HISTORIC CARLYLE HOUSE
NOVEC CLEAN AGENT SYSTEM

DRAWING INDEX

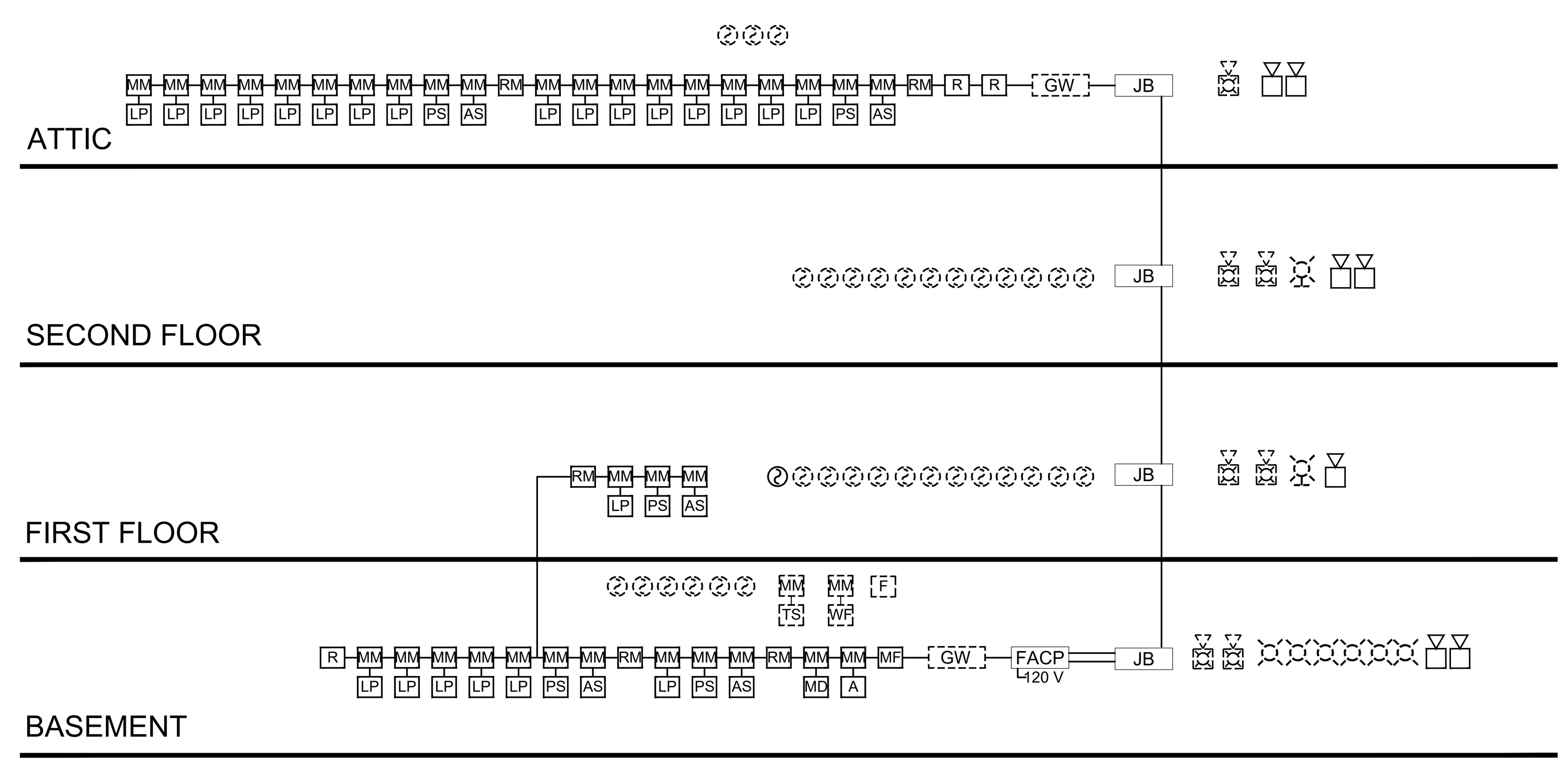
CODE REFERENCE

2018 VIRGINIA STATEWID BUILDING CODE
- 2018 VIRGINIA CONSTRUCTION CODE
- NFPA 70 (2017)
- NFPA 72 (2016)
- NFPA 2001 (2018)

SYMBOLS

SYMBOL	DESCRIPTION
FACP	EXISTING NOTIFIER 320 PANEL
GW	WIRELESS GATEWAY
	SMOKE DETECTOR
F	MANUAL PULL STATION 48" AFF
MM	SINGLE INPUT MONITOR MODULE
R	RELAY MODULE
MM	SINGLE INPUT MONITOR MODULE
RM	CLEAN AGENT RELEASING MODULE
A	CLEAN AGENT ABORT SWITCH
MF	CLEAN AGENT MANUAL RELEASE
MD	CLEAN AGENT MAINTENANCE DISCONNECT SWITCH
AS	CLEAN AGENT ACTUATOR SUPERVISORY SWITCH
LP	CLEAN AGENT LOW PRESSURE SWITCH
PS	CLEAN AGENT DISCHARGE PRESSURE SWITCH
WF	SPRINKLER WATERFLOW SWITCH
TS	SPRINKLER VALVE TAMPER SWITCH
W	WALL MOUNT HORN/STROBE 80" AFF 15CD
	CEILING MOUNT HORN/STROBE 80" AFF 15CD
	WIRELESS CHIME CEILING MOUNT WHITE COLOR
	CEILING MOUNTED STROBE
	WALL MOUNTED STROBE 80" AFF
ETR	EXISTING TO REMAIN
XXcd	STROBE CANDELA SETTING
	JANUS NOVEC - SV130 CYLINDER
	SV130 CYLINDER STRAP
	JANUS NOVEC - SV80 CYLINDER
	SV130 CYLINDER STRAP
	180 NOZZLE
	360 NOZZLE
E A	SUPERVISORY ELECTRIC VALVE ACTUATOR
P A	SUPERVISORY PNEUMATIC VALVE ACTUATOR
	DASHED SYMBOLS: EXISTING DEVICES TO REMAIN

RISER DIAGRAM



SEQUENCE OF OPERATION

INPUT/OUTPUT MATRIX

PERFORM OPERATION/REPORT DEVICE STATUS

CONTROL UNIT ANNUNCIATION:
- A: ACTUATE COMMON ALARM SIGNAL INDICATOR & AUDIBLE
- B: PRE-DISCHARGE ALARM SIGNAL INDICATOR & AUDIBLE
- C: DISCHARGE ALARM SIGNAL INDICATOR & AUDIBLE
- D: ABORT SIGNAL INDICATOR & AUDIBLE
- E: ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR & AUDIBLE
- F: ACTUATE COMMON TROUBLE SIGNAL INDICATOR & AUDIBLE

NOTIFICATION:
- G: ACTUATE HORN/STROBE NOTIFICATION APPLIANCES
- H: ACTUATE CHIME NOTIFICATION APPLIANCES-RELEASE
- I: DEACTIVATE HORN NOTIFICATION APPLIANCES-RELEASE
- J: 60 SECONDS DISCHARGE COUNT DOWN
- K: COUNT DOWN CONTINUES DURING ABORT ACTIVATION
- L: AGENT DISCHARGE W/ COUNTDOWN EXPIRATION & ABORT DEACTIVATION
- M: AGENT DISCHARGED
- N: DISABLE AGENT LEASE INDEFINITELY
- O: SHUTDOWN HAVC & TOILET EXHAUST FANS
- P: DISPLAY STATUS
- Q: TRANSMIT FIRE ALARM SIGNAL TO SUPERVISING STATION
- R: TRANSMIT FIRE SUPERVISORY SIGNAL TO SUPERVISING STATION
- S: TRANSMIT FIRE TROUBLE SIGNAL TO SUPERVISING STATION

	SYSTEM - INPUTS	A	B	C	D	E	F	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	
1	1ST SMOKE DETECTOR	●							●								●	●	●			1
2	2ND SMOKE DETECTOR		●									●						●	●			2
3	CLEAN AGENT MANUAL RELEASE			●						●	●				●		●	●	●			3
4	DISCHARGE PRESSURE SWITCH			●						●	●				●		●	●	●			4
5	HOLDING ABORT BUTTON IN				●								●					●				5
6	RELEASING ABORT BUTTON													●				●				6
7	MAINTENANCE DISCONNECT SWITCH					●										●		●		●		7
8	CLEAN AGENT ACTUATOR SUPERVISORY					●												●		●		8
9	CLEAN AGENT BOTTLE LOW PRESSURE					●												●		●		9
10	60 SECOND COUNTDOWN TIMER EXPIRES									●	●				●			●				10
11	WATERFLOW SWITCH	●							●									●	●			11
12	VALVE TAMPER SWITCH					●												●		●		12
13	FIRE ALARM CONTROL PANEL AC POWER FAILURE						●											●			●	13
14	FIRE ALARM CONTROL PANEL LOW BATTERY						●											●			●	14
15	OPEN CIRCUIT						●											●			●	15
16	GROUND FAULT						●											●			●	16
17	WIRELESS DEVICE LOW BATTERY						●											●			●	17
18	ALL OTHER TROUBLES						●											●			●	18

GENERAL NOTES

1. PROVIDE A NOVEC CLEAN AGENT FIRE SUPPRESSION SYSTEM TO PROTECT ALL FLOORS OF THE HISTORIC CARLYLE HOUSE AS SHOWN. SYSTEM DESIGN IS BASED ON A TOTAL FLOOD CLASS "A" FIRE HAZARD. DESIGN IN ACCORDANCE WITH NFPA 2001 AND ALL OTHER APPLICABLE CODES AND STANDARDS.
2. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL HALON SUPPRESSION SYSTEM TANKS, PIPING, WIRING AND CONTROLS, EXCEPT FOR PIPING CONCEALED IN WALLS AND FLOORS. CONTRACTOR SHALL CUT OFF EXPOSED ATTIC PIPING WHERE IT ENTERS FLOOR AND WALL SPACES AND LEAVE CONCEALED PIPING IN PLACE.
3. EXPAND EXISTING NOTIFIER NFS 320 WIRELESS FIRE ALARM SYSTEM FOR AGENT PRE-ALARM, RELEASING, ABORT AND OTHER FUNCTIONS AND NOTIFICATION AS SHOWN.
4. PROVIDE ALL REQUIRED EQUIPMENT, PROGRAMMING AND SOFTWARE TO PROVIDE SPECIFIED SYSTEM OPERATION WHETHER SPECIFICALLY INDICATED OR NOT AND TO PROVIDE A COMPLETE AND FULLY OPERATIONAL SYSTEM.
5. QUESTIONS REGARDING INTENT OF DESIGN OR OPERATION SHALL PROMPTLY BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
6. ALL WIRING MUST BE INSTALLED IN EMT, MINIMUM $\frac{3}{4}$-INCH. PAINT CONDUIT AND BOXES WHITE IN BASEMENT. AND CONCEAL ALL WIRING AND CONDUIT ON FIRST AND SECOND FLOORS.
7. WIRING RUNS ARE SHOWN DIAGRAMMATICALLY EXACT PATH OF WIRE RUNS BE DETERMINED IN THE FIELD BY INSTALLER AND APPROVED BY CARLYLE HOUSE SITE MANAGER.
8. SMOKE DETECTORS SHALL NOT BE LOCATED IN DIRECT AIR STREAM FROM SUPPLY OUTLETS.
9. ALL FIRE ALARM SYSTEM WIRING CIRCUIT ARE POWER LIMITED UNLESS OTHERWISE NOTED. DO NOT RUN POWER LIMITED AND NON-POWER LIMITED WIRING IN THE SAME CONDUIT.
10. EXCEPT PULL STATIONS, ALL NEW DEVICES MUST BE WHITE COLOR FINISH. FURNISH NOZZLES IN STAINLESS STEEL FINISH.
11. PRIOR TO INSTALL, CONFIRM EACH DEVICE LOCATION WITH CARLYLE HOUSE SITE MANAGER. DO NOT PROCESS WITHOUT PERMISSION.
12. CARLYLE HOUSE IS A REGISTERED HISTORIC BUILDING. NO CUTTING OR DRILLING THAT COULD DAMAGE HISTORIC FABRIC IS ALLOWED WITHOUT PERMISSION OF THE SITE MANAGER.
13. CONTRACTOR EXPERIENCED IN HISTORIC RESTORATION HIRED BY THE NOVA PARKS WILL PROVIDE CUTTING AND PATCHING WORK.
14. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND SUBMISSIONS TO CITY OF ALEXANDRIA.
15. BUILDING IS OCCUPIED DURING CONSTRUCTION.
16. INSTALL AGENT RELEASE WARNING SIGNS. LOCATIONS TO BE DETERMINED BY SITE MANAGER.
17. DAILY CLEAN UP IS REQUIRED.
18. CONDUCT MINIMUM 2 HOUR ONSITE TRAINING.
19. PROVIDE CLOSE DOCUMENTS INCLUDING WARRANTY LETTER, O&M MANUAL AND AS-BUILT DRAWINGS.

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION & LIFE SAFETY CONSULTANTS

CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS

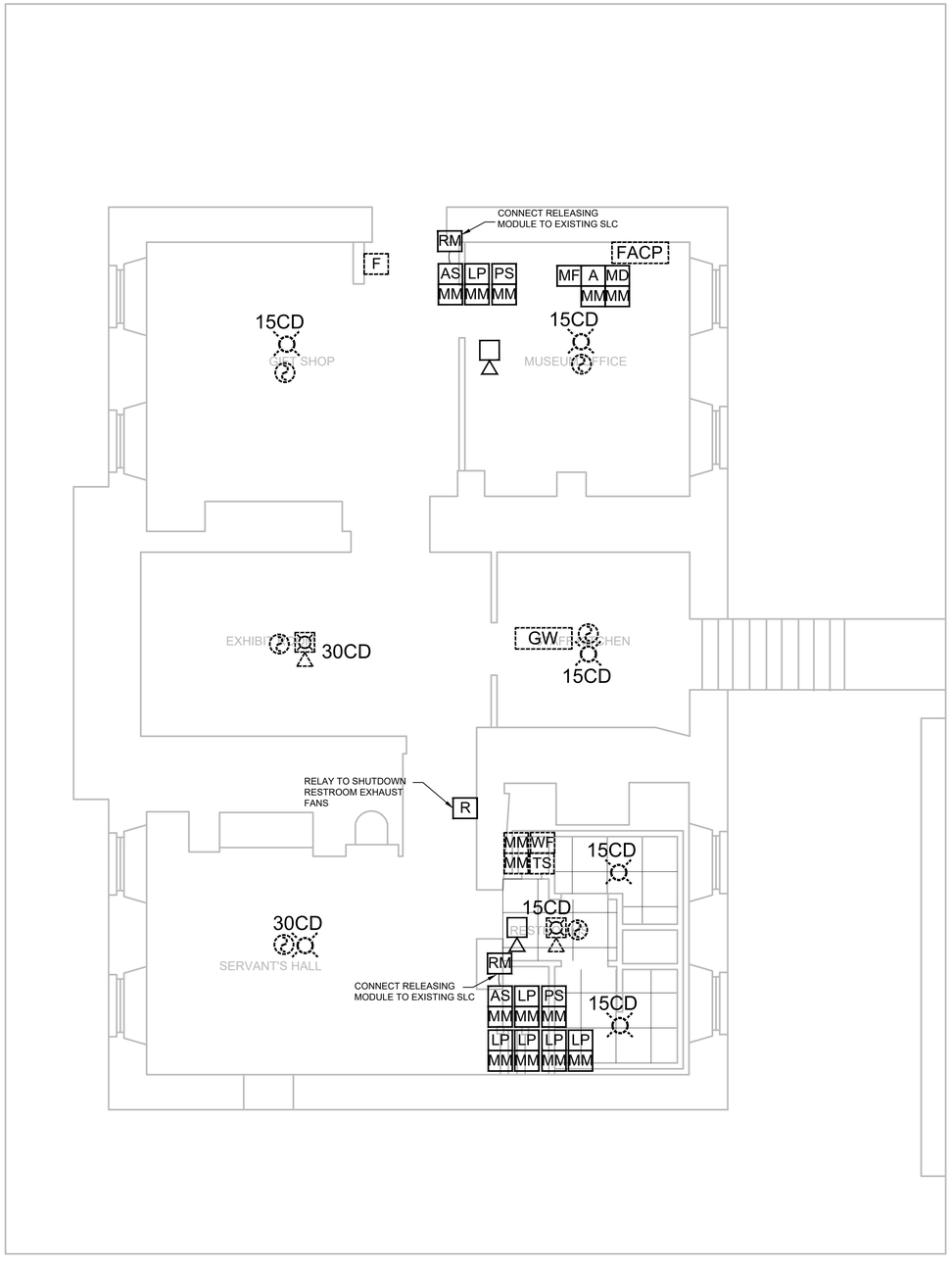
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

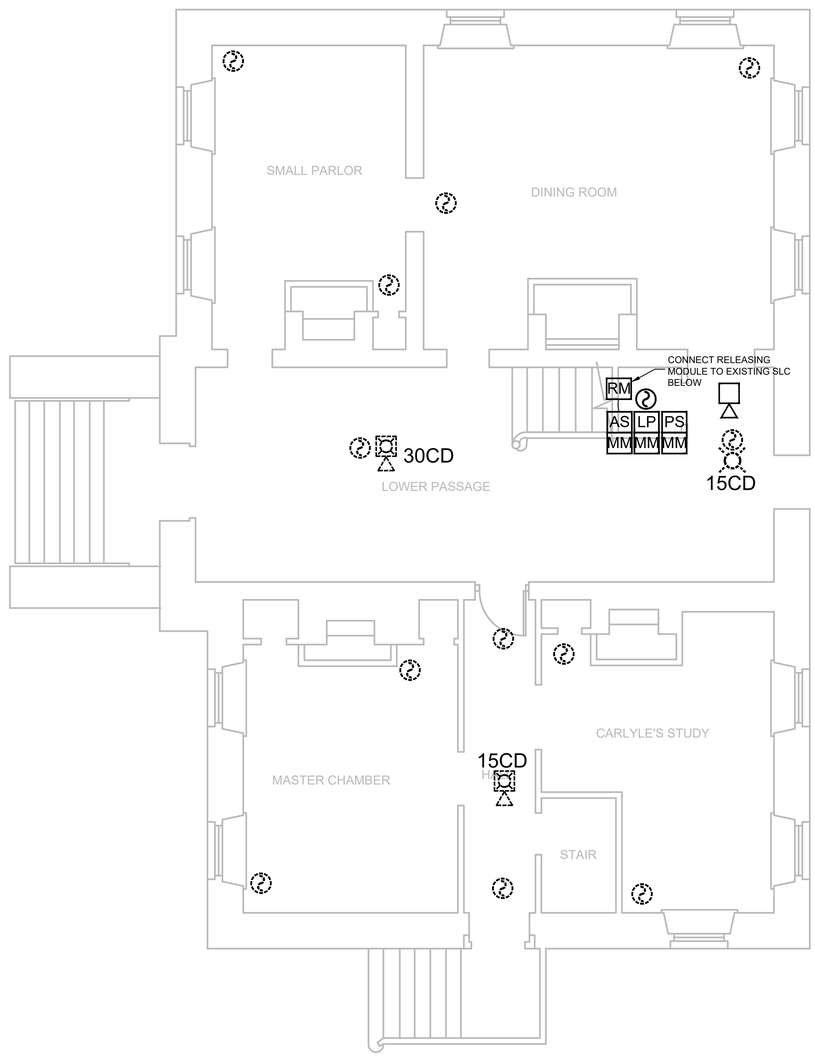
COVER SHEET

NOVEC 1230 - FIRE ALARM

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	NTS
DRAWING NO.:	FA000
SHEET 1 OF 10 TOTAL	
FILE NAME:	



1 **BASEMENT - FIRE ALARM PLAN**
SCALE: 1/4" = 1'-0"



2 **FIRST FLOOR - FIRE ALARM PLAN**
SCALE: 1/4" = 1'-0"

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION
& LIFE SAFETY
CONSULTANTS

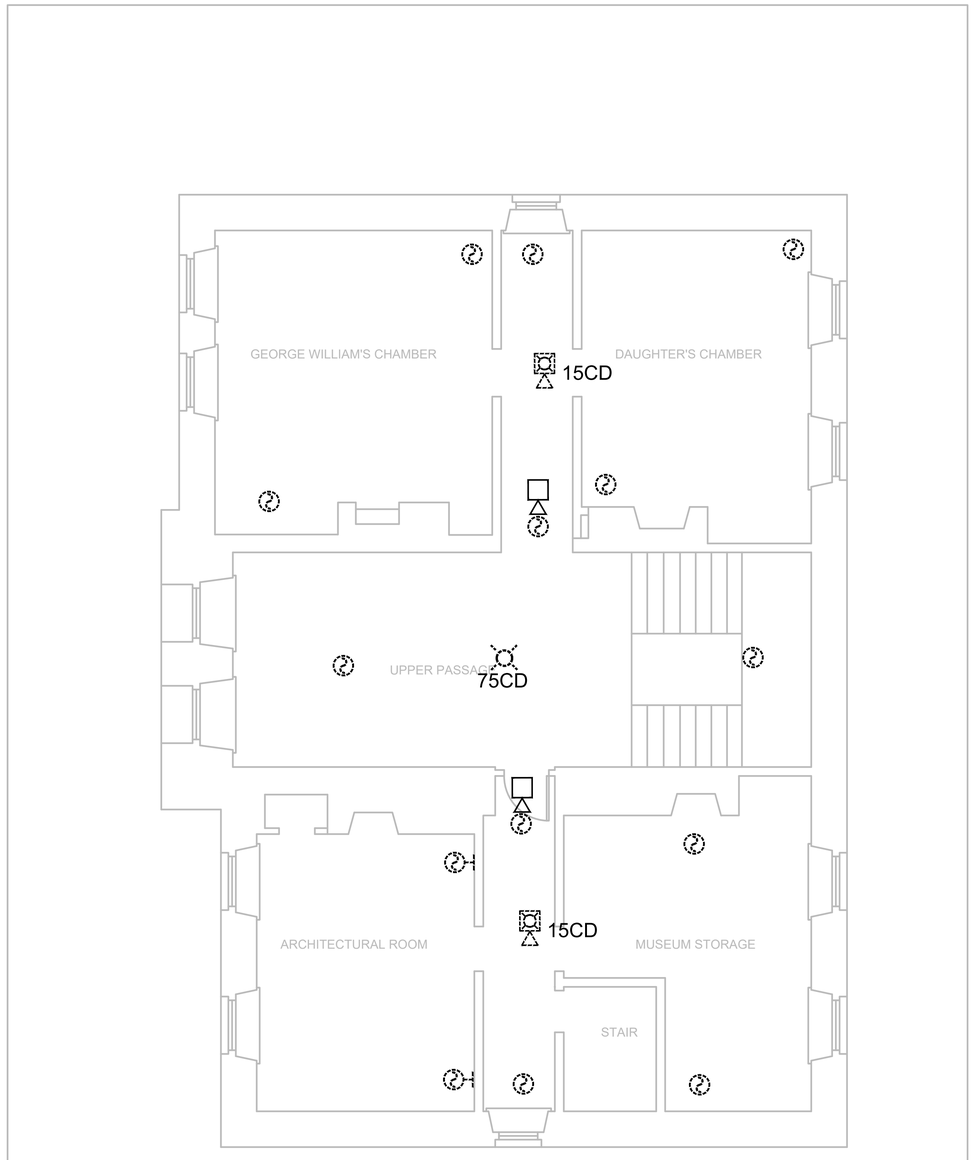
CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

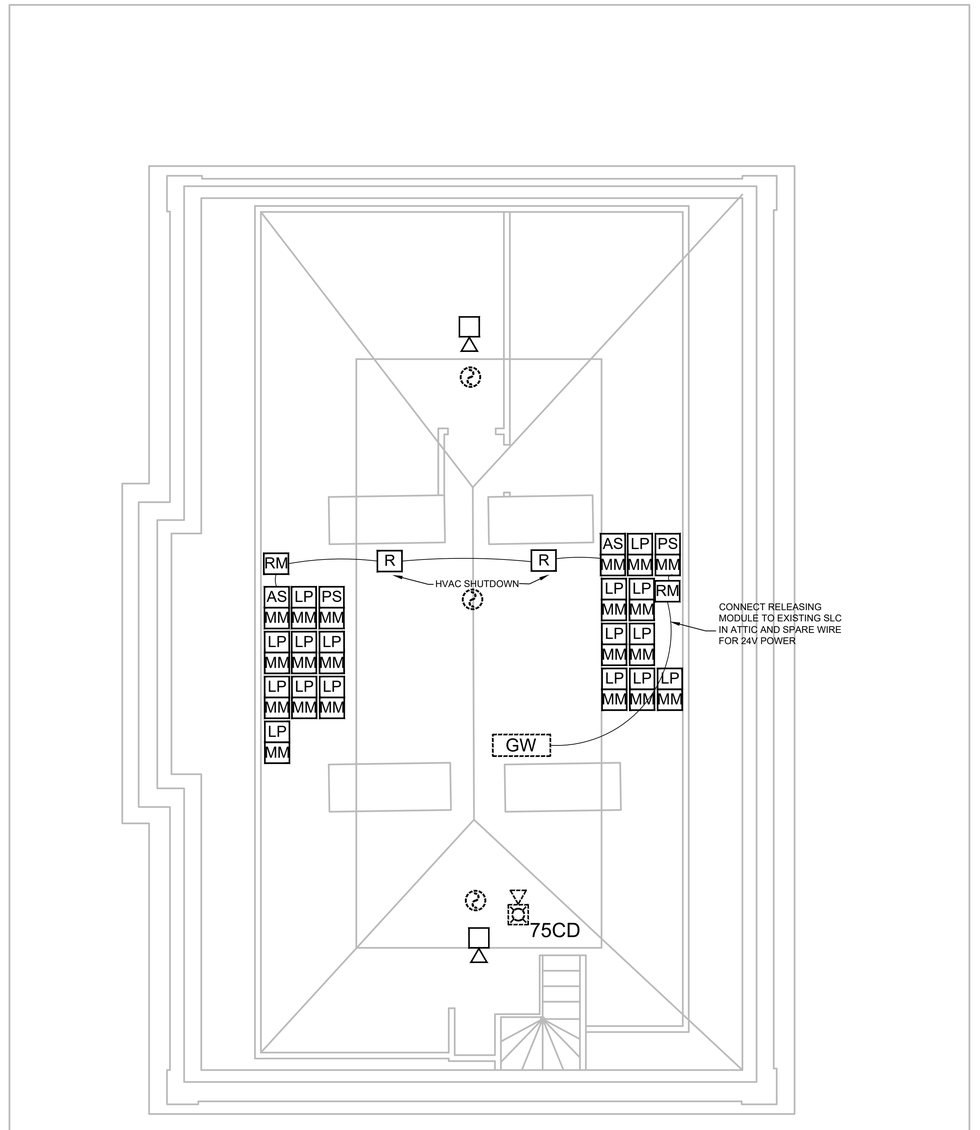
CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA VA

NEW PLANS
NOV/EC 1230 PRE ALARM

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	1/4"=1'-0
DRAWING NO.:	**FA100**
SHEET	2 OF 10 TOTAL
FILE NAME:	



1 **SECOND FLOOR - FIRE ALARM PLAN**
SCALE: 1/4" = 1'-0"



2 **ATTIC - FIRE ALARM PLAN**
SCALE: 1/4" = 1'-0"

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION
& LIFE SAFETY
CONSULTANTS

CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA VA

NEW PLANS
NOVEC 1230- FIRE ALARM

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	1/4"=1'-0

DRAWING NO.:
FA101

SHEET 3 OF 10 TOTAL
FILE NAME:

CLEAN AGENT SUPPRESSION SYSTEM SPECIFICATION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. Design and installation of an engineered fire detection and total flooding, NOVEC 1230 clean agent, fire suppression system.

B. Drawings: The contract drawings indicate the general arrangements of the areas to receive detection and protection. Contractor is to review all drawings so that all items affecting the operation of the fire detection and NOVEC 1230 fire suppression system (such as equipment location, air diffusers, damper closures, and door openings) are considered in the design of the engineered system.

1.2 APPLICABLE PUBLICATIONS

A. The following publications of the issues listed below, but referred to thereafter by basic designation only, form a part of this specification to the extent indicated by the reference thereto (latest edition):

1. National Fire Protection Association (NFPA) Standards:
   NFPA 2001: Standard on Clean Agent Fire Extinguishing Systems NFPA 70: National Electrical Code
   NFPA 72: National Fire Alarm and Signaling Code
2. Factory Mutual Systems (FM) Publication Factory Mutual Approval Guide
3. Underwriters Laboratories, Inc. (UL) Publication
   UL 217: Standard for Single and Multiple Station Smoke Alarms
   UL 228:Standard for Door Closers-Holders, With or Without Integral Smoke Detectors
   UL 268: Smoke Detectors for Fire Alarm Systems
   UL 268A: Standard for Smoke Detectors for Duct Application
   UL 521: Standard for Heat Detectors for Fire Protective Signaling Systems UL 864: Standard for Control Units and Accessories for Fire Alarm Systems
   UL 1638: Standard for Visual Signaling Appliances - Private Mode Emergency and General Utility Signaling
   UL 1971: Standard for Signaling Devices for Hearing Impaired
4. Department of Transportation (DOT)
   Title 49 Code of Federal Regulations Parts 100 to 199 Transportation of Hazardous Materials, DOT3AA2300 or 3AAZ15T
5. National Electrical Manufacturers Association (NEMA) Publication Enclosures for Industrial Controls and Systems
6. U.S. Environmental Protection Agency, Protection of Stratospheric Ozone 59 FR 13044, March 18, 1994 (Final SNAP Ruling)
7. Requirements of the Authority Having Jurisdiction (AHJ)
8. Manufacturer's Design, Installation, Operation and Maintenance Manual
9. The system complete shall have the following applicable listings and approvals
   a) Underwriters Laboratories Inc.
   b) Factory Mutual Global

1.3 REQUIREMENTS

A. This installation shall be made in strict accordance with the drawings, specifications and applicable NFPA Standards. All equipment and devices used shall be listed by the standardizing agencies (UL and/or FM).

B. Design and installation of the fire detection/SAPPHIRE fire suppression system will be in strict accordance with the following guidelines and regulatory agencies:

1.NFPA 2001 Standard on Clean Agent Fire Extinguishing Systems
2.NFPA 72 National Fire Alarm and Signaling Code
3.NFPA 70 National Electrical Code
4.Americans with Disabilities Act, Title 24

1.4 GENERAL

A. Furnish all engineering design and materials for a complete fire detection and fire suppression system including charged storage tank(s), nozzles, control panel, detectors, wiring, annunciators, alarm and all other equipment necessary for a complete operational system.

B. Contractor shall, as a minimum, provide 24-hour emergency service, 7 days a week and shall be able to respond to an emergency situation within 2 hours of receiving an emergency trouble call. In addition, contractor shall maintain no less than $2 million liability insurance.

1.5 SUBMITTAL

A. The following shall be submitted for approval within 21 days of award and prior to delivery of materials:
1. Material and equipment information shall include manufacturer's catalog cut sheet and technical data for each component or device used in the system. This shall include, but not be limited to, the following:

   a) Detectors
   b) Manual discharge switches
   c) Release devices
   d) Alarm devices
   e) Agent storage cylinders
   f) Mounting brackets
   g) Discharge nozzles
   h) Abort stations
   i) Maintenance bypas switch
   j) Piping material
   k) Piping isometrics
   l) Signs
   m) Flow calculations

B. Provide information outlining the warranty of each component or device used in the system.

C. Provide information outlining the operation and maintenance procedures that will be required of the owner. This information shall explain any special knowledge or tools the owner will be required to employ and all spare parts that should be readily available.

D. Drawings shall indicate locations, installation details and operation details of all equipment associated with the NOVEC system. Floor plans shall be provided showing equipment locations, piping, point-to-point wiring and other details as required. Floor plans shall be drawn to a scale of not less than 1/8 in. (3.2 mm) = 1 ft-0 in. (0.3 m). Elevations, cross sections and other details shall be drawn to a larger scale as required. Isometric piping layouts shall be provided with the shop drawings. In addition, point-to-point electrical layout drawings shall be provided.

E. Show a complete Riser diagram with specific detail on connections to all monitor and control functions.

F. Testing plan that includes means, methods and schedules for interface testing with systems that will be interfaced to via monitor or control modules.

G. Sequence of operation, electrical schematics and connection diagrams shall be provided to completely describe the operation of the clean agent system controls.

H. Flow Calculations per Section 4.2.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION AND OPERATION

A. The system shall be a total flooding clean agent, fire suppression system designed to provide a uniform concentration of agent for the protected area:

1. The amount of clean agent to be provided shall be the amount required to obtain a uniform (minimum) concentration as required by the design manual for the time period specified. Take into consideration such factors as non-closable openings (if any), "rundown" time of fans, time required for dampers to close (and requirements for any additional dampers), and any other feature of the facility that could affect concentration. The design concentration shall be by volume at 70 °F (21 °C).

2.2 AUXILIARY COMPONENTS

A. Double action manual releasing stations shall be provided as shown on drawings and shall, when activated, immediately release the clean agent and cause all audible/visual alarms to activate. In addition, activation of the manual releasing stations shall cause immediate shutdown of air and power circuits.

B. Abort stations shall be provided as shown on drawings and shall, when operated, interrupt the discharge of clean agent and emergency power-off functions. The abort stations shall be momentary devices (dead-man) requiring constant pressure to maintain contact closure.

PART 3 - MATERIAL AND EQUIPMENT

3.1 GENERAL REQUIREMENTS

A. Materials and equipment shall be of a single manufacturer.
The name of the manufacturer and the serial numbers shall appear on all major components.

3.2 GENERAL MATERIALS - ELECTRICAL

A. All electrical enclosures, raceways and conduits shall be employed in accordance with applicable codes and intended use and contain only those electrical circuits associated with the fire detection and control system and shall not contain any circuit that is unrelated to the system.

B. Unless specifically provided otherwise in each case, all conductors shall be enclosed in steel conduit, rigid or thin wall as conditions dictate.

C. Any conduit or raceway exposed to weather or other similar conditions shall be properly sealed and installed to prevent damage. Provisions for draining and/or drying shall be employed.

D. NEMA rating and/or electrically hazardous classifications shall be observed and any equipment or materials installed must meet or exceed the requirements of service.

E. Any wiring shall be of the proper size to conduct the circuit current but shall not be smaller than #18 AWG unless otherwise specified for a given purpose. Wire that has scrapes, nicks, gouges or crushed insulation shall not be used. The use of aluminum wire is strictly prohibited.

F. Splicing of circuits shall be kept to a minimum and are only to be found in an electrical device suited for the purpose.

G. Wire spliced together shall have the same color insulation.

H. Wire splices shall be made with appropriate devices suited for the purpose.

I. All wire terminations shall be made with crimp terminals unless the device at the termination is designed for bare wire terminations.

J. All electrical circuits shall be numerically tagged with suitable devices at the terminating point and/or splice. All circuit numbers shall correspond with the installation drawings.

K. The use of colored wires is encouraged but not required unless dictated by state or local authorities.

L. White-colored wire shall be used exclusively for the identification of the neutral conductor of an alternating current circuit.

M. Green-colored wire shall be used exclusively for the identification of the earth ground conductor of an AC or DC circuit.

3.3 ABORT SWITCH

A. The abort switch shall be used where an investigative delay is desired between detection and actuation of the fire suppression system.

B. This switch shall be a momentary contact "dead-man" type switch requiring constant pressure to transfer one set of contacts. Clear operating instructions shall be provided at the abort switch.

C. This switch shall be rated for 2 A resistive @ 30 VDC.

D. The terminal connections shall be of the screw type.

3.4 MAINTENANCE LOCK-OUT SWITCH

A. The maintenance lock-out switch shall be used where it is desired to disable the fire suppression system during routine maintenance.

B. This switch shall be key operated allowing removal of the key only in "Normal" position. A red indicator lamp shall be included on the switch assembly to be illuminated when in the "Lock-Out" position. The control unit is used to indicate a supervisory condition when in the "Lock-Out" position.

C. The switch shall include 1 set of normally open and 1 set of normally closed control contacts rated for 2 A resistive @ 30 VDC.

D. The terminal connections shall be of the screw type.

PART 4 - SYSTEM ARRANGEMENT

4.1 CLEAN AGENT SUPPRESSION SYSTEM

A. Clean agent fire suppression system shall be of the engineered, permanently piped, fixed nozzle type with all pertinent components.

B. All agent storage tank(s) shall be centrally located as vertical, free-standing with wall mounted retaining brackets. Where multiple cylinders are required for the same hazard, a common manifold shall be employed.

C. On multiple cylinder arrangements (discharging into a common hazard), one cylinder shall be designated as the pilot cylinder and employ the restorable electric actuator, and mechanical manual actuator, or both. All remaining cylinders shall be pneumatically operated from the clean agent.

D. Manifolded cylinders shall employ a flexible discharge hose to facilitate installation and system maintenance. Each cylinder on a manifold shall also include an agent check valve installed to the manifold inlet.

4.2 FLOW CALCULATIONS

A. Computerized verification of flow calculations shall be submitted for each clean agent fire suppression system and include the following data as a minimum:

1. Quantity of agent per nozzle
2. Nozzle orifice diameters
3. Pressure at nozzle (psi)
4. Nozzle body nominal pipe size (inch)
5. Number and size of cylinders
6. Total agent
7. Pipe size per pipe section
8. Pipe schedule per pipe section
9. Number, size and type of fitting per pipe section
10. Actual length per pipe section (feet)
11. Equivalent length per pipe section (feet)
12. Discharge time (seconds)

PART 5 - MATERIAL AND EQUIPMENT (MECHANICAL)

5.1 PIPE MATERIAL

A. System piping shall be of non-combustible materials having physical and chemical characteristics such that its integrity under stress can be predicted with reliability.

B. Piping materials shall be Schedule 40 black iron, galvanized, chrome-plated, or stainless steel pipe conforming to ASTM A-53 or ASTM A-106.

C. Under no conditions shall ordinary cast iron pipe or fitting be utilized.

D. Piping joints shall be suitable for the design conditions and shall be selected with consideration of joint tightness and mechanical strength.

E. As a minimum, fittings shall be black, 300 lb class fittings conforming to ANSI B-16.3.

F. All piping shall comply with NFPA 2001.

G. Piping shall be installed in accordance with good commercial practice to the appropriate codes, securely supported with UL Listed hangers and arranged with close attention to the design layout since deviations may alter the design flow performance as calculated.

H. Piping shall be bracketed within 12 in. (305 mm) of all discharge nozzles.

I. All piping shall be reamed, blown clear and swabbed with appropriate solvent to remove mill varnish and cutting oils before assembly.

J. Pipe unions are acceptable.

K. Reducing bushings and reducing fittings are allowed when reducing pipe size.

L. Dead end pipe lines to be provided with a capped nipple, 2 in. (51 mm) long.

M. Vertical drops on end of line are acceptable.

N. Assembly of all joints shall conform to the appropriate standards. Threaded pipe joints shall utilize Teflon tape applied to the male threads only.

5.2 EXTINGUISHING AGENT

A. The clean agent fire suppression agent shall be Novec 1230 Fire Protection Fluid.

B. Agent shall not contain any Hydrofluorocarbons (HFC).

5.3 STORAGE CYLINDERS

A. The clean agent shall be stored in Clean Agent storage tanks. Tanks shall be super- pressurized with dry nitrogen to an operating pressure of 360 psi at 70 °F (24.8 bar at 21 °C). Tanks shall be of high-strength low alloy steel construction and conforming to NFPA 2001.

B. Tanks (master) shall be actuated by either a resettable electric actuator or by pneumatic means from a nitrogen cartridge located in the releasing device. Explosive devices shall not be permitted.

C. Each tank shall have a pressure gauge and low pressure switch to provide visual and electrical supervision of the container pressure. The low-pressure switch shall be wired to the control panel to provide audible and visual "Trouble/Supervisory" alarms in the event the container pressure drops below 290 psi (20.0 bar). The pressure gauge shall be color coded to provide an easy, visual indication of container pressure.

D. Tanks shall have a pressure relief provision that automatically operates when the internal nominal pressure is between 710 and 790 psi (50.0 and 54.5 bar).

5.4 TANK BRACKET

A. Each tank assembly shall be furnished with at least one mounting bracket consisting of a nut, bolt and two bracket straps. The back channel must be supplied by others.

B. Tank brackets shall be UL listed and/or FM approved for use with the clean agent suppression system.

5.5 VALVE ACTUATORS

A. Electric valve actuators shall be of steel body, stainless steel actuation pin and brass swivel connections to allow removal of actuators for maintenance or testing.

B. Operation of actuators shall not require replacement of components. NO ELECTRO-EXPLOSIVE DEVICES may be used to actuate the valve assembly.

C. Electric actuators shall be continuous duty type for 24 VDC operation.

D. Actuation devices shall be UL listed and/or FM approved for use with the clean agent fire suppression system.

5.6 DISCHARGE HOSE/CHECK VALVE

A. When manifolding, all cylinder assemblies shall include a flexible discharge hose and check valve for connection to the manifold inlet.

B. All hose/check valves shall be UL listed and/or FM approved for use with the clean agent valve.

5.7 DISCHARGE NOZZLES

A. When manifolding, all cylinder assemblies shall include a flexible discharge hose and check valve for connection to the manifold inlet.

B. All hose/check valves shall be UL listed and/or FM approved for use with the clean agent valve.

5.8 SYSTEM CHECKOUT AND TESTING

A. The completed installation shall be inspected by factory authorized and trained personnel. The entire system shall be checked out, inspected, and functionally tested by qualified, trained personnel, in accordance with the manufacturer's recommendation procedures and NFPA standards.

B. Inspection shall be performed in the presence of the owner's representative, architect's or engineer's representative, insuring authority and/or the local AHJ.

C. All mechanical and electrical components shall be tested according to the manufacturer's recommended procedure to verify system integrity.

D. Inspection shall include a complete checkout of the detection/control system and certification of cylinder pressure. A written report shall be filed with the owner.

E. As-built drawings shall be provided by the contractor (2 copies) indicating the installation details. All routing of piping, electrical conduit and accessories shall be noted.

F. Equipment installation and maintenance manuals shall be provided in addition to the as-built drawings.

G. Prior to final acceptance, the contractor shall provide operational training in all concepts of the system to the owner's key personnel. Training shall consist of:

1. Control system operation
2. Trouble procedures
3. Abort procedures
4. Emergency procedures
5. Safety requirements
6. Demonstration of the system (excluding agent release)

H. The quantity of agent shall reflect the actual design quantity of the agent.

PART 6 - WARRANTY

6.1 WARRANTY

A. Environmental: The manufacturer shall offer a 20-year warranty covering regulations banning or restricting use of the NOVEC 1230 agent due to environmental issues.

B. Components/System: Limited one year warranty shall be offered for defects in workmanship and material.

6.2 TRAINING

A. Engage a factory_authorized service representative to train Owner's maintenance personnel as specified below:

1. Train Owner's maintenance personnel on procedures and schedules for starting and stopping, troubleshooting, servicing, adjusting, and maintaining equipment. Provide a minimum of 2 hours' training.
2. Training Aid: Use the approved final version of the operation and maintenance manual as a training aid. Refer to requirements specified for maintenance manuals in Division 1.
3. Schedule training with Owner with at least seven days' advance notice.

NOVA PARKS
CAPITOL FPE, LLC
FIRE PROTECTION & LIFE SAFETY CONSULTANTS
CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS

NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

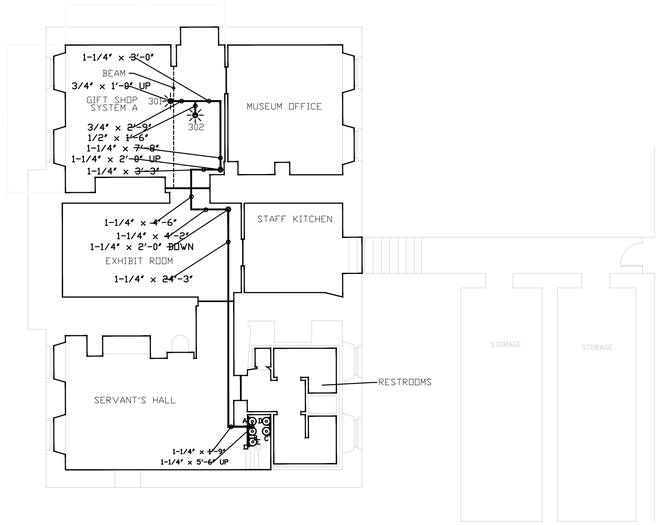
SPECIFICATION
NOVEC 1230 - FIRE ALARM

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08–1–2022
SCALE:	1/4"=1'–0

DRAWING NO.:
FA101

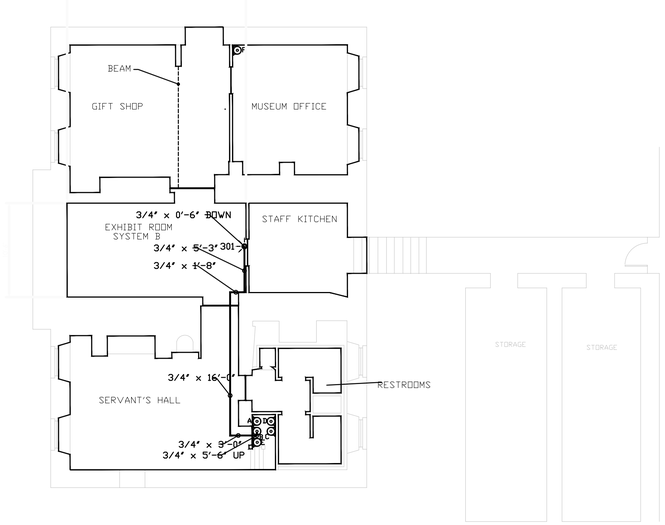
SHEET 4 OF 10 TOTAL

FILE NAME:



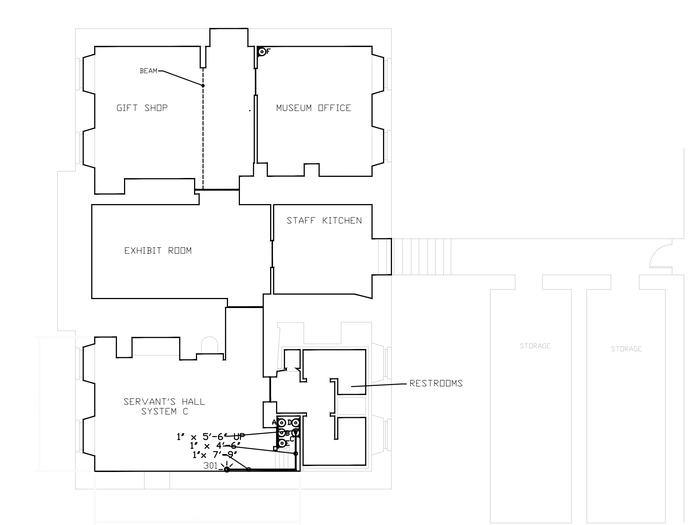
PARTIAL BASEMENT FLOOR PLAN - GIFT SHOP - SYSTEM A

SCALE: 1/8" = 1'-0"



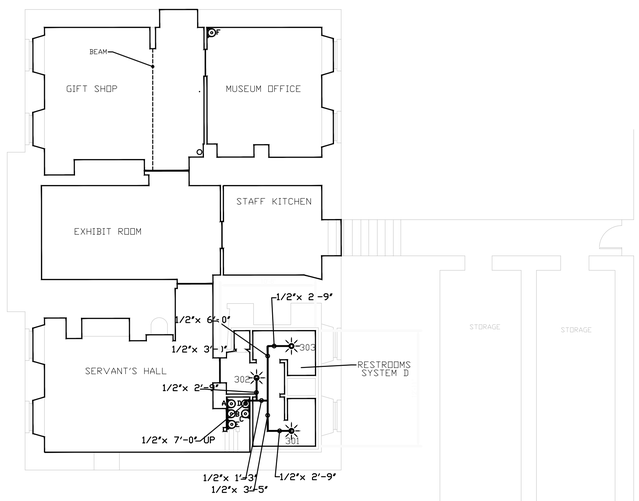
PARTIAL BASEMENT FLOOR PLAN - EXHIBIT ROOM - SYSTEM B

SCALE: 1/8" = 1'-0"



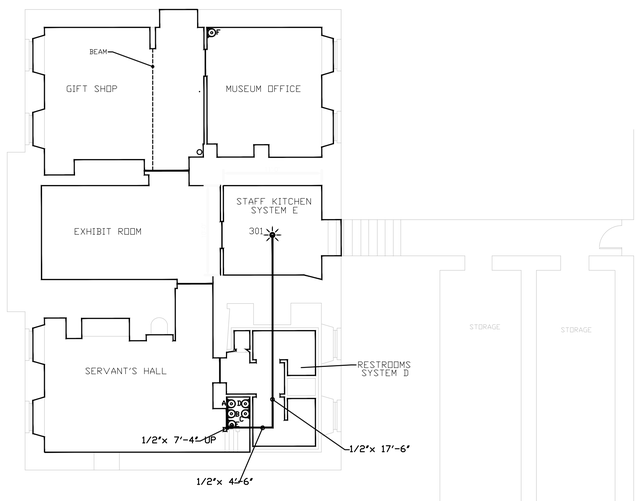
PARTIAL BASEMENT FLOOR PLAN - SERVANT'S HALL - SYSTEM C

SCALE: 1/8" = 1'-0"



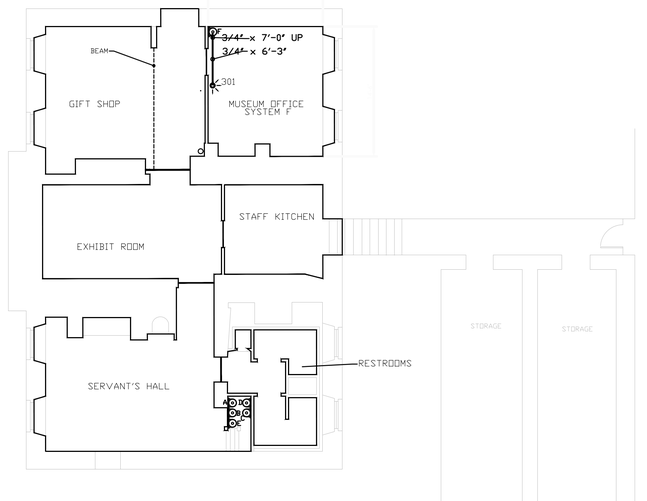
PARTIAL BASEMENT FLOOR PLAN - RESTROOMS - SYSTEM D

SCALE: 1/8" = 1'-0"



PARTIAL BASEMENT FLOOR PLAN - STAFF KITCHEN - SYSTEM E

SCALE: 1/8" = 1'-0"



PARTIAL BASEMENT FLOOR PLAN - MUSEUM OFFICE - SYSTEM F

SCALE: 1/8" = 1'-0"

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION & LIFE SAFETY CONSULTANTS

CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

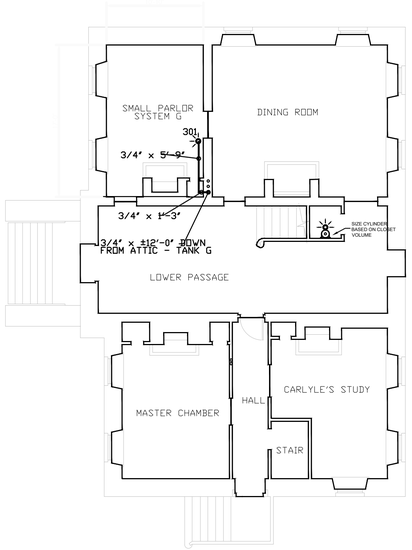
REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

FLOOR PLAN

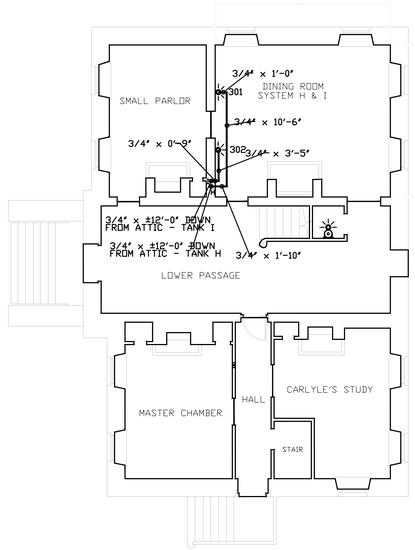
NOVEC 1230 - FIRE SUPPRESSION

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08–1–2022
SCALE:	1/8"=1'–0
DRAWING NO.:	**FP-1.0**
SHEET	5 OF 10 TOTAL
FILE NAME:	



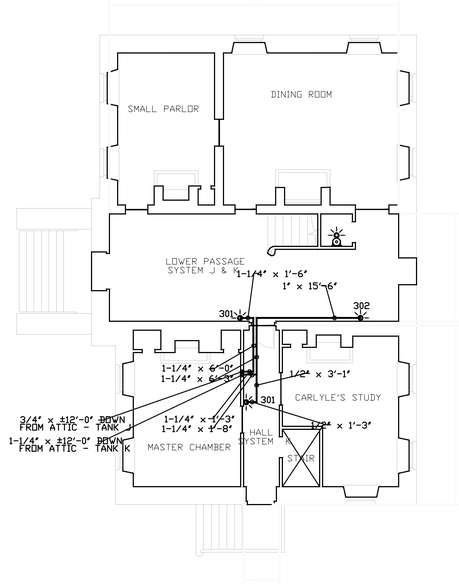
PARTIAL FIRST FLOOR PLAN - SMALL PARLOR - SYSTEM G

SCALE: 1/8" = 1'-0"



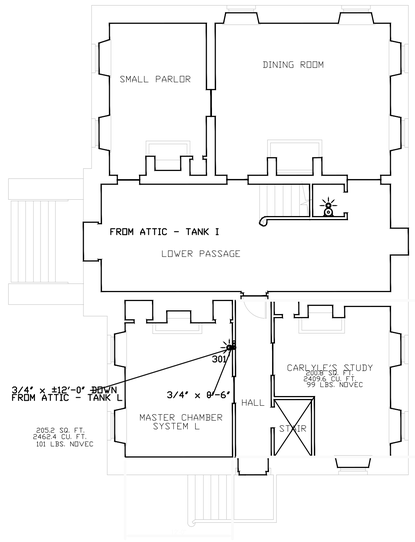
PARTIAL FIRST FLOOR PLAN - DINING ROOM - SYSTEM H & I

SCALE: 1/8" = 1'-0"



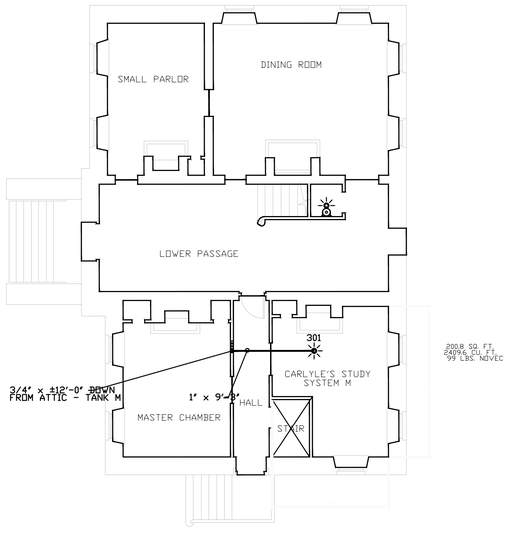
PARTIAL FIRST FLOOR PLAN - LOWER PASSAGE & HALL - SYSTEM J & K

SCALE: 1/8" = 1'-0"



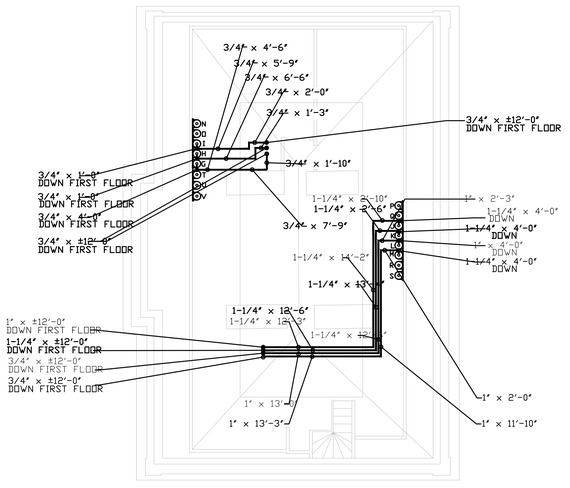
PARTIAL FIRST FLOOR PLAN - MASTER CHAMBER - SYSTEM L

SCALE: 1/8" = 1'-0"



PARTIAL FIRST FLOOR PLAN - CARLYLE'S STUDT - SYSTEM M

SCALE: 1/8" = 1'-0"



PARTIAL ATTIC - TANK LAYOUT FOR SYSTEMS G-M

SCALE: 1/8" = 1'-0"

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION & LIFE SAFETY CONSULTANTS

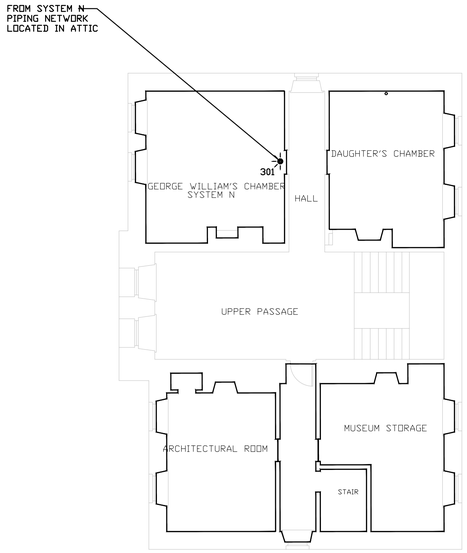
CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

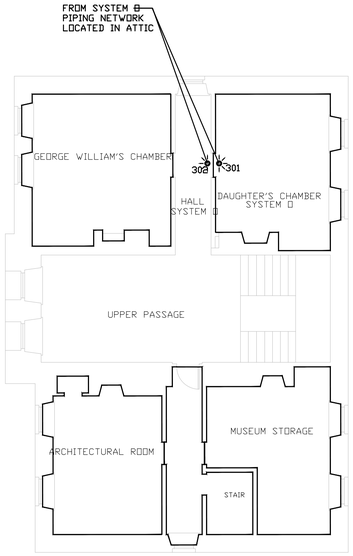
FLOOR PLAN
NOVEC 1230 - FIRE SUPPRESSION

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	1/8"=1'-0
DRAWING NO.:	**FP-1.1**
SHEET	6 OF 10 TOTAL
FILE NAME:	



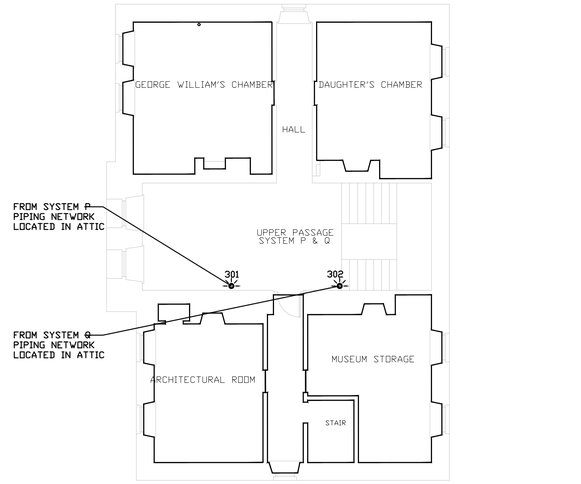
PARTIAL SECOND FLOOR PLAN - GEORGE WILLIAMS'S CHAMBER - SYSTEM N

SCALE: 1/8" = 1'-0"



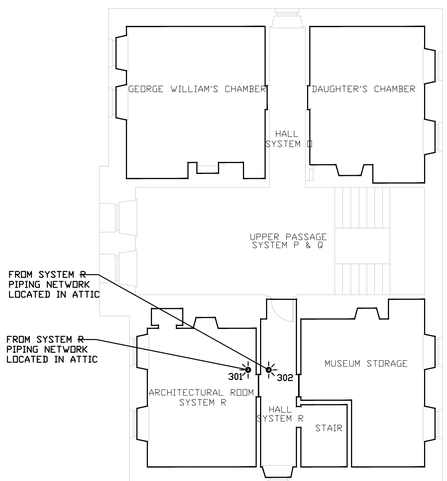
PARTIAL SECOND FLOOR PLAN - DAUGHTER'S CHAMBER & HALL - SYSTEM O

SCALE: 1/8" = 1'-0"



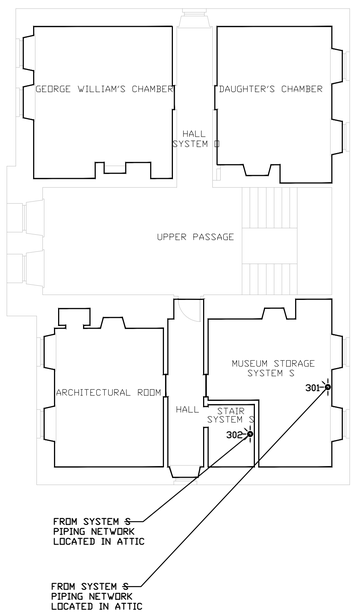
PARTIAL SECOND FLOOR PLAN - UPPER PASSAGE - SYSTEM P & Q

SCALE: 1/8" = 1'-0"



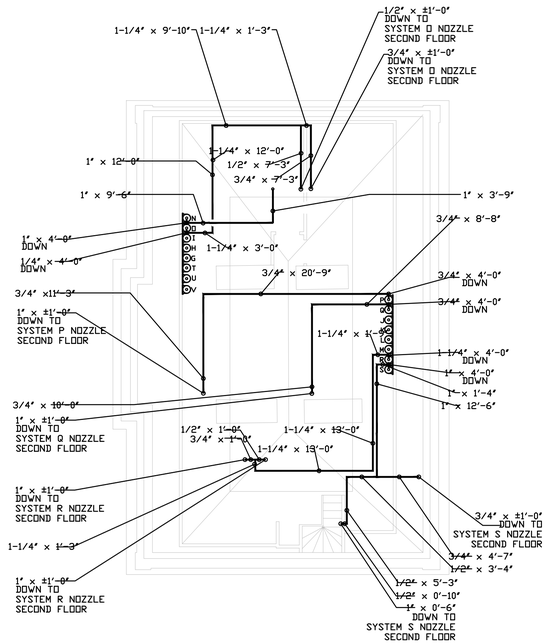
PARTIAL SECOND FLOOR PLAN - ARCHITECTURAL ROOM & HALL - SYSTEM R

SCALE: 1/8" = 1'-0"



PARTIAL SECOND FLOOR PLAN - MUSEUM STORAGE & STAIRS - SYSTEM S

SCALE: 1/8" = 1'-0"



PARTIAL ATTIC - TANK LAYOUT FOR SYSTEMS N-S

SCALE: 1/8" = 1'-0"

NOVA PARKS

CAPITOL FPE, LLC

FIRE PROTECTION & LIFE SAFETY CONSULTANTS

CAPITOL FIRE PROTECTION

Fire Protection & Life Safety Consultants

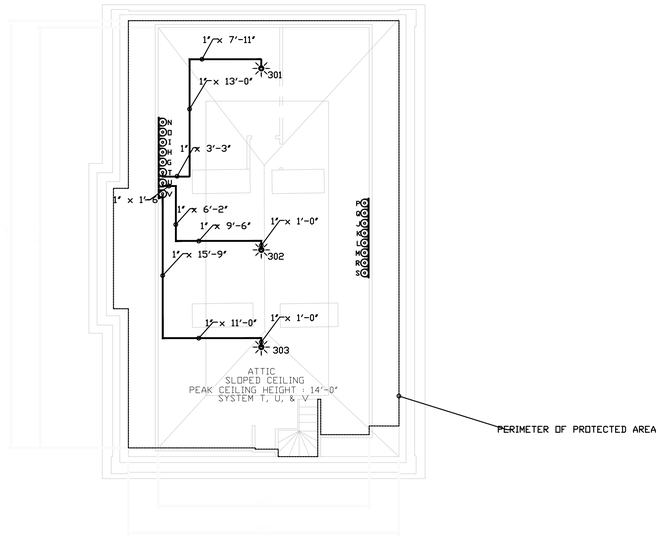
REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

FLOOR PLAN

NOVEC 1230 - FIRE SUPPRESSION

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	1/8"=1'-0
DRAWING NO.:	**FP-1.2**
SHEET	7 OF 10 TOTAL
FILE NAME:	



ATTIC FLOOR PLAN - SYSTEM T, U, & V

SCALE: 1/8" = 1'-0"

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION
& LIFE SAFETY
CONSULTANTS

CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

FLOOR PLAN
NOVEC 1230 - FIRE SUPPRESSION

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	1/8"=1'-0
DRAWING NO.:	**FP-1.3**
SHEET	8 OF 10 TOTAL
FILE NAME:	

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
GIFT SHOP BASEMENT	A	4.5%	70°F	293.0	10'-0"	2930.0	120.66LBS.	121 LBS.
	FAN TEST INFO:					14.1	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				103.2	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
A	A	NOVEC 1230	SV 130	22951	1-1/4"	121 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
A	301	180°	3/4"	0.2770	0.362	19524-076	82.8 LBS.
A	302	360°	1/2"	0.1960	0.241	19530-053	38.2 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
EXHIBIT ROOM BASEMENT	B	4.5%	70°F	221.3	10'-0"	2213.0	91.13 LBS.	92 LBS.
	FAN TEST INFO:					11.6	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				85.0	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
B	B	NOVEC 1230	SV 130	22951	1-1/4"	92 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
B	301	180°	3/4"	0.2770	0.362	19524-076	92 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
EXHIBIT ROOM BASEMENT	C	4.5%	70°F	317.1	10'-0"	3171.0	130.58LBS.	131 LBS.
	FAN TEST INFO:					17.2	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				125.6	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
C	C	NOVEC 1230	SV 130	22951	1-1/4"	131 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
C	301	180°	1"	0.3390	0.542	19525-088	131 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
RESTROOMS BASEMENT	D	4.5%	70°F	99.1	10'-0"	991.0	40.81 LBS.	42 LBS.
	FAN TEST INFO:					5.1	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				37.4	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
D	D	NOVEC 1230	SV 80	22950	1-1/4"	42 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
D	301	360°	1/2"	0.0730	0.033	19530-005	15.09 LBS.
D	302	360°	1/2"	0.0730	0.033	19530-005	11.32 LBS.
D	303	360°	1/2"	0.0730	0.033	19530-005	15.59 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
STAFF KITCHEN BASEMENT	E	4.5%	70°F	119.8	10'-0"	1198.0	49.33 LBS	50 LBS.
	FAN TEST INFO:					6.4	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				47.0	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
E	E	NOVEC 1230	SV 80	22950	1-1/4"	50 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
E	301	360°	1/2"	0.1910	0.229	19530-051	50 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
MUSEUM OFFICE BASEMENT	F	4.5%	70°F	192.6	10'-0"	1926.0	79.31 LBS	80 LBS.
	FAN TEST INFO:					10.7	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				78.0	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
F	F	NOVEC 1230	SV 80	22950	1-1/4"	80 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
F	301	180°	3/4"	0.2770	0.362	19524-076	80 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
SMALL PARLOR FIRST FLOOR	G	4.5%	70°F	189.5	12'-0"	2274.0	93.64 LBS	94 LBS.
	FAN TEST INFO:					12.8	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				93.4	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
G	G	NOVEC 1230	SV 130	22951	1-1/4"	94 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
G	301	180°	3/4"	0.2770	0.362	19524-076	94 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
SMALL PARLOR FIRST FLOOR	H & I	4.5%	70°F	350.9	12'-0"	4210.8	173.40LBS	174 LBS.
	FAN TEST INFO:					11.3 & 11.7	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				82.7 & 85.4	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
H	H	NOVEC 1230	SV 130	22951	1-1/4"	87 LBS.
I	I	NOVEC 1230	SV 130	22951	1-1/4"	87 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
H	301	180°	3/4"	0.2770	0.362	19524-076	87 LBS.
I	302	180°	3/4"	0.2770	0.362	19524-076	87 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
LOWER PASSAGE FIRST FLOOR	J & K	4.5%	70°F	403.0	12'-0"	4836.0	199.14LBS	200 LBS.
	FAN TEST INFO:					14.1 &	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				103.3 & 85.4	NEGATIVE EST. LOSS AREA (sq. in.)	

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
HALL FIRST FLOOR	K	4.5%	70°F	79.52	12'-0"	954.24	39.30 LBS	40 LBS.
	FAN TEST INFO:					11.3 & 11.7	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				82.7 & 85.4	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
J	J	NOVEC 1230	SV 130	22951	1-1/4"	120 LBS.
K	K	NOVEC 1230	SV 130	22951	1-1/4"	120 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
J	301	180°	1-1/4"	0.3230	0.492	19565-085	120 LBS.
K	301	180°	1/2"	0.2130	0.214	19523-060	40 LBS.
K	302	180°	1"	0.2660	0.333	19525-074	80 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
MASTER CHAMBER FIRST FLOOR	L	4.5%	70°F	205.2	12'-0"	2462.2	101.39LBS	102 LBS.
	FAN TEST INFO:					13.1	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				95.7	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
L	L	NOVEC 1230	SV 130	22951	1-1/4"	102 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
L	301	180°	1"	0.2660	0.333	19525-074	102 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
CARLYLE'S STUDY FIRST FLOOR	M	4.5%	70°F	200.8	12'-0"	2409.6	99.23 LBS	100 LBS.
	FAN TEST INFO:					13.0	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				94.7	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
M	M	NOVEC 1230	SV 130	22951	1-1/4"	100 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
M	301	360°	1"	0.2340	0.344	19532-064	100 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
GEORGE WILLIAN'S CHAMBER SECOND FLOOR	N	4.5%	70°F	264.7	10'-0"	2647.0	109 LBS	109 LBS.
	FAN TEST INFO:					12.9	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				94.1	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
N	N	NOVEC 1230	SV 130	22951	1-1/4"	109 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
N	301	180°	1"	0.2660	0.333	19525-074	109 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
DAUGHTER'S CHAMBER SECOND FLOOR	O	4.5%	70°F	223.0	10'-0"	2230.0	91.83 LBS	92.82 LBS.
	FAN TEST INFO:					11.4	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				83.4	NEGATIVE EST. LOSS AREA (sq. in.)	

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
HALL SECOND FLOOR	O	4.5%	70°F	77.1	10'-0"	771.0	31.75 LBS	32.18 LBS.
	FAN TEST INFO:					4.0	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				28.9	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
O	O	NOVEC 1230	SV 130	22951	1-1/4"	125 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
O	301	180°	3/4"	0.2969	0.415	19524-081	92.82 LBS
O	302	180°	1/2"	0.1935	0.176	19523-052	32.18 LBS

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
UPPER PASSAGE SECOND FLOOR	P & Q	4.5%	70°F	402.0	10'-0"	4020.0	165.54 LBS	166 LBS.
	FAN TEST INFO:					10.4, 10.9	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				75.7, 80.0	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
P	P	NOVEC 1230	SV 130	22951	1-1/4"	83 LBS.

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
Q	Q	NOVEC 1230	SV 130	22951	1-1/4"	83 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
P	301	180°	3/4"	0.2380	0.267	19524-066	83 LBS.
Q	302	180°	3/4"	0.2380	0.267	19524-066	83 LBS.

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
ARCHITECTURAL ROOM SECOND FLOOR	R	4.5%	70°F	208.1	10'-0"	2081.0	85.69 LBS	86.35 LBS.
	FAN TEST INFO:					10.1	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				73.8	NEGATIVE EST. LOSS AREA (sq. in.)	

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
HALL SECOND FLOOR	R	4.5%	70°F	78.9	10'-0"	789.0	32.49 LBS	37.65 LBS.
	FAN TEST INFO:					4.4	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				32.2	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
R	R	NOVEC 1230	SV 130	22951	1-1/4"	124 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
R	301	180°	3/4"	0.2950	0.410	19524-080	86.14 LBS
R	302	180°	1/2"	0.1770	0.148	19523-045	37.86 LBS

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
MUSEUM STORAGE SECOND FLOOR	S	4.5%	70°F	207.8	10'-0"	2078.0	85.57 LBS	86.05 LBS.
	FAN TEST INFO:					10.5	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				76.8	NEGATIVE EST. LOSS AREA (sq. in.)	

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
STAIRS	S	4.5%	70°F	36.6	23'-0"	841.8	34.67 LBS	38.95 LBS.
	FAN TEST INFO:					4.7	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				34.5	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
S	S	NOVEC 1230	SV 130	22951	1-1/4"	125 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
S	301	180°	3/4"	0.2812	0.373	19524-078	86.05 LBS
S	302	180°	1/2"	0.1770	0.148	19523-045	38.95 LBS

ENCLOSURE INFORMATION CHART

PROTECTED AREA	ZONE NUMBER	REQUIRED X%	AMBIENT TEMP.	SQUARE FEET	HEIGHT	CUBIC FEET	AGENT REQ.	AGENT SUPPLIED
ATTIC	T,U,V	4.5%	70°F	1407.0	0'-14'-0" SLOPED	7841.5	322.91LBS	330 LBS.
	FAN TEST INFO:					14.1,13.7,13.2	POSITIVE EST. LOSS AREA (sq. in.)	
	5 psf	WALL STRENGTH (lbs/sq.ft)				102.9, 100.3, 96.4	NEGATIVE EST. LOSS AREA (sq. in.)	

AGENT STORAGE CONTAINER CHART

CYLINDER NUMBER	ZONE NUMBER	AGENT NAME	CYLINDER SIZE	CYLINDER PART NUMBER	OUTLET SIZE	AGENT WEIGHT
T	T	NOVEC 1230	SV 130	22951	1-1/4"	110 LBS.
U	U	NOVEC 1230	SV 130	22951	1-1/4"	110 LBS.
V	V	NOVEC 1230	SV 130	22951	1-1/4"	110 LBS.

NOZZLE CHART

CYLINDER NUMBER	NOZZLE NUMBER	STYLE	SIZE	DRILL CODE	ORIFICE AREA	PART NUMBER	AGENT WEIGHT
T	301	360°	1"	0.2500	0.393	19532-069	110 LBS.
U	302	360°	1"	0.2500	0.393	19532-069	110 LBS.
V	303	360°	1"	0.2500	0.393	19532-069	110 LBS.

NOVA PARKS

CAPITOL FPE, LLC

FIRE PROTECTION & LIFE SAFETY CONSULTANTS

CAPITOL FIRE PROTECTION

Fire Protection & Life Safety Consultants

NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

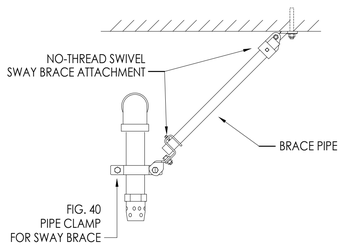
REVISIONS

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

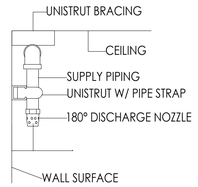
ENCLOSURE CHARTS

NOVEC 1230 - FIRE SUPPRESSION

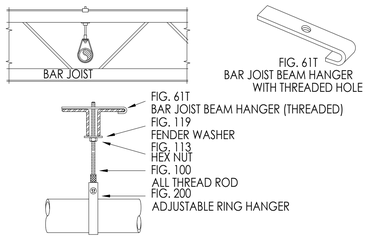
PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08-1-2022
SCALE:	NTS
DRAWING NO.:	FP-2.0
SHEET	9 OF 10 TOTAL
FILE NAME:	



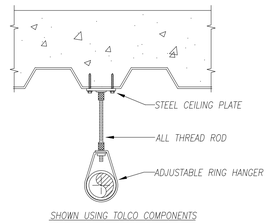
360 ° NOZZLE SWAY BRACE (D)



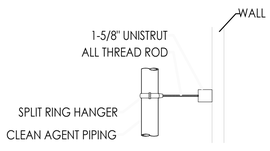
180° NOZZLE MOUNTING (E)



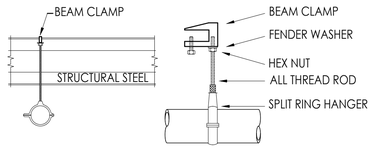
BAR JOIST BEAM HANGER (A)



PIPE HANGER (A)



VERTICAL PIPE HANGER (A)



BEAM CLAMP / SPLIT RING HANGER (C)

MAXIMUM HANGER SPACING BETWEEN PIPE SUPPORTS			
PIPE SIZE (NPS)	FT. (MAX.)	M (MAX.)	ROD DIA.
1"	7	2.1	3/8"
3/4"	7	2.1	3/8"
1"	7	2.1	3/8"
1 1/4"	7	2.1	3/8"
1 1/2"	9	2.7	3/8"
2"	10	3.0	3/8"
2 1/2"	11	3.4	1/2"
3"	12	3.7	1/2"
4"	14	4.3	5/8"

NOTES:
1. VALUES LISTED IN THIS TABLE ARE SUITABLE FOR SCREWED, WELDED, OR GROOVED PIPE.
2. A HANGER SHALL BE INSTALLED BETWEEN FITTINGS WHEN THE FITTINGS ARE MORE THAN 2-FEET APART.
3. A HANGER SHALL BE INSTALLED A MAXIMUM OF 1-FOOT HORIZONTALLY FROM DISCHARGE NOZZLES.
4. RIGID PIPE SUPPORTS ARE REQUIRED AT EACH FITTING, TEE AND DISCHARGE NOZZLE.
5. CONSULT ASME B31.1, POWER PIPING CODE FOR FURTHER GUIDANCE.

GENERAL PIPING NOTES:

1. DISTRIBUTION PIPING:
1.1. PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 2001 (STANDARD FOR CLEAN AGENT EXTINGUISHING SYSTEMS), STATE AND LOCAL STANDARDS. WHERE A CONFLICT EXISTS BETWEEN STANDARDS, THE MOST STRINGENT SHALL APPLY.

1.2. PIPING SHALL BE INSTALLED IN STRICT ACCORDANCE TO THE SYSTEM DESIGN DRAWINGS AND CALCULATIONS PREPARED FOR THE PROJECT. ALL PIPING CHANGES MUST BE APPROVED BEFORE FABRICATION OR INSTALLATION OF MATERIALS.

1.3. PIPING SHOULD BE INSTALLED IN ACCORDANCE WITH GOOD COMMERCIAL PRACTICE. CARE SHOULD BE TAKEN TO AVOID POSSIBLE RESTRICTIONS DUE TO FOREIGN MATTER, FAULTY FABRICATION, OR IMPROPER INSTALLATION.

1.4. PENETRATIONS THROUGH FIRE RATED WALLS OR FLOORS SHALL BE SEALED WITH AN APPROVED FIRE STOPPING COMPOUND.

1.5. PIPE ACCEPTABLE FOR USE IN CLEAN AGENT EXTINGUISHING SYSTEMS INCLUDE THE FOLLOWING:

TABLE 1.E ACCEPTABLE PIPE			
SCHEDULE	GRADE	TYPE	NPS PIPE SIZE
40	ASTM A-106C	SEAMLESS	1/2" THRU 8"
	ASTM A-53B	SEAMLESS	1/2" THRU 8"
	ASTM A-106B	SEAMLESS	1/2" THRU 8"
	ASTM A-53B	ERW	1/2" THRU 8"
	ASTM A-53A	SEAMLESS	1/2" THRU 8"
	ASTM A-106A	SEAMLESS	1/2" THRU 8"
	ASTM A-53A	ERW	1/2" THRU 8"
	ASTM A-53F	FURNACE	1/2" THRU 8"
NOTE: ALL PIPE IS SUITABLE FOR USE WITH THREADED, ROLLED GROOVE OR WELDED END CONNECTIONS.			

1.6. CAST-IRON PIPE, STEEL PIPE CONFORMING TO ASTM A-120, OR NONMETALLIC PIPE SHALL NOT BE USED.
1.7. EACH PIPE SECTION SHALL BE CLEANED INTERNALLY AFTER PREPARATION AND BEFORE ASSEMBLY BY MEANS OF SWABBING, UTILIZING A SUITABLE NONFLAMMABLE CLEANER. THE PIPE NETWORK SHALL BE FREE OF PARTICULATE MATTER AND OIL RESIDUE BEFORE INSTALLATION OF NOZZLES OR DISCHARGE DEVICES.
1.8. STENCILED PIPE IDENTIFICATION SHALL NOT BE PAINTED OVER, CONCEALED, OR REMOVED PRIOR TO APPROVAL BY THE AUTHORITY HAVING JURISDICTION.
1.9. PIPE JOINTS OTHER THAN THREADED, WELDED, BRAZED, FLARED, COMPRESSION, OR FLANGED TYPE SHALL BE LISTED OR APPROVED

2. FITTINGS:
2.1. FITTINGS SHALL BE CLASS 300 MALLEABLE OR DUCTILE IRON FOR PIPE SIZES UP TO AND INCLUDING 3-INCH NPS. 1,000 LB. RATED DUCTILE IRON OR FORGED STEEL FITTINGS SHALL BE USED FOR PIPE SIZES LARGER THAN 3-INCH NPS. CLASS 300 FLANGED JOINTS CAN BE USED FOR ALL PIPE SIZES.

2.2. CAST-IRON AND CLASS 150-LB. FITTINGS SHALL NOT BE USED.

2.3. ALL THREADS USED IN JOINTS AND FITTINGS SHALL CONFORM TO ANSI B1.20.1 (STANDARD FOR PIPE THREADS, GENERAL PURPOSE). JOINT COMPOUND, TAPE, OR THREAD LUBRICANT SHALL BE APPLIED ONLY TO THE MALE THREADS OF THE JOINT.

2.4. WELDING OR BRAZING ALLOYS SHALL HAVE A MELTING POINT ABOVE 1000°F (538°C).

2.5. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH SECTION IX, "QUALIFICATION STANDARD FOR WELDING AND BRAZING PROCEDURES, WELDERS, BRAZERS AND WELDING AND BRAZING OPERATORS," OF THE ASME BOILER AND PRESSURE VESSEL CODE.

3. PIPE HANGERS AND SUPPORTS:
3.1. CONVENTIONAL HANGER DESIGN WHICH IS GENERALLY ACCEPTED AS GOOD PRACTICE, USING STANDARD STOCK OR PRODUCTION UNITS, AS MANUFACTURED BY RECOGNIZED MANUFACTURERS, SHALL BE UTILIZED WHENEVER POSSIBLE.

3.2. ALL PIPING MUST BE SOLIDLY ANCHORED TO WALLS, CEILING STRUCTURE, FLOORS, OR COLUMNS BY ANGLE IRON BRACKETS, CHANNELS/STRUTS OR EQUIVALENT BRACKETS WHERE LONGITUDINAL OR LATERAL SWAY MAY OCCUR. PARTICULAR ATTENTION MUST BE PAID TO THE BRACING OF ALL CHANGES IN PIPING DIRECTION, NOZZLE PIPING OR HEADER PIPING. AS A MINIMUM, RIGID PIPE SUPPORTS SHALL BE PROVIDED AT ALL LOCATIONS WHERE PIPING CHANGES DIRECTION.

3.3. PIPE SUPPORT COMPONENTS SHALL BE STEEL AND ADEQUATE TO SUPPORT THE PIPE IN RESPONSE TO MOVEMENTS CREATED BY CHANGING THERMAL CONDITIONS, AND TO ALLOW FOR FREE AND AMPLE MOVEMENT FOR CONTRACTION EXCEPT WHERE ANCHORED, THEREBY PREVENTING EXCESSIVE STRESS. CONSIDERATION SHOULD BE GIVEN TO AVOIDANCE OF RIGIDLY RESTRAINING BOTH ENDS OF LONG PIPE RUNS SUBJECT TO THERMAL EXPANSION OR CONTRACTION. EITHER ONE OR THE OTHER END OF THE PIPE RUN SHOULD BE SUPPORTED WITH AN INTERMEDIATE TYPE HANGER WHICH WILL ALLOW FREE MOVEMENT OF THE PIPING AND TO AVOID BUCKLING OR SEPARATION DUE TO EXPANSION OR CONTRACTION.

3.4. WHERE ROD TYPE HANGERS ARE PERMITTED FOR INTERMEDIATE SUPPORT BETWEEN RIGID SUPPORTS, THEY SHALL BE STEEL CLEVIS OR STEEL BAND HANGERS OF THE PROPER SIZE FOR THE SUPPORTED PIPE AND WITH SOLID BAR-TYPE HANGER ROD. HANGER RODS SHALL NOT BE SUBJECTED TO STRESSES DUE TO BENDING.

3.5. GROOVED PIPE, FITTINGS, AND COUPLINGS MUST BE SUPPORTED AND ANCHORED EXACTLY PER THE MANUFACTURER'S SPECIFICATION. INSTALLATION SHALL BE SUCH AS TO ALLOW FOR CONTRACTION OVER THE ANTICIPATED TEMPERATURE RANGE AND PRESSURE THRUSTS. AS A MINIMUM, TWO HANGERS SHALL BE PROVIDED PER LENGTH OF GROOVED PIPE TO AVOID INJURY OR ACCIDENT DURING INSTALLATION OR MAINTENANCE OF PIPING. NO GROOVED PIPE LENGTH SHOULD BE LEFT UNSUPPORTED BETWEEN ANY TWO COUPLINGS.

3.6. CAST IRON SUPPORTS, CONDUIT CLAMPS OR "C" CLAMPS SHALL NOT BE USED TO SUPPORT PIPING. ALL PARTS OF THE SUPPORTING EQUIPMENT SHALL BE FABRICATED, ASSEMBLED AND INSTALLED SO THAT THEY WILL NOT BE DISENGAGED BY MOVEMENT OF THE SUPPORTED PIPE. DRILLING, WELDING OR THE USE OF BEAM CLAMPS ARE ACCEPTABLE MEANS OF ATTACHING HANGERS TO THE BUILDING STRUCTURE. A PIPELINE IS NOT TO BE SUPPORTED FROM ANOTHER PIPELINE.

3.7. ALL PIPE SUPPORTS SHALL BE INSTALLED TO AVOID INTERFERENCE WITH OTHER PIPING, HANGERS, ELECTRICAL CONDUIT, AND SUPPORTS OF BUILDING STRUCTURE AND EQUIPMENT.

3.8. SUPPORTS SHALL BE SUFFICIENTLY CLOSE TOGETHER TO AVOID EXCESSIVE BENDING STRESSES FROM CONCENTRATED LOADS BETWEEN SUPPORTS. REFER TO THE FOLLOWING TABLE.

GENERAL ENCLOSURE NOTES:

1. CONSTRUCTION SPECIFICATIONS:
1.1. A FIXED ENCLOSURE SHALL BE PROVIDED ABOUT THE HAZARD THAT ALLOWS THE SPECIFIED AGENT CONCENTRATION TO BE ACHIEVED AND MAINTAINED FOR A SPECIFIED PERIOD OF TIME, USUALLY 10 MINUTES. REQUIRED HOLDING PERIOD SHALL BE DETERMINED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

1.2. THE FOLLOWING ITEMS COVER ENCLOSURE LEAKAGE IN A GENERAL FASHION, AND SHOULD BE ADHERED TO IN ORDER FOR THE ENCLOSURE TO RETAIN THE AGENT CONCENTRATION. ENCLOSURE LEAKAGE SHALL BE ELIMINATED TO AT LEAST THE DEGREE NECESSARY TO ENABLE THE ENCLOSURE TO PASS A DOOR FAN CONDUCTED IN ACCORDANCE WITH NFPA 2001, ENCLOSURE INTEGRITY PROCEDURE.

1.2.1. WHERE POSSIBLE, THE PERIMETER WALLS OF THE PROTECTED ENCLOSURE SHALL EXTEND FROM THE STRUCTURAL FLOOR TO THE STRUCTURAL FLOOR ABOVE, OR THE ROOF.

1.2.2. WHERE AN UNDERFLOOR SPACE CONTINUES OUT OF THE CLEAN AGENT PROTECTED AREA INTO ADJOINING ROOMS, AIRTIGHT PARTITIONS SHALL BE INSTALLED UNDER THE FLOOR DIRECTLY UNDER ABOVE-FLOOR BORDER PARTITIONS. THESE PARTITIONS SHALL BE CAULKED TOP AND BOTTOM. IF A REMOVABLE FLOOR TILE EXTENDS UNDER A DOORWAY OVER SUCH A PARTITION, IT SHALL EITHER BE: PERMANENTLY SEALED IN PLACE; INSTALLED WITH A FLEXIBLE SEAL BETWEEN IT AND THE WALL BELOW; OR THE TILE SHALL BE DISCONTINUED AT THE DOORWAY WITH A PERMANENT AIRTIGHT LEDGE CREATED UP TO WHICH THE FLOOR TILES ABUT. IF ADJOINING ROOMS SHARE THE SAME UNDER FLOOR AIR HANDLERS, THEN THE PARTITIONS SHALL HAVE DAMPERS INSTALLED OF THE SAME TYPE AS REQUIRED FOR DUCTWORK.

1.2.3. ALL HOLES, CRACKS, OR PENETRATIONS LEADING INTO OR OUT OF THE PROTECTED AREA SHALL BE SEALED. PIPE CHASES AND WIRE TROUGHS SHALL BE SEALED AROUND BOTH THE OUTSIDE AND INSIDE AT A POINT WHERE THEY PASS THROUGH THE ENVELOPE OF THE PROTECTED ZONE. ALL WALLS SHALL BE CAULKED AROUND THE INSIDE PERIMETER OF THE ROOM WHERE THE WALLS REST ON THE FLOOR SLAB AND WHERE THE WALLS INTERSECT THE CEILING SLAB OR ROOF ABOVE.

1.2.4. POROUS BLOCK WALLS SHALL BE SEALED SLAB-TO-SLAB TO PREVENT GAS FROM PASSING THROUGH THE BLOCK. MULTIPLE COATS OF PAINT MAY BE REQUIRED.

1.2.5. ALL DOORS SHALL HAVE DOOR SWEEPS OR DROP SEALS ON THE BOTTOMS, WEATHER STRIPPING AROUND THE JAMBS,

ASTRAGAL TO PREVENT LEAKAGE BETWEEN DOORS AND A COORDINATOR TO ASSURE PROPER SEQUENCE OF CLOSURE.

1.2.6. WINDOWS SHALL HAVE SOLID WEATHER-STRIPPING AROUND ALL JOINTS. GLASS TO FRAME AND FRAME TO WALL JOINS SHALL BE SEALED.

1.2.7. ALL FLOOR DRAINS SHALL HAVE TRAPS DESIGNED TO HAVE WATER OR OTHER COMPATIBLE LIQUID IN THEM AT ALL TIMES.

1.2.8. ALL UNUSED AND OUT-OF-SERVICE DUCTWORK LEADING INTO OR FROM A PROTECTED AREA SHALL BE PERMANENTLY SEALED OFF (AIR TIGHT) WITH METAL PLATES CAULKED AND SCREWED IN PLACE AT THE POINT WHERE THEY BREACH THE ENVELOPE OF THE PROTECTED ZONE.

1.2.9. HEAVY CEILING TILES SHALL BE USED THROUGHOUT THE PROTECTED AREA TO HELP PREVENT THE DISPLACEMENT OF THE TILES DURING DISCHARGE. WHERE NECESSARY, CEILING TILES SHALL BE CLIPPED TO PREVENT DISPLACEMENT, ESPECIALLY TILES NEAR DISCHARGE NOZZLES.

1.2.10. DUCTWORK LEADING INTO OR FROM THE PROTECTED AREA SHALL HAVE GASKETED, LOW LEAK, SPRING- LOADED OR MOTOR-OPERATED, AGENT/SMOKE TYPE DAMPERS WITH FLEXIBLE SEALS. RIGID METAL TO METAL BLADE SEALS SHALL NOT BE USED. THE DAMPERS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE DUCT'S POINT OF ENTRY INTO THE ROOM. ALL DUCT JOINTS BETWEEN THE DAMPER AND THE DUCT ENTRY POINT SHALL BE SEALED. THE GAP BETWEEN THE DAMPER FRAME AND THE DUCT WALL SHALL BE SEALED.

1.2.11. FORCED-AIR VENTILATING SYSTEMS SHALL BE SHUT DOWN OR CLOSED AUTOMATICALLY WHERE THEIR CONTINUED OPERATION WOULD ADVERSELY AFFECT THE PERFORMANCE OF THE FIRE EXTINGUISHING SYSTEM OR RESULT IN PROPAGATION OF THE FIRE.

2. APPROVAL/ACCEPTANCE OF ENCLOSURE INTEGRITY:
2.1. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR OVERALL ROOM TIGHTNESS, UNLESS SPECIFIED OTHERWISE. THE G.C. IN TURN MUST REQUIRE THAT ALL HIS SUBCONTRACTORS PERFORM THE NECESSARY SEALING, WHICH RELATES TO THEIR WORK. ANY WORK BEING DONE ON THE INSTALLATION BY SECOND LEVEL CONTRACTORS (E.G. CABLE PULLERS) NOT OPERATING UNDER THE G.C. MUST ALSO BE SUBJECTED TO THIS REQUIREMENT UNDER THEIR CONTRACTS. WHERE NO G.C. IS INVOLVED WITH THE PROJECT THE OWNER WILL BE REQUIRED TO ARRANGE FOR SEALING OF THE ROOM.

2.2. UPON COMPLETION OF THE ENCLOSURE BY ALL TRADES INVOLVED (E.G. DOORS AND DAMPERS INSTALLED, ALL PENETRATIONS SEALED), THE CLEAN AGENT CONTRACTOR SHALL CONDUCT AND ENCLOSURE INTEGRITY TEST IN CONFORMANCE WITH NFPA 2001, IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE AND THE GENERAL CONTRACTOR (IF APPLICABLE). SHOULD THE TEST BE UNSUCCESSFUL, AND INSPECTION SHALL BE CONDUCTED AND A REPORT AND A PLAN VIEW OF THE ENCLOSURE IDENTIFYING THE LOCATION AND NATURE OF LEAKS UNCOVERED SHALL BE SUBMITTED. IF MORE THAN TWO TESTS ARE REQUIRED, ADDITIONAL TESTS SHALL BE AT THE EXPENSE OF THE GENERAL CONTRACTOR OR OWNER.

2.3. UPON SUCCESSFUL COMPLETION OF THE DOOR FAN TEST BEFORE THE GENERAL CONTRACTOR AND OWNER, A FINAL ENCLOSURE INTEGRITY TEST PER NFPA 2001 SHALL BE CONDUCTED IN THE PRESENCE OF THE AHJ OR HIS/HER REPRESENTATIVE. THE CONTRACTOR SHALL PROVIDE A TEST REPORT, INCLUDING A COPY OF THE RECORDED MEASUREMENTS. ADEQUATE NOTICE SHALL BE GIVEN TO THE AHJ OR ITS REPRESENTATIVE TO ENABLE EITHER OR BOTH TO ATTEND.

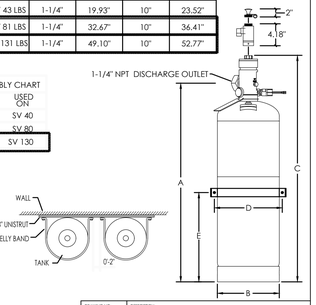
3. MAINTAINING ENCLOSURE INTEGRITY:
3.1. THE INTEGRITY OF THE ENCLOSURE MUST BE MAINTAINED TO INSURE THE CLEAN AGENT SYSTEMS ABILITY TO PROPERLY PROTECT THE HAZARD VOLUME. AT LEAST EVERY 12 MONTHS, THE ENCLOSURE SHALL BE THOROUGHLY INSPECTED TO DETERMINE IF PENETRATIONS OR OTHER CHANGES HAVE OCCURRED THAT COULD ADVERSELY AFFECT AGENT LEAKAGE OR CHANGE VOLUME OF HAZARD OR BOTH. WHERE THE INSPECTION INDICATES CONDITIONS THAT COULD RESULT IN INABILITY TO MAINTAIN THE CLEAN AGENT CONCENTRATION, THEY SHALL BE CORRECTED. IF UNCERTAINTY STILL EXISTS, THE ENCLOSURE SHALL BE RETESTED FOR INTEGRITY IN ACCORDANCE WITH NFPA 2001. YEARLY ENCLOSURE INSPECTION MUST BE REQUESTED TO BE INCLUDED AS PART OF THE INITIAL INSTALLATION.

GENERAL AS-BUILT NOTES

1. AT PROJECT CLOSEOUT, THE INSTALLING CONTRACTOR SHALL SUBMIT ONE SET OF RECORD PRINTS HAVING ALL CHANGES NEATLY TRANSFERRED FROM THE FIELD SET TO A NEW SET (USING RED PENCIL). A CLEAN SET OF SHOP DRAWINGS WILL BE PROVIDED FOR THIS PURPOSE. FINAL PAYMENT WILL NOT BE AUTHORIZED UNTIL THE RECORD DOCUMENTS HAVE BEEN RECEIVED AND APPROVED.
2. INSTALLATION MUST BE PIPED EXACTLY AS SHOWN. DEVIATIONS FROM THIS DRAWING MUST BE APPROVED BY COMTEC & WILL REQUIRE HYDRAULIC RECALCULATION.

Sv NOVEC 1230 500 PSI CYLINDER PROPERTIES							
CYLINDER SIZE	PART NUMBER	EMPTY WEIGHT	MIN. / MAX. FM200 FILL	OUTLET SIZE	DIMENSION (A)	DIMENSION (B)	DIMENSION (C)
SV40	22949	36	22 / 43 LBS	1-1/4"	19.93"	10"	23.52"
SV80	22950	65	41 / 81 LBS	1-1/4"	32.67"	10"	36.41"
SV130	22951	77	66 / 131 LBS	1-1/4"	49.10"	10"	52.77"

WALL MOUNT CYLINDER BRACKET ASSEMBLY CHART			
PART NUMBER	DIMENSION "D"	DIMENSION "E"	USED ON
18595	11.9"	13.63"	SV 40
18595	11.9"	15.75"	SV 80
18595	11.9"	30.75"	SV 130

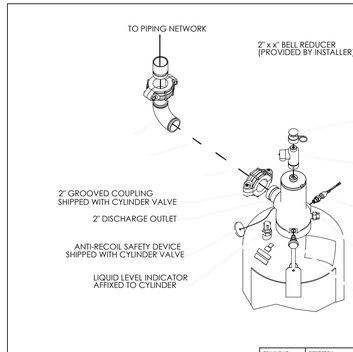


1. LISTINGS:
- UL, FM, CE

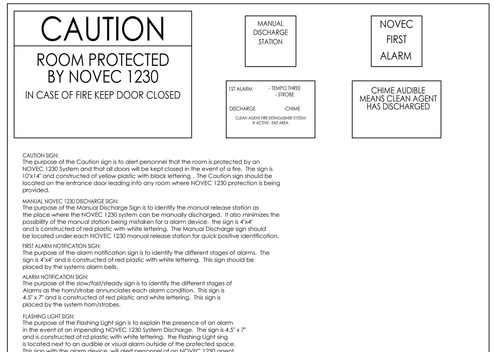
2. TECHNICAL DATA:
- APPLICATION: FIRE SUPPRESSION AGENT CONTAINER
- RATED WORKING PRESSURE: 520 PSIG AT 130°F
- WEIGHT: SEE CHART
- TEMPERATURE RANGE: 32°F - 130°F
- FACTORY SETTINGS: 500 PSIG AT 70°F

3. MATERIAL:
- CYLINDER BODY: CARBON STEEL
- CYLINDER FINISH: RED PAINT
- VALVE BODY: BRASS

DRAWING NO:	DESCRIPTION:
J001	JANUS SV500 SERIES - NOVEC 1230 CYLINDER



DRAWING NO:	DESCRIPTION:
J006	JANUS MV CYL. - W/ TRIM COMPONENTS



CAUTION SIGN:
The purpose of the Caution sign is to alert personnel that the room is protected by an NOVEC 1230 System and that all doors will be kept closed in the event of a fire. The sign is 10"x14" and constructed of yellow plastic with black lettering. The Caution sign should be located on the entrance door leading into any room where NOVEC 1230 protection is being provided.

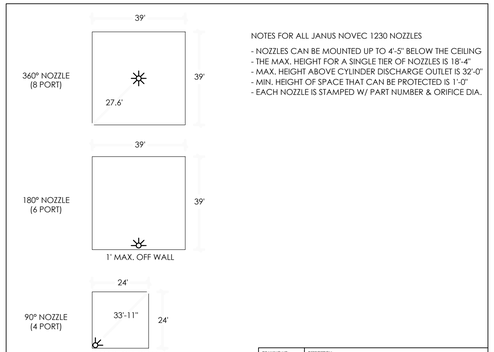
MANUAL NOVEC 1230 DISCHARGE SIGN:
The purpose of the Manual Discharge Sign is to identify the manual release station as the place where the NOVEC 1230 system can be manually discharged. It also minimizes the possibility of the manual station being mistaken for a alarm device. the sign is 4"x4" and is constructed of red plastic with white lettering. The Manual Discharge sign should be located under each NOVEC 1230 manual release station for quick positive identification.

FIRST ALARM NOTIFICATION SIGN:
The purpose of the alarm notification sign is to identify the different stages of alarms. The sign is 4"x4" and is constructed of red plastic with white lettering. This sign should be placed by the systems alarm bells.

ALARM NOTIFICATION SIGN:
The purpose of the slow/fast/steady sign is to identify the different stages of Alarms as the horn/strobe annunciates each alarm condition. This sign is 4.5" x 7" and is constructed of red plastic and white lettering. This sign is placed by the system horn/strobes.

FLASHING LIGHT SIGN:
The purpose of the Flashing Light sign is to explain the presence of an alarm in the event of an impending NOVEC 1230 System Discharge. The sign is 4.5" x 7" and is constructed of rd plastic with white lettering. the Flashing Light sing is located next to an audible or visual alarm outside of the protected space. This sign with the alarm device, will alert personnel of an NOVEC 1230 agent discharge and allow them to take appropriate action.

PART NUMBER	DESCRIPTION
CFTSIGNS	NOVEC 1230 SYSTEM WARNING SIGNS



NOTES FOR ALL JANUS NOVEC 1230 NOZZLES
- NOZZLES CAN BE MOUNTED UP TO 4'-5" BELOW THE CEILING
- THE MAX. HEIGHT FOR A SINGLE TIER OF NOZZLES IS 18'-4"
- MAX. HEIGHT ABOVE CYLINDER DISCHARGE OUTLET IS 32'-0"
- MIN. HEIGHT OF SPACE THAT CAN BE PROTECTED IS 1'-0"
- EACH NOZZLE IS STAMPED W/ PART NUMBER & ORIFICE DIA.

DRAWING NO:	DESCRIPTION:
J007	JANUS NOVEC 1230 - NOZZLE COVERAGES

NOVA PARKS

CAPITOL FPE, LLC
FIRE PROTECTION & LIFE SAFETY CONSULTANTS

CAPITOL FIRE PROTECTION
Fire Protection & Life Safety Consultants

REVISIONS		
NO.	DESCRIPTION	DATE
1	FOR BID	08/01/22

CARLYLE HOUSE
121 N. FAIRFAX STREET
ALEXANDRIA, VA

DETAILS
NOVEC 1230 - FIRE SUPPRESSION

PROJECT NO.:	21W0118
CHECKED BY:	RSM
DRAWN BY:	MM
DATE:	08–1–2022
SCALE:	NTS
DRAWING NO.:	FP-3.0
SHEET	10 OF 10 TOTAL
FILE NAME:	