIN PROJECT BOUNDARY = 4 PERSONS

EGRESS CAPACITY FACTORS: (NFPA 101)

0.2 INCHES PER PERSON FOR LEVEL EGRESS COMPONENTS

REQUIRED CAPACITY OF EXITS: 4 PERSONS
ACTUAL CAPACITY OF EXITS: 320 PERSONS

EXIT ACCESS TRAVEL DISTANCE: (NFPA 101)

STORAGE GROUP S-2: 400 FT
ACTUAL TRAVEL DISTANCE: 50 FT

COMMON PATH OF TRAVEL: (NFPA 101)

STORAGE GROUP S-2: 100 FT
ACTUAL COMMON PATH DISTANCE: 0 FT

DEAD END CORRIDORS: (NFPA 101)

STORAGE GROUP S-2: 100 FT
ACTUAL DEAD END DISTANCE: 0 FT

NUMBER OF EXITS: (NFPA 101)

OCCUPANT LOAD LESS THAN 500: MINIMUM OF 2 EXITS
ACTUAL NUMBER OF EXITS: 2

EXIT REMOTENESS: (NFPA 101)

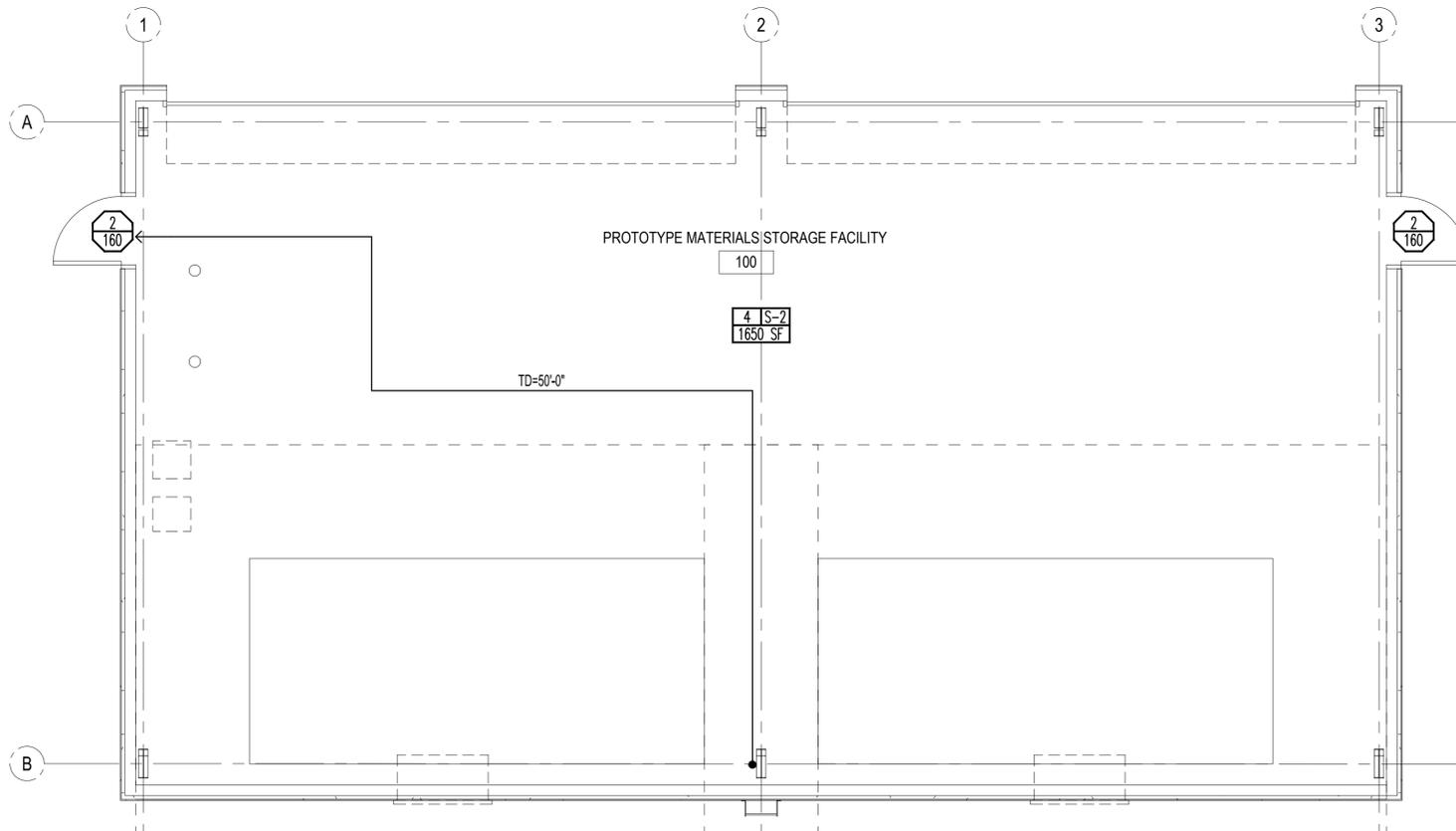
EXIT DOORS/EXIT ACCESS DOORS NOT LESS THAN 1/3 OF THE MAXIMUM OVERALL DIAGONAL DIMENSION OF THE AREA SERVED:
REQUIRED MINIMUM SEPARATION BETWEEN EXIT DOORS: 21 FEET
PROVIDED MINIMUM SEPARATION BETWEEN EXIT DOORS: 54 FEET

INTERIOR FINISH: BASED ON AN ASSEMBLY OCCUPANCY, AND IN ACCORDANCE WITH CHAPTER 10 OF THE LIFE SAFETY CODE, MATERIALS FOR THE ENTIRE BUILDING WILL MEET THE FOLLOWING CRITERIA:

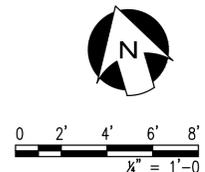
ROOM WALLS AND CEILING: CLASS C; 75-200 FLAME SPREAD;
0-450 SMOKE-DEVELOPED

SYMBOLS LIST

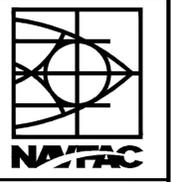
SYMBOL	DESCRIPTION
	NUMBER OF PEOPLE USING EXIT EXIT USE INDICATOR CAPACITY OF EXIT
	TRAVEL DISTANCE
	COMMON PATH OF TRAVEL
	NUMBER OF PEOPLE OCCUPANCY TYPE OCCUPANCY ROOM KEY AREA OF ROOM - NSF



1 LIFE SAFETY PLAN
SCALE: 1/4" = 1'-0"



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01/23/15	FINAL SUBMISSION	
12/11/14	REVISED 95% SUBMISSION	
08/09/13	95% SUBMISSION	
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DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING COMMAND
NAVAL FACILITIES ENGINEERING COMMAND WASHINGTON
NSF CARDEROCK
BETHESDA, MD
CARDEROCK
PROTOTYPE MATERIALS STORAGE FACILITY
LIFE SAFETY PLAN

CODE ID. NO. 80091 SIZE D
SCALE:
MAXIMO NO.
STA. PROJ. NO.
WORK ORDER NO.
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NAVFAC DRAWING NO.
SHEET OF
LS101