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# WORCESTER MEMORIAL AUDITORIUM



The City of  
**WORCESTER**

1 LINCOLN SQUARE  
WORCESTER, MA  
01605

issued for: 95% construction set  
date: sept. 21, 2022  
project no. : cow-5705A


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sm

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jb

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1 LINCOLN SQUARE  
WORCESTER, MA  
01605

keyplan:

issue / rev.:

date:

issued for:

by:

fire alarm specifications

date:  
august 9, 2022

project number:  
cow-5705A

scale:  
12" = 1'-0"

drawing number:

FAN-200



CONTINUED FROM SHEET FAN-002

PART 3 - EXECUTION  
EXECUTION

1. INSTALLATION
- ALL WORK, MATERIALS AND MANNER OF INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE LATEST REQUIREMENTS OF THE NATIONAL ELECTRIC CODE.

•

ALL CONDUIT AND WIRING SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED:

1. WHERE CEILING MOUNTED DEVICES ARE INDICATED AND LOCATED ON AN ACCESSIBLE CEILING, CONDUIT AND WIRING SHALL BE RECESSED MOUNTED.

2. FOR NON ACCESSIBLE CEILINGS (HARD CEILINGS), CONDUIT AND WIRING SHALL BE SURFACE MOUNTED.

3. FOR WALL MOUNTED DEVICES INSTALLED ON BLOCK WALLS, CONDUIT AND WIRE SHALL BE SURFACE MOUNTED.

4. FOR WALL MOUNTED DEVICES INSTALLED ON SHEETROCK WALLS, CONDUIT AND WIRE SHALL BE RECESSED MOUNTED.

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EXPPOSED WIRING SHALL BE INSTALLED USING EMT.

2. RACEWAYS

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RACEWAYS, ENCLOSURES AND BOXES SHALL BE MECHANICALLY JOINED TO FORM A CONTINUOUS ELECTRICAL PATH.

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THE CONTRACTOR SHALL PROVIDE APPROVED TYPE PULL BOXES AS REQUIRED.

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MINIMUM SIZE CONDUIT SHALL BE 3/4" UNLESS OTHERWISE NOTED.

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FURNISH NYLON PULL STRINGS IN ALL EMPTY CONDUIT RUNS.

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FURNISH LOCKNUTS AND BUSHINGS FOR ALL CONDUIT TERMINATIONS IN ALL OUTLET BOXES, PANELS, PULL BOXES, CONDUIT STUBS, ETC.

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ALL CONDUIT SHALL BE INSTALLED IN PARALLEL AND PERPENDICULAR TO THE BUILDING LINES, SUPPORTED USING CADMIUM PLATED CONDUIT STRAPS AND HANGERS.

3. WIRING

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PROVIDE WIRING TO ALL OUTLETS, EQUIPMENT, APPARATUS AND OTHER SPECIALTIES UNDER THIS DIVISION THAT WHICH FURNISHED OR PROVIDED UNDER OTHER DIVISIONS OR BY THE OWNER.

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CONDUCTOR WITHIN JUNCTION BOXES, TROUGHS AND OTHER EQUIPMENT WHERE CONCENTRATIONS OF CONDUCTORS ARE ENCLOSED, SHALL BE NEATLY ARRANGED AND TIED WITH CABLE TIES.

•

WIRING IN OUTLET BOXES, JUNCTION BOXES, OR EQUIPMENT SHALL HAVE A MINIMUM OF EIGHT (8") INCHES LENGTH LEADS FOR CONNECTING WIRING DEVICES TO MAKE UP CIRCUIT SPLICES.

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INSTALL COPPER GREEN INSULATED GROUNDING CONDUCTOR IN ALL CONDUITS AND RACEWAYS.

4. SPLICING

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SPLICING SHALL BE DONE WITH INSULATED OR NON-INSULATED CONNECTORS OF APPROPRIATE TYPES AND CURRENT-CARRYING CAPACITY. NON-INSULATED CONNECTORS SHALL BE WRAPPED WITH INSULATING TAPE TO THE THICKNESS OF THE INSULATION OF THE CONDUCTORS BEING SPLICED. ELECTRICAL TAPE SHALL BE 3M OR SUPER 88 SCOTCH VINYL FLAME-RETARDANT , COLD AND WEATHER RESISTANT.

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SPLICES FOR CONDUCTORS, SIZES #10 AWG OR SMALLER SHALL BE MADE WITH U.L. LISTED SPRING-TYPE CONNECTORS OR APPROPRIATE CURRENT CARRYING CAPACITY.

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SPLICES, TAPS AND TERMINALS FOR CONDUCTORS #8 AWG OR LARGER SHALL BE MADE WITH U.L. LISTED BOLTED PRESSURE CONNECTORS OF BRONZE OR COPPER CONSTRUCTION, OF APPROPRIATE CURRENT CARRYING CAPACITY. EQUAL TO OIZ GEDENY, BURNDY OR BLACKBURN.

5. CONDUCTOR IDENTIFICATION

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CONDUCTORS SHALL HAVE A COLOR-CODED INSULATION.

6. IDENTIFICATION

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FURNISH AND INSTALL NAMEPLATES FOR ALL FIRE ALARM CONTROL PANELS AND DEVICES, IDENTIFYING ITEMS BY NAME, FUNCTION AND/OR CONTROL, AND DEVICE ADDRESS.

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USE PLASTIC-COATED WIRE MARKERS OF THE SELF-ADHESIVE, WRAPAROUND TYPE WITH PERMANENT FACTORY-PRINTED NUMBER, LETTERS AND SYMBOLS.

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WIRE MARKERS SHALL BE SECURELY ATTACHED AT BOTH ENDS.

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ALL CONDUCTORS SHALL BE PERMANENTLY TAGGED AT TIME OF INSTALLATION. LABELS SHALL BE EQUAL TO TAB, PANDUIT OR IDEAL.

7. GROUNDING

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ALL WORK SHALL BE GROUNDED AND BONDED IN FULL CONFORMANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRICAL CODE AND LOCAL REQUIREMENTS.
- PART 4 - SUBMITTALS
1. FIRE ALARM CONTRACTOR SHALL PROVIDE PRODUCT SUBMITTALS FORE REVIEW AND APPROVAL PRIOR TO SYSTEM INSTALLATION. PRODUCT SUBMITTALS SHALL INCLUDE MANUFACTURERS, MODEL NUMBERS AND LISTING INFORMATION FOR EQUIPMENT DEVICES AND MATERIALS.

2. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND CALCULATIONS FOR REVIEW AND APPROVAL IN ACCORDNACE WITH THE CODES LISTED IN SCOPE OF WORK PRIOR TO SYSTEM INSTALLATION. THE SHOP DRAWINGS AND CALCULATIONS SHALL, AT A MINIMUM, INCLUDE:

1. FLOOR PLAN WHICH INCLUDES THE FOLLOWING:

1. INDICATES THE USE OF ALL ROOMS.

2. LOCATIONS OF ALARM-INITIATING AND NOTIFICATION APPLIANCES.

3. ALARM CONTROL ND TROUBLE SIGNALING EQUIPMENT.

4. POWER CONNECTION.

5. CONDUCTOR TYPES AND SIZES.

6. DETAILS OF CEILING HEIGHT AND CONSTRUCTION.

2. THE INTERFACE OF SAFETY FIRE CONTROL FUNCTIONS, SUCH AS HVAC SHUTDOWN AND/OR CLOSING OF DAMPERS.

3. A DETAILED ONE-LINE DIAGRAM OF THE FIRE ALARM SYSTEM COMPONENTS AND WIRING.

4. BATTERY CALCULATIONS.

5. VOLTAGE DROP CALCULATIONS.

6. INPUT/OUTPUT MATRIX.
3. CONTRACTOR SHALL PROVIDE CONTRACT CLOSEOUT DOCUMENTS FOR APPROVAL. THE CONTRACT CLOSEOUT DOCUMENTS SHALL INCLUDE, BUT ARE NOT LIMITED TO:

A. SYSTEM RECORD OF COMPLETION IN ACCORDANCE WITH NFPA 72.

B. AN OWNER'S MANUAL AND MANUFACTURER'S PUBLISHED INSTRUCTIONS IN ACCORDANCE WITH NFPA 72.

C. RECORD (AS-BUILT) DRAWINGS IN ACCORDANCE WITH NFPA 72.

4. CONTRACTOR SHALL PROVIDE ADDITIONAL INFORMATION AND/OR CALCULATIONS AS REQUESTED DURING THE SUBMITTAL REVIEW AND APPROVAL PROCESS.

PART 5 - FIELD QUALITY CONTROL

1. FIELD TESTS MUST BE WITNESSED BY ENGINEER, CONTRACTOR AND AUTHORITIES HAVING JURISDICTION
2. ADMINISTRANT FOR TESTS AND INSPECTIONS:

A. ADMINISTER AND PERFORM TESTS AND INSPECTIONS
3. TESTS AND INSPECTIONS:

A. VISUAL INSPECTION: CONDUCT VISUAL INSPECTION PRIOR TO TESTING.

B. INSPECTION MUST BE BASED ON COMPLETED RECORD DRAWINGS AND SYSTEM DOCUMENTATION THAT IS REQUIRED BY "COMPLETION DOCUMENTS, PREPARATION" TABLE IN "DOCUMENTATION" SECTION OF "FUNDAMENTALS" CHAPTER IN NFPA 72.

C. COMPLY WITH "VISUAL INSPECTION FREQUENCIES" TABLE IN "INSPECTION" SECTION OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72; RETAIN "INITIAL/REACCEPTANCE" COLUMN AND LIST ONLY INSTALLED COMPONENTS.

D. SYSTEM TESTING: COMPLY WITH "TEST METHODS" TABLE IN "TESTING" SECTION OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.

E. TEST AUDIBLE APPLIANCES FOR PUBLIC OPERATING MODE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. PERFORM TEST USING PORTABLE SOUND-LEVEL METER COMPLYING WITH TYPE 2 REQUIREMENTS IN ASA S1.4 PART 1/IEC 61672-1.

F. FACTORY-AUTHORIZED SERVICE REPRESENTATIVE MUST PREPARE "FIRE ALARM SYSTEM RECORD OF COMPLETION" IN "DOCUMENTATION" SECTION OF "FUNDAMENTALS" CHAPTER IN NFPA 72 AND "INSPECTION AND TESTING FORM" IN "RECORDS" SECTION OF "INSPECTION, TESTING AND MAINTENANCE" CHAPTER IN NFPA 72.

4. REACCEPTANCE TESTING: PERFORM REACCEPTANCE TESTING TO VERIFY PROPER OPERATION OF ADDED OR REPLACED DEVICES AND APPLIANCES.

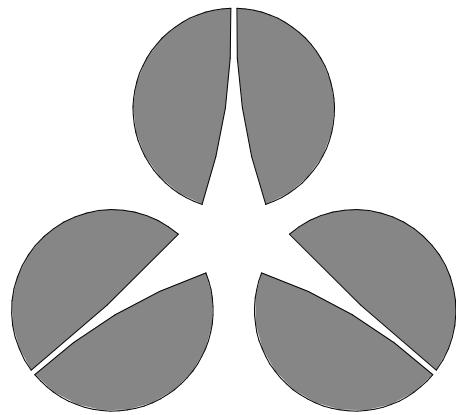
5. FIRE-ALARM SYSTEM WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS. PREPARE TEST AND INSPECTION REPORTS.

6. ANNUAL TEST AND INSPECTION: ONE YEAR AFTER DATE OF SUBSTANTIAL COMPLETION, TEST FIRE-ALARM SYSTEM COMPLYING WITH VISUAL AND TESTING INSPECTION REQUIREMENTS IN NFPA 72. USE FORMS DEVELOPED FOR INITIAL TESTS AND INSPECTIONS.

PART 6 - DEMONSTRATION

1. TRAIN OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN FIRE-ALARM SYSTEM. ALLOW OWNER TO RECORD TRAINING.

END OF FIRE ALARM SPECIFICATIONS



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keyplan:

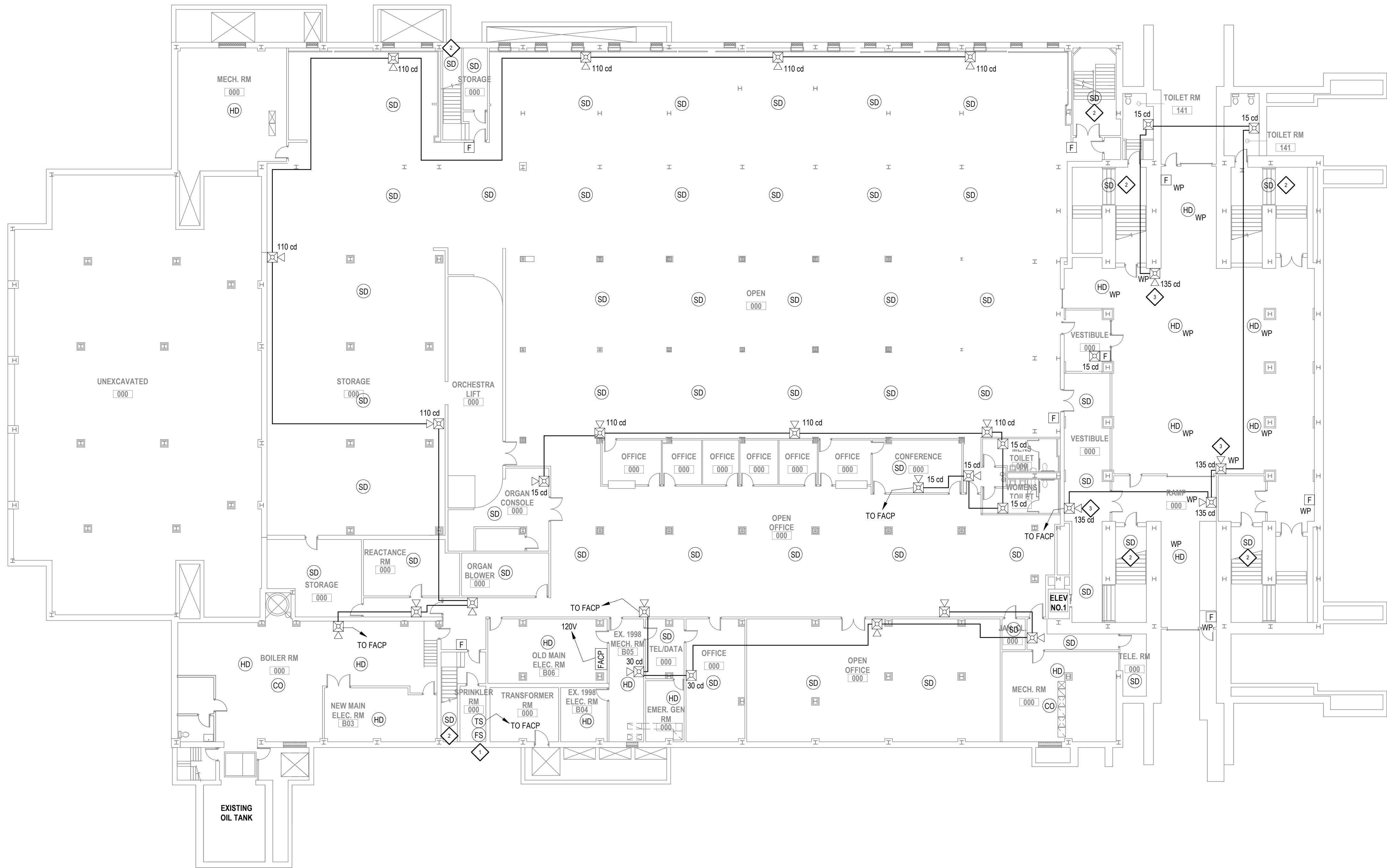
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fire alarm specifications  
continued

date: august 9, 2022
project number: cow-5705A
scale: 12" = 1'-0"
drawing number:

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FAN-003



1 basement - fire alarm plan  
1/16" = 1'-0"

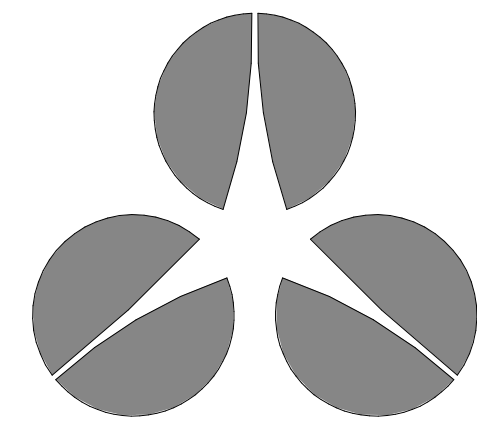
fire alarm general notes

1. LOCATE FA ANNUNCIATOR ON 1ST FLOOR PER FIRE MARSHALS DIRECTION.
2. PROVIDE WEATHERPROOF HORN & STROBE OUTSIDE AT ENTRANCE WHERE FA ANNUNCIATOR IS LOCATED.
3. ALL STROBES ARE RATED AT 75 CANDELA, UNLESS NOTED OTHERWISE.
4. PROVIDE WIRING AND CONDUIT FROM FACP TO ANNUNCIATOR.
5. PROVIDE PANEL PROGRAMMING AS REQUIRED.
6. COORDINATE REQUIREMENTS OF RADIO MASTER BOX, INCLUDING LOCATION, WITH THE FIRE MARSHAL PRIOR TO START OF WORK.
7. PROVIDE DUCT SMOKE DETECTORS WITH REMOTE INDICATORS FOR AC-1, AC-2, AC-3, AC-4, AND AC-5. COORDINATE EXACT LOCATION OF REMOTE INDICATORS WITH THE FIRE MARSHAL PRIOR TO INSTALLATION.

fire alarm keyed notes

- 1 TIE IN (2) WATER FLOW SWITCHES AND (3) TAMPER SWITCHES LOCATED IN THE SPRINKLER ROOM TO THE NEW FIRE ALARM CONTROL PANEL.
- 2 SMOKE DETECTOR LOCATED AT 1ST FLOOR LANDING.
- 3 135 CANDELA RATED STROBE.

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keyplan:

issue / rev. : date: issued for: by:

basement fire alarm plan

date:

august 9, 2022

project number:

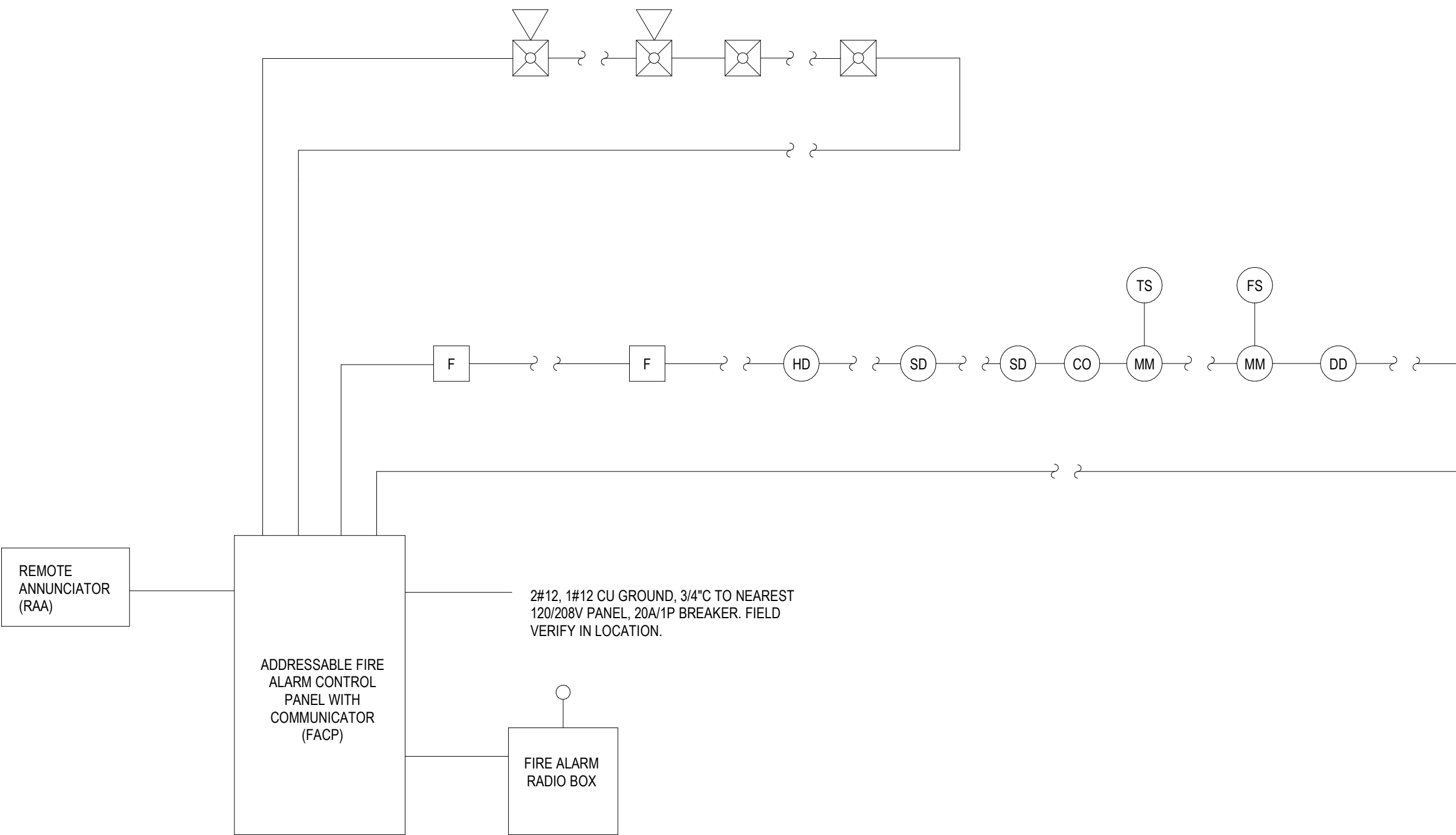
cow-5705A

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






1/16" = 1'-0"

drawing number:

FA-101

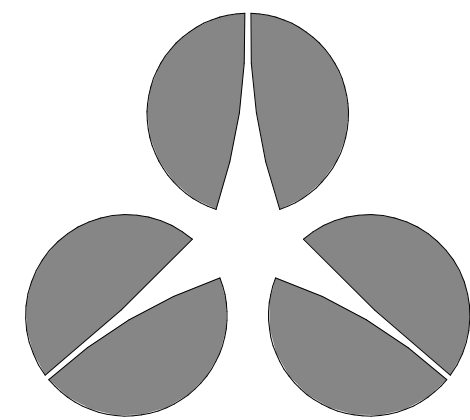


1 fire alarm riser diagram  
3/4" = 1'-0"

fire alarm device schedule			
SYMBOL	DESCRIPTION	MANUFACTURER	NOTES
	FIRE ALARM CONTROL PANEL - ADDRESSABLE WITH COMMUNICATOR	FIRE LITE #FL-ES200X	
	ANNUNCIATOR - 80 CHARACTER DISPLAY	FIRELITE #ANN-80	
	SMOKE DETECTOR, ADDRESSABLE	FIRELITE #SD355	
	HEAT DETECTOR, ADDRESSABLE	FIRELITE #HD355	
	MANUAL PULL STATION, DUAL ACTION, ADDRESSABLE	FIRELITE #BG-12LX	
 XXX	HORN/STROBE COMBINATION	FIRELITE #SR-P-75 CANDELA #SRH-P-135 CANDELA	
	STROBE LIGHT, WALL MOUNT	FIRELITE #P2R	
<b>NOTES:</b> 1. REFER TO FIRE ALARM LEGEND DRAWING FAN-001 FOR ANY DEVICES NOT INDICATED ON THIS SCHEDULE			

fire alarm riser notes

- FIRE ALARM PARTIAL RISER DIAGRAM IS DIAGRAMMATIC - THE FIRE ALARM CONTRACTOR SHALL REFER TO PROJECT DRAWINGS FOR QUANTITY AND LOCATION OF DEVICES.
- REFER TO SYMBOL LEGEND FOR FIRE ALARM DEVICE INFORMATION.
- SECONDARY POWER SHALL BE PROVIDED IN ACCORDANCE WITH NFPA 72 TO PROVIDE POWER FOR A MINIMUM OF 24 HOURS STAND-BY AND 5 MINUTES ALARM.
- ALL INSTALLATION WORK SHALL CONFORM WITH THE REQUIREMENTS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, NFPA 72, NATIONAL FIRE ALARM CODE AND THE 2018 INTERNATIONAL BUILDING CODE.
- ALL INITIATING DEVICES, CONTROL MODULES, MONITOR MODULES, NOTIFICATION APPLIANCES AND ALL OTHER EQUIPMENT SHALL BE INSTALLED ON STANDARD ELECTRICAL BACK BOXES THAT ARE SECURED TO THE BUILDING STRUCTURE.
- AUDIBLE AND/OR VISUAL NOTIFICATION APPLIANCES SHALL HAVE THE SAME STYLE BACK BOX AND BE INTERCHANGEABLE.
- FIRE ALARM LAYOUT SHOWN ON CONTRACT DOCUMENTS IS TO SHOW DESIGN INTENT ONLY.
- ALL INITIATING DEVICES AND NOTIFICATION APPLIANCES SHALL BE UL/FM LISTED FOR THEIR INTENDED USE AND SHALL BE COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL.
- FIRE ALARM SIGNALING SYSTEM NOTIFYING AUDIO STROBE COVERAGE IS PER NFPA-72 PUBLIC MODE, THE AMERICANS WITH DISABILITIES ACT(ADA) AND FIRE CODE FOR SPACING , CANDELA AND AUDIO ALARM AMPLITUDE.
- WHEN FIRE ALARM SYSTEM IS ACTIVATED, ALL AUDIO STROBES SHALL COOPERATE IN A SYNCHRONIZED MANNER. ALARM FOR BUILDING EVACUATION AS DESCRIBED PER MASSACHUSSETTS BUILDING AND FIRE CODES, AND NFPA-72. ALL AUDIO/STROBES SHALL BE ADA APPROVED AND SYNCHRONIZED.
- CLASS A WIRING IS REQUIRED FOR ALL DETECTION DEVICES AND NOTIFICATION APPLIANCES.
- SYSTEM SHALL BE INSTALLED AND PROGRAMMED SO THAT UPON ACTIVATIONOF AN ALARM, TROUBLE OR SUPERVISORY SIGNAL AT THE FIRE ALARM CONTROL PANEL, A CORRESPONDING SIGNAL SHALL BE REPORTED TO A LISTED CENTRAL STATION MONITORING SERVICE OR THE MUNICIPLE FIRE DEPARTMENT.
- REMOTE ANNUNCIATOR FUNCTIONS SHALL MATCH THOSE OF FIRE-ALARM CONTROL UNIT FOR ALARM, SUPERVISORY, AND TROUBLE INDICATIONS. MANUAL SWITCHING FUNCTIONS SHALL MATCH THOSE OF FIRE-ALARM CONTROL UNIT, INCLUDING ACKNOWLEDGING, SILENCING, RESETTING, AND TESTING. DISPLAY TYPE AND FUNCTIONAL PERFORMANCE: ALPHANUMERIC DISPLAY AND LED INDICATING LIGHTS SHALL MATCH THOSE OF FIRE-ALARM CONTROL UNIT. PROVIDE CONTROLS TO ACKNOWLEDGE, SILENCE, RESET, AND TEST FUNCTIONS FOR ALARM, SUPERVISORY, AND TROUBLE SIGNALS.



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fire alarm riser diagram

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