# FIRE ALARM UPGRADE:
# SALT LAKE COMMUNITY COLLEGE
# SOUTH CITY CAMPUS

1575 S State Street
Salt Lake City, UT 84115

STATE OF UTAH
DEPARTMENT OF ADMINISTRATIVE SERVICES
DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
4110 State Office Building / SLC, Utah  84114 / (801) 538-3018

## DFCM PROJECT NO. 08074670

PROTECTION CONSULTANTS, INC.
1199 SOUTH MAIN, SUITE #101 - CENTERVILLE, UT 84014 - 801.295.6070

**DRAWING SCHEDULE**

| SHEET | DRAWING TITLE |
|---|---|
| FA-1 | FIRE ALARM PLAN – FIRST FLOOR AREA A |
| FA-2 | FIRE ALARM PLAN – FIRST FLOOR AREA B |
| FA-3 | FIRE ALARM PLAN – FIRST FLOOR AREA C |
| FA-4 | FIRE ALARM PLAN – FIRST FLOOR AREA D |
| FA-5 | FIRE ALARM PLAN – FIRST FLOOR AREA E |
| FA-6 | FIRE ALARM PLAN – FIRST FLOOR AREA F |
| FA-7 | FIRE ALARM PLAN – SECOND FLOOR AREA A |
| FA-8 | FIRE ALARM PLAN – SECOND FLOOR AREA B |
| FA-9 | FIRE ALARM PLAN – SECOND FLOOR AREA C |
| FA-10 | FIRE ALARM PLAN – SECOND FLOOR AREA E |
| FA-11 | FIRE ALARM PLAN – THIRD FLOOR AREA A |
| FA-12 | FIRE ALARM PLAN – THIRD FLOOR AREA B |
| FA-13 | FIRE ALARM PLAN – THIRD FLOOR AREA C |
| FA-14 | FIRE ALARM PLAN – BASEMENT AREA A |
| FA-15 | FIRE ALARM PLAN – BASEMENT AREA B |
| FA-16 | FIRE ALARM PLAN – BASEMENT AREA C |
| FA-17 | FIRE ALARM PLAN – BASEMENT AREA D |
| FA-18 | FIRE ALARM PLAN – BASEMENT AREA E |
| FA-19 | FIRE ALARM NOTES, DETAILS & SCHEDULES |
| | |

**VICINITY MAP**

**FIRE ALARM DESIGN AND CODE CRITERIA**

A. Applicable Codes:

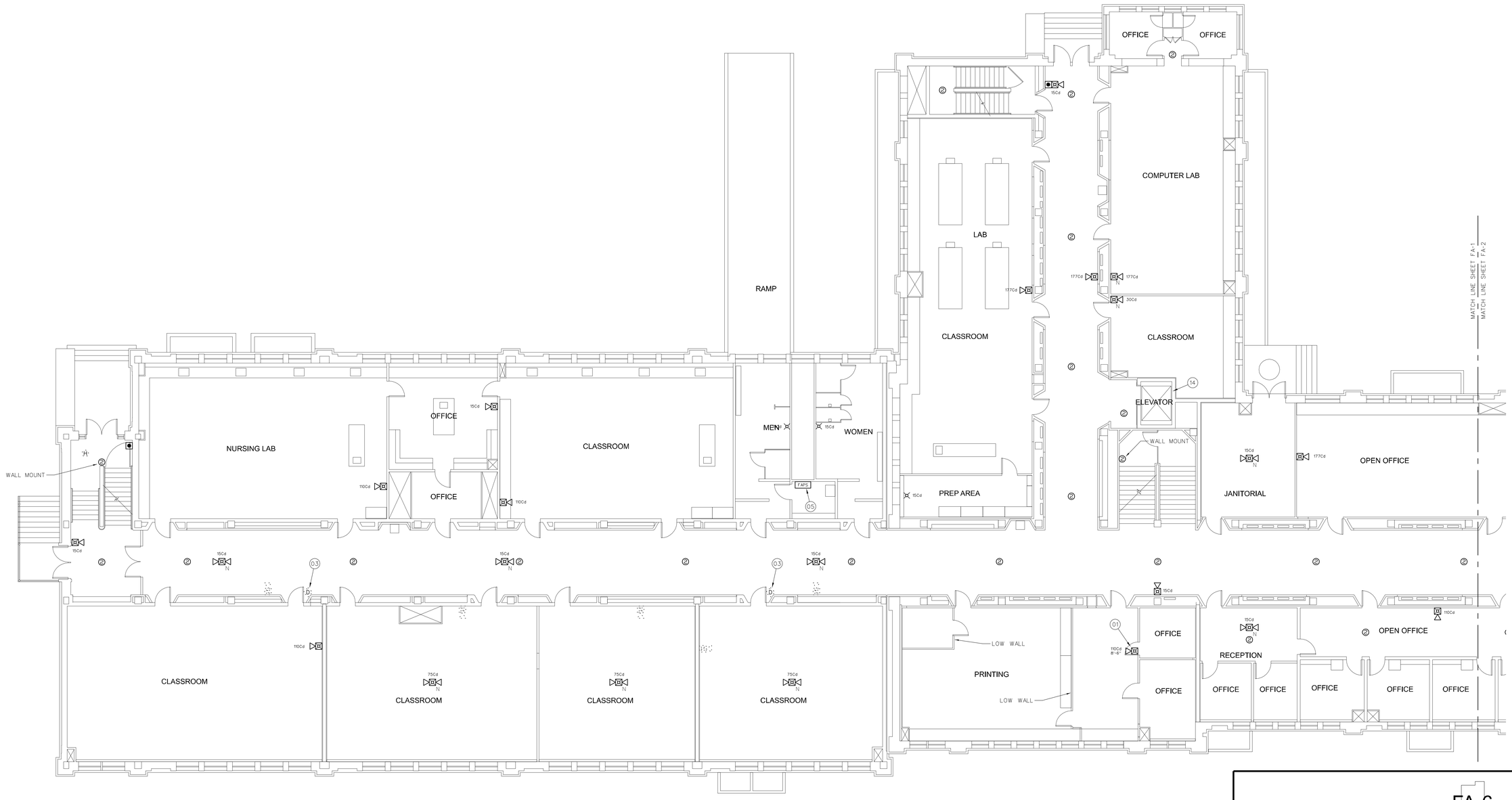
| | Code | Year |
|---|---|---|
| 1. | International Building Code | 2006 |
| 2. | International Fire Code | 2006 |
| 3. | ADA Accessibility Guidelines | 1994 |
| 4. | National Electrical Code (NFPA 70) | 2008 |
| 5. | International Mechanical Code | 2006 |
| 6. | Utah State Fire Marshall Rule R710-4 | N/A |
| 7. | National Fire Alarm Code (NFPA 72) | 2007 |

B. Building Parameters:

1. Occupancy Group: MIXED (GROUPS A,M,B)
2. Building Area: APPROX. 350,000 Sq.Ft.
3. Stories: THREE & PARTIAL BASEMENT
4. Type of Construction: EXISTING
5. Fire Sprinklers: PARTIAL
6. Occupancy Seperations: EXISTING

C. Fire Alarm Design Requirements:

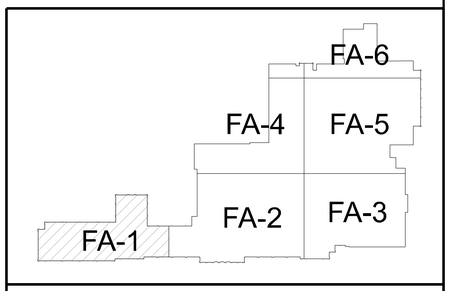
1. Fire Alarm System Required: Yes (IBC 907.2.1)
2. Occupant Notification: Yes (IBC 907.2.1)
3. Visible Alarms: Yes (IBC 907.9.1)
4. Manual Pull Stations: Yes (IBC 907.3)
5. Smoke/Heat Detectors: Yes (USFM R710-4)
6. Duct Smoke Detectors: Yes (IBC 907.11)




FIRST FLOOR FIRE ALARM PLAN (AREA A)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - FIRST FLOOR

LICENSED PROFESSIONAL ENGINEER
No. 191330
GREGORY T. JONES
STATE OF UTAH

DATE: 01/14/09

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Fire Protection Engineers
-Since 1983-
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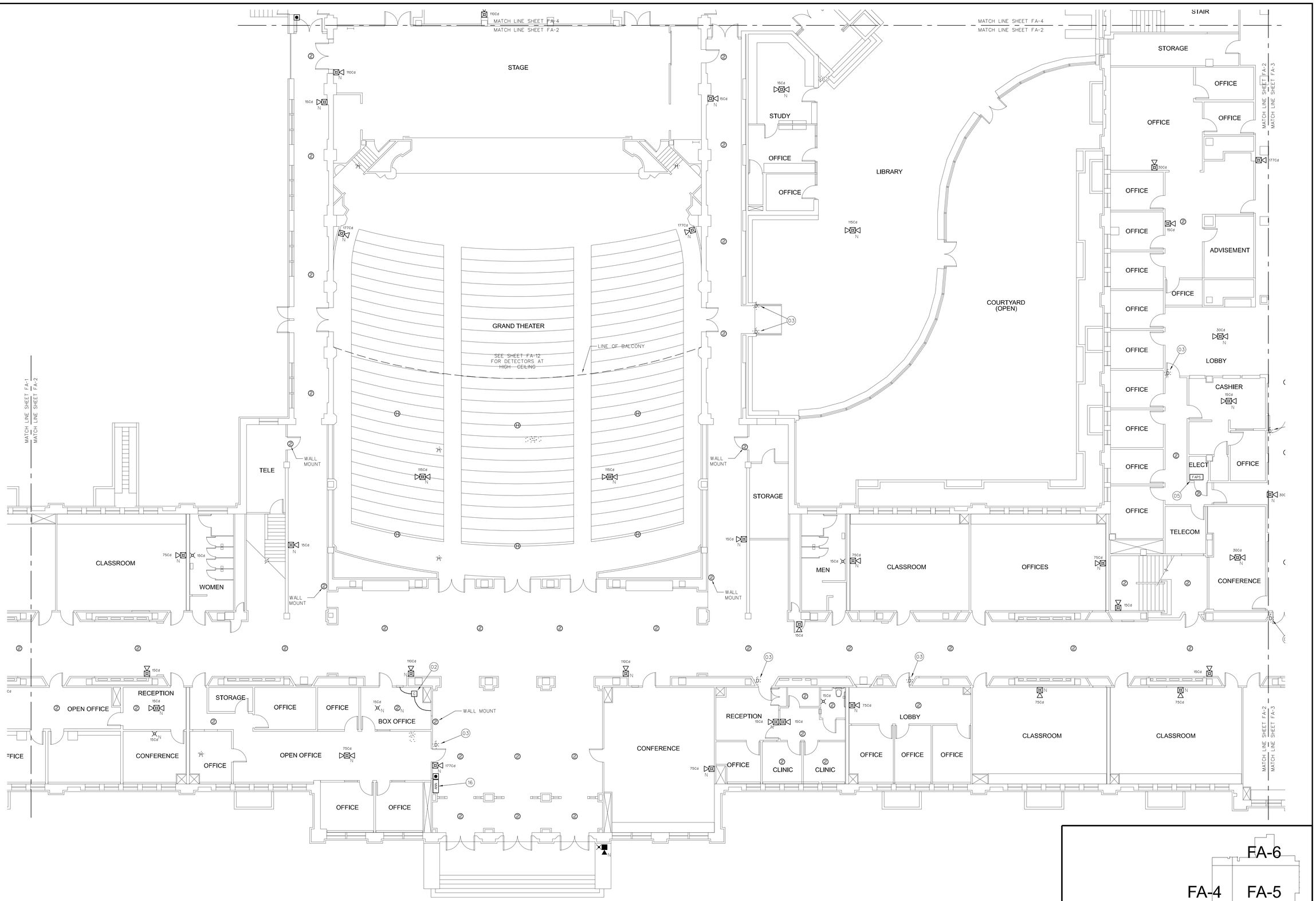
SALT LAKE CITY, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

FIRE ALARM PLAN
FIRST FLOOR
AREA A
FA-1




FIRST FLOOR FIRE ALARM PLAN (AREA B)

1/8" = 1'-0"

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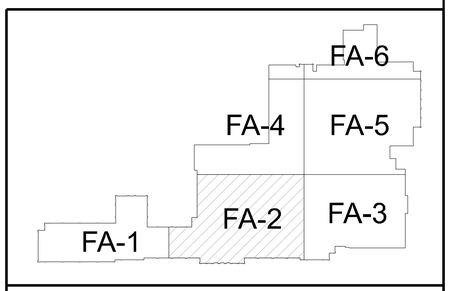


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LICENSED PROFESSIONAL ENGINEER No. 101330 GREGORY T. JONES STATE OF UTAH

DATE: 01/14/09

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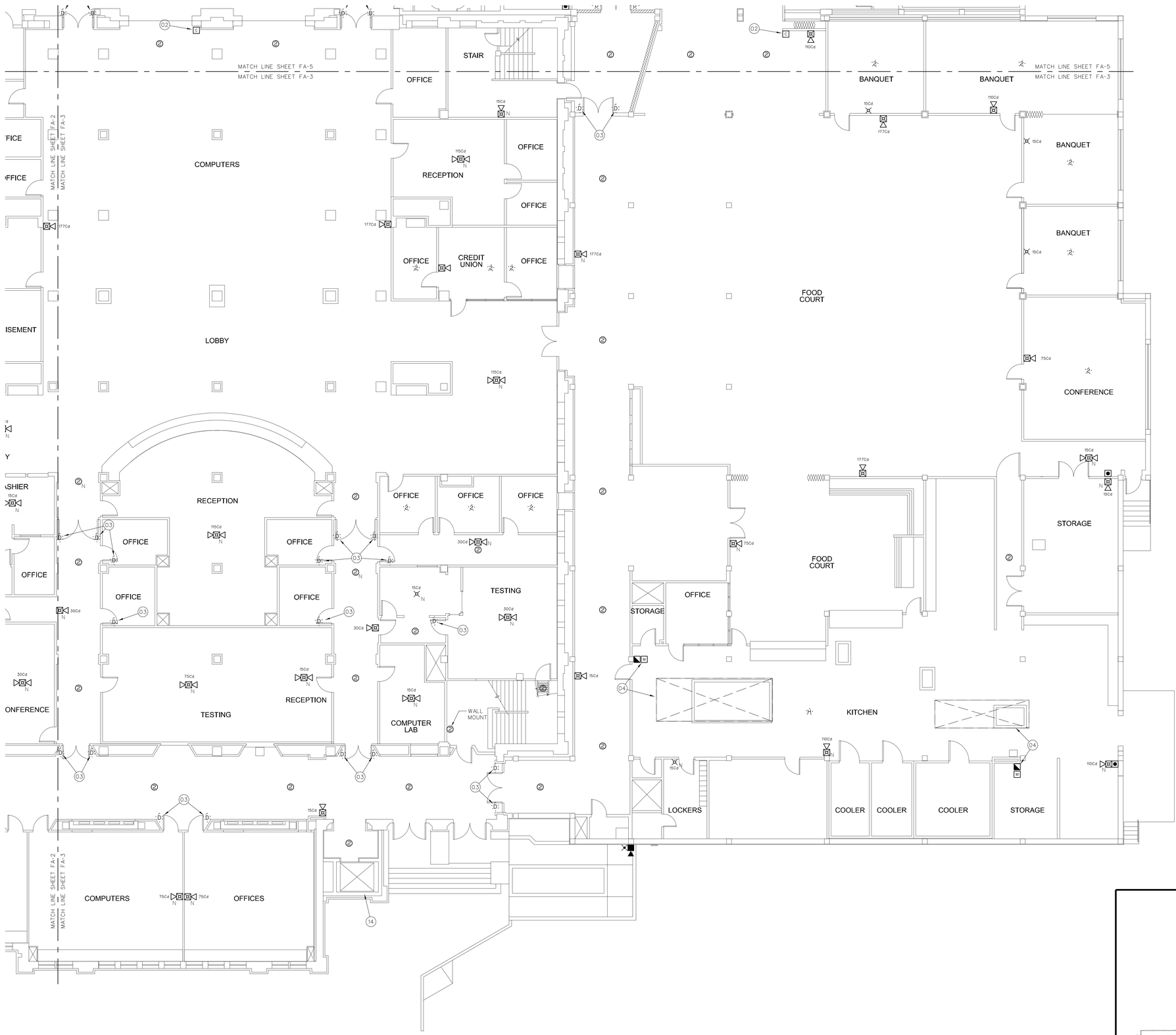
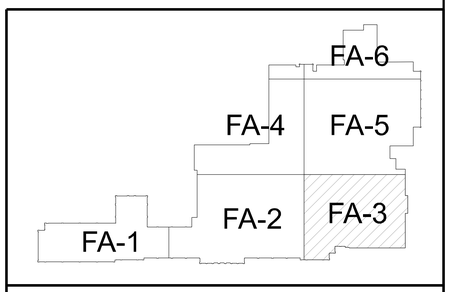
FIRE ALARM PLAN
FIRST FLOOR
AREA B
FA-2




FIRST FLOOR FIRE ALARM PLAN AREA C

1/8" = 1'-0"

0 8' 16' 32'

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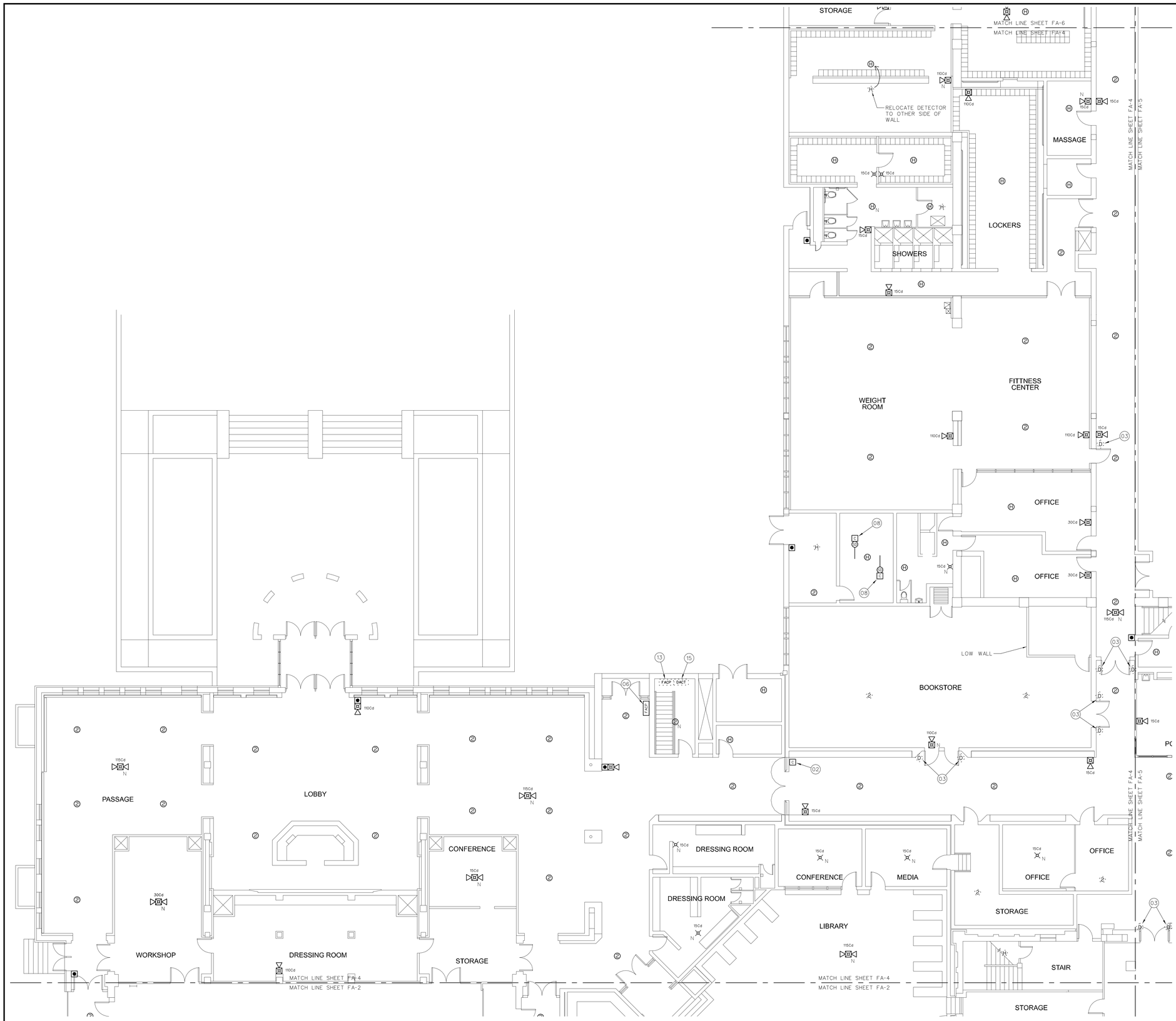
FIRE ALARM PLAN
FIRST FLOOR
AREA C

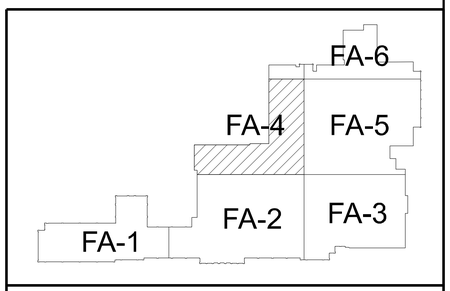
FA-3




FIRST FLOOR FIRE ALARM PLAN (AREA D)

1/8" = 1'-0"

0 8' 16' 32'

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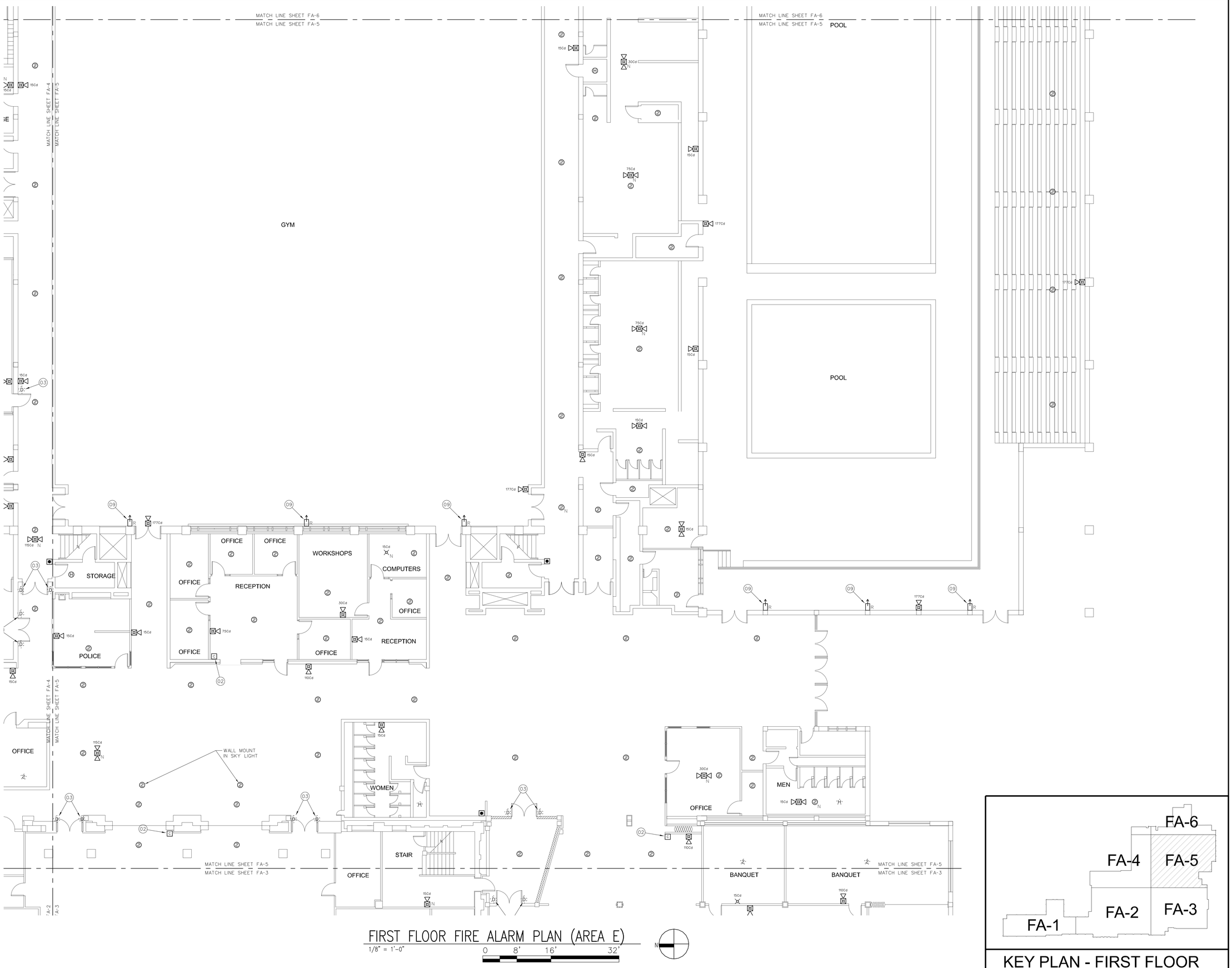
FIRE ALARM PLAN
FIRST FLOOR
AREA D
FA-4




FIRST FLOOR FIRE ALARM PLAN (AREA E)

1/8" = 1'-0"

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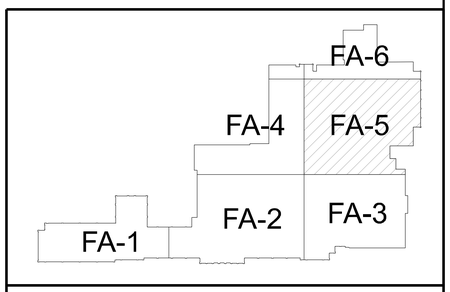


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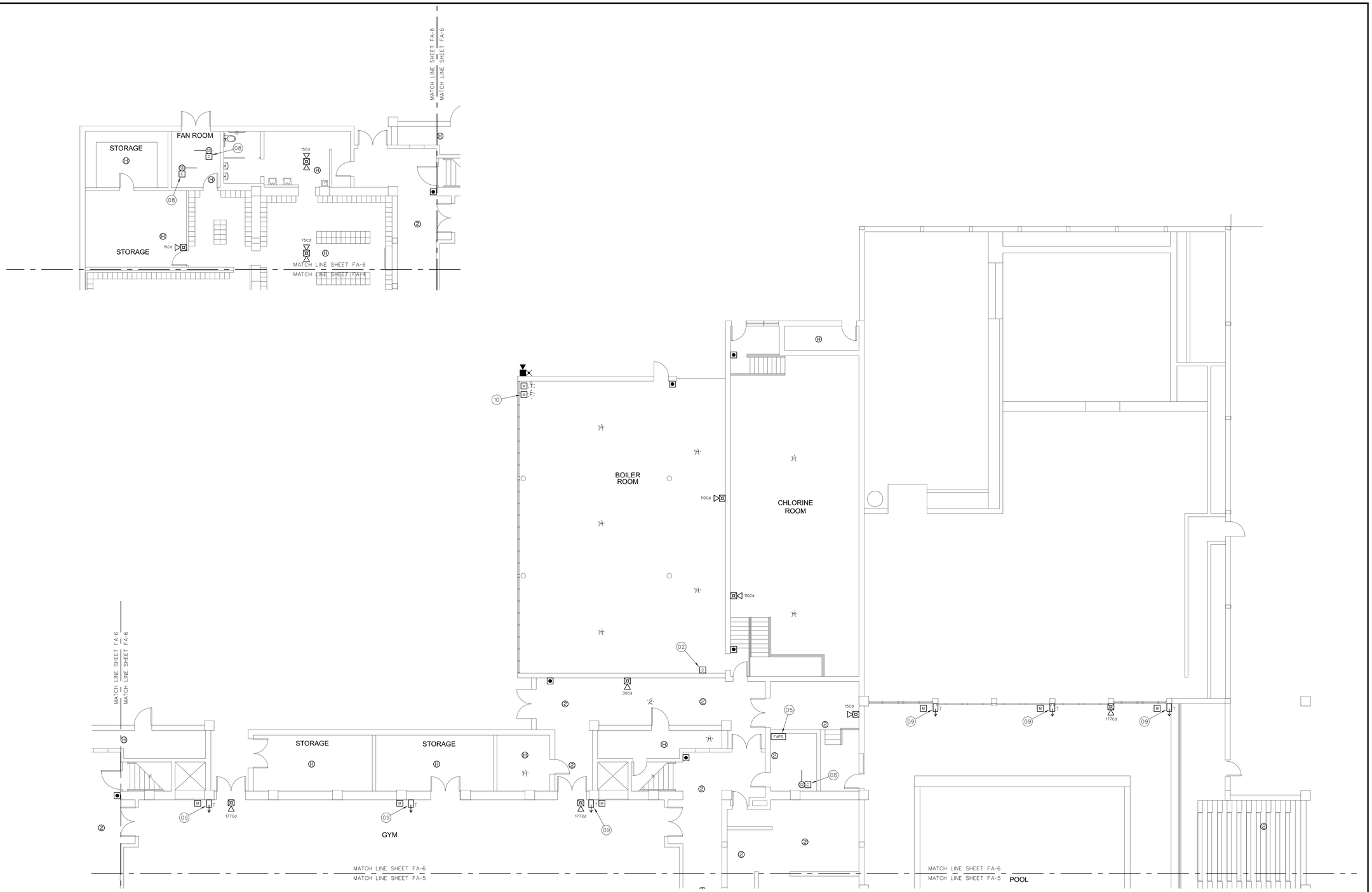
FIRE ALARM PLAN
FIRST FLOOR
AREA E

FA-5




FIRST FLOOR FIRE ALARM PLAN (AREA F)

1/8" = 1'-0"

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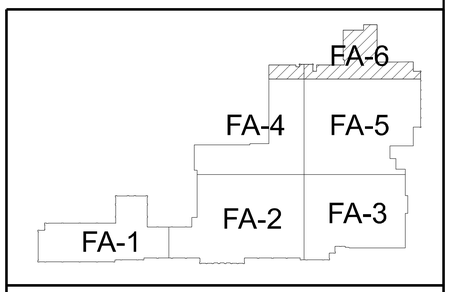


KEY PLAN - FIRST FLOOR

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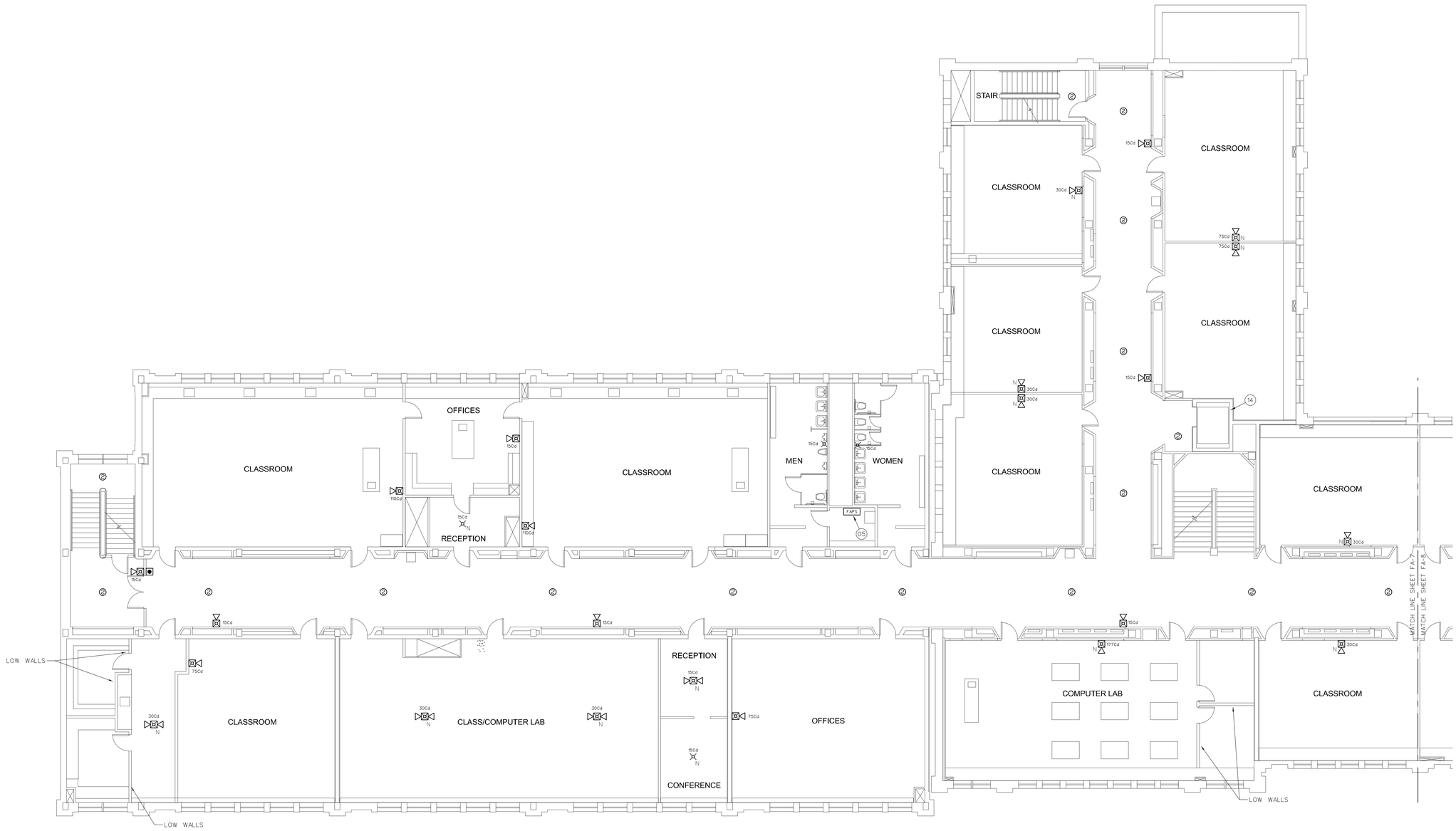
FIRE ALARM PLAN
FIRST FLOOR
AREA F

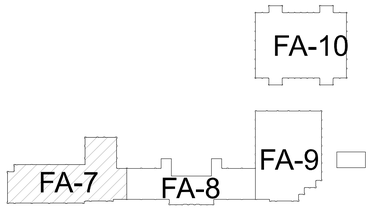
FA-6




SECOND FLOOR FIRE ALARM PLAN (AREA A)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - SECOND FLOOR

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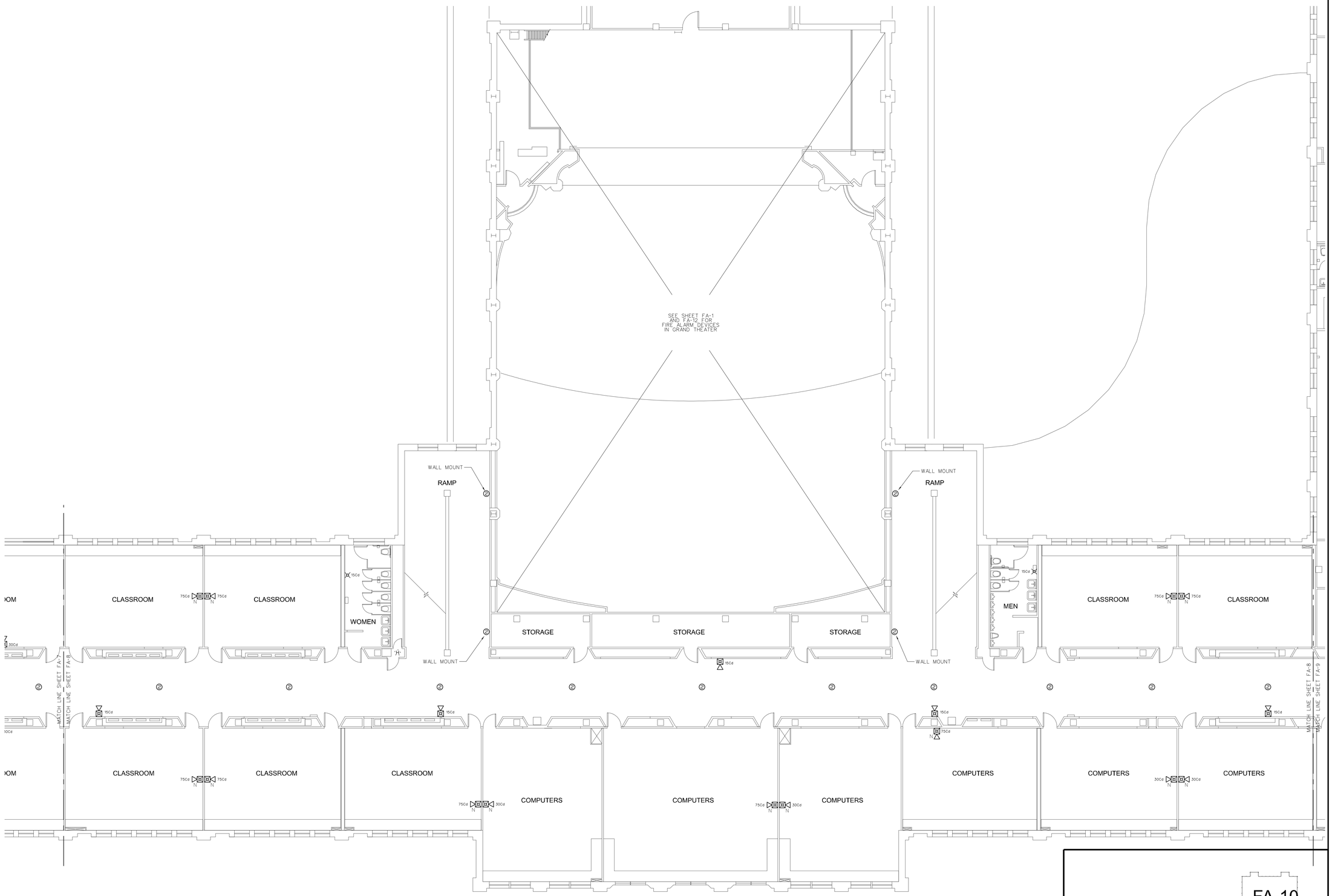
FIRE ALARM PLAN
SECOND FLOOR
AREA A

FA-7




SECOND FLOOR FIRE ALARM PLAN (AREA B)

1/8" = 1'-0"

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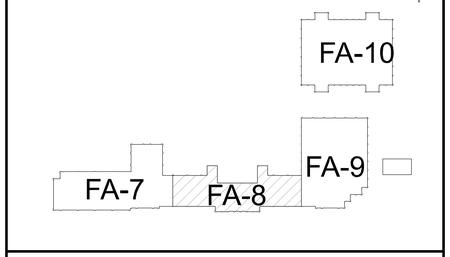


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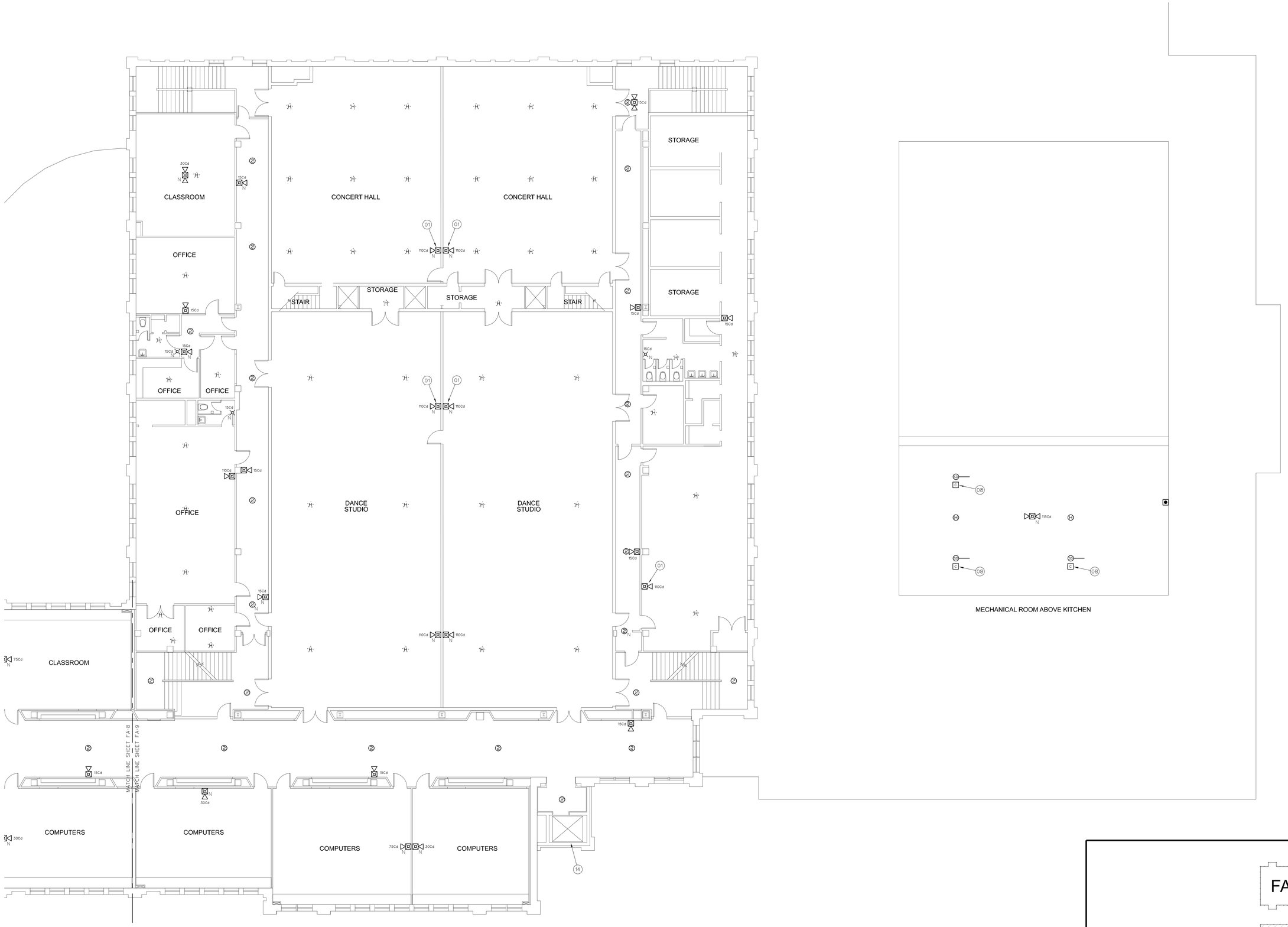
FIRE ALARM PLAN
SECOND FLOOR
AREA B

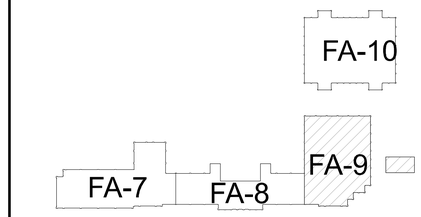
FA-8




SECOND FLOOR FIRE ALARM PLAN (AREA C)

1/8" = 1'-0"

0 8' 16' 32'

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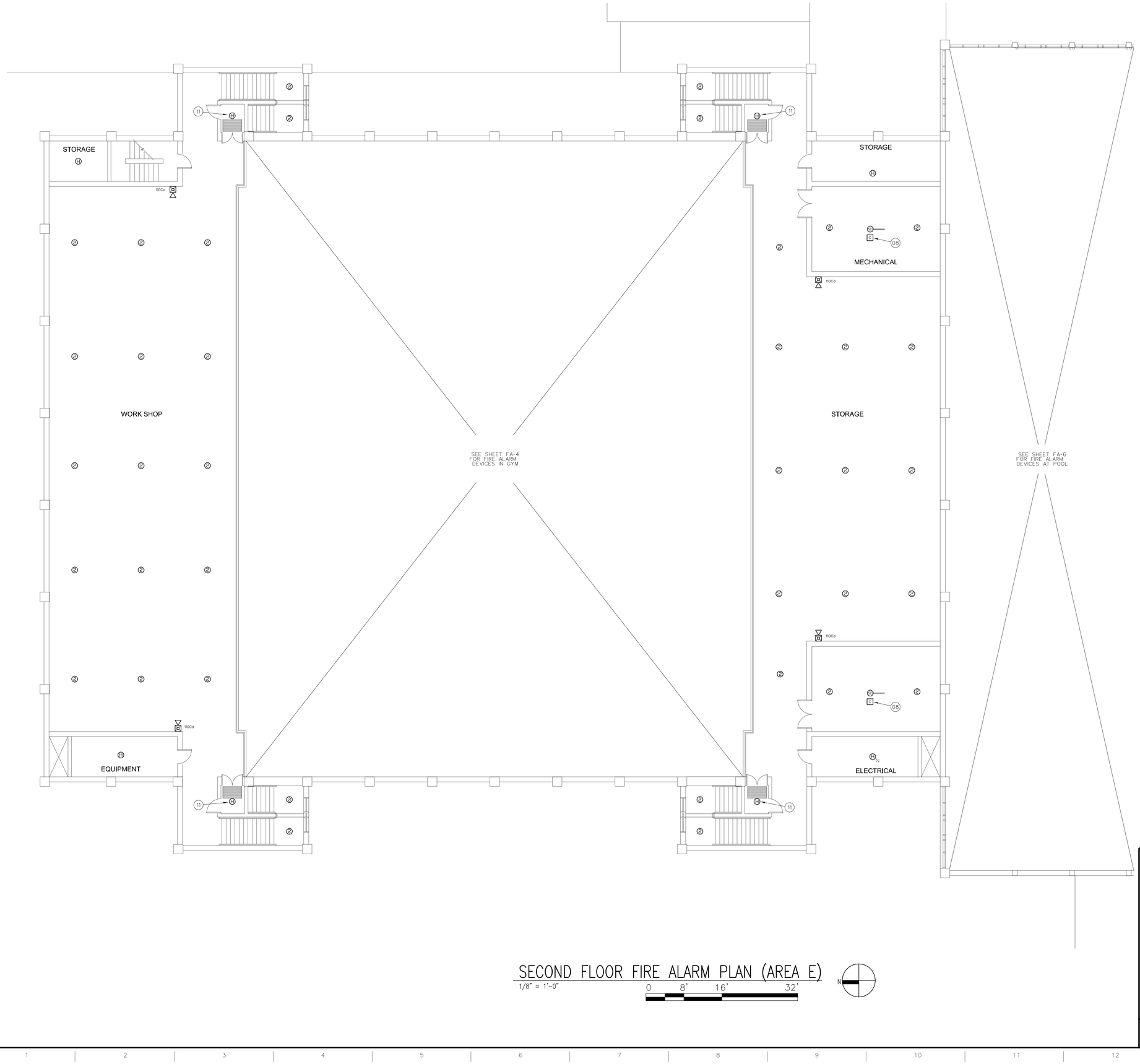
FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

FIRE ALARM PLAN
SECOND FLOOR
AREA C

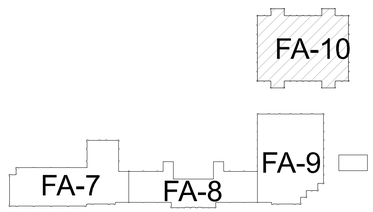
FA-9




SECOND FLOOR FIRE ALARM PLAN (AREA E)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - SECOND FLOOR

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DATE: 01/14/09

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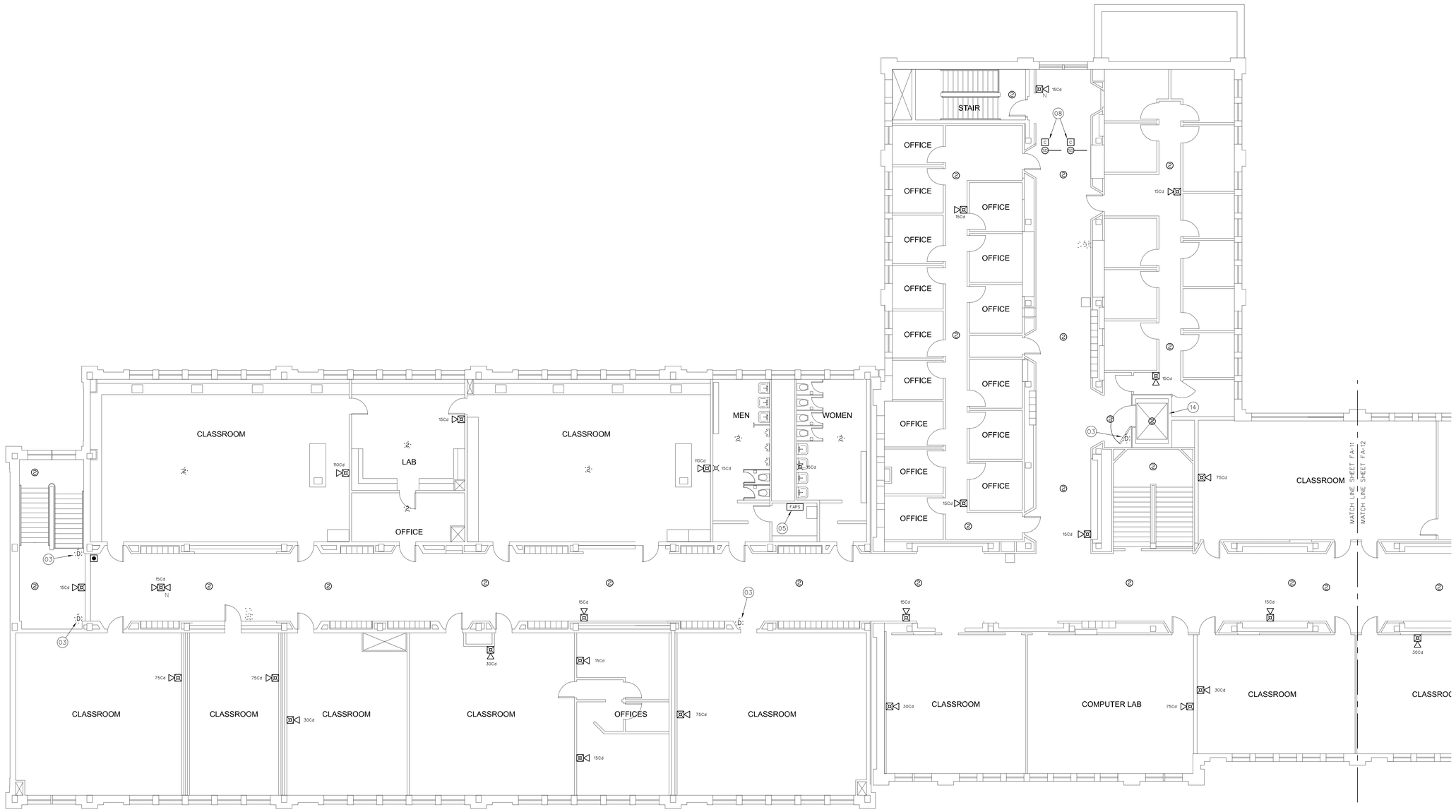
FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

FIRE ALARM PLAN
SECOND FLOOR
AREA E

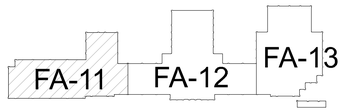
FA-10




THIRD FLOOR FIRE ALARM PLAN (AREA A)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - THIRD FLOOR

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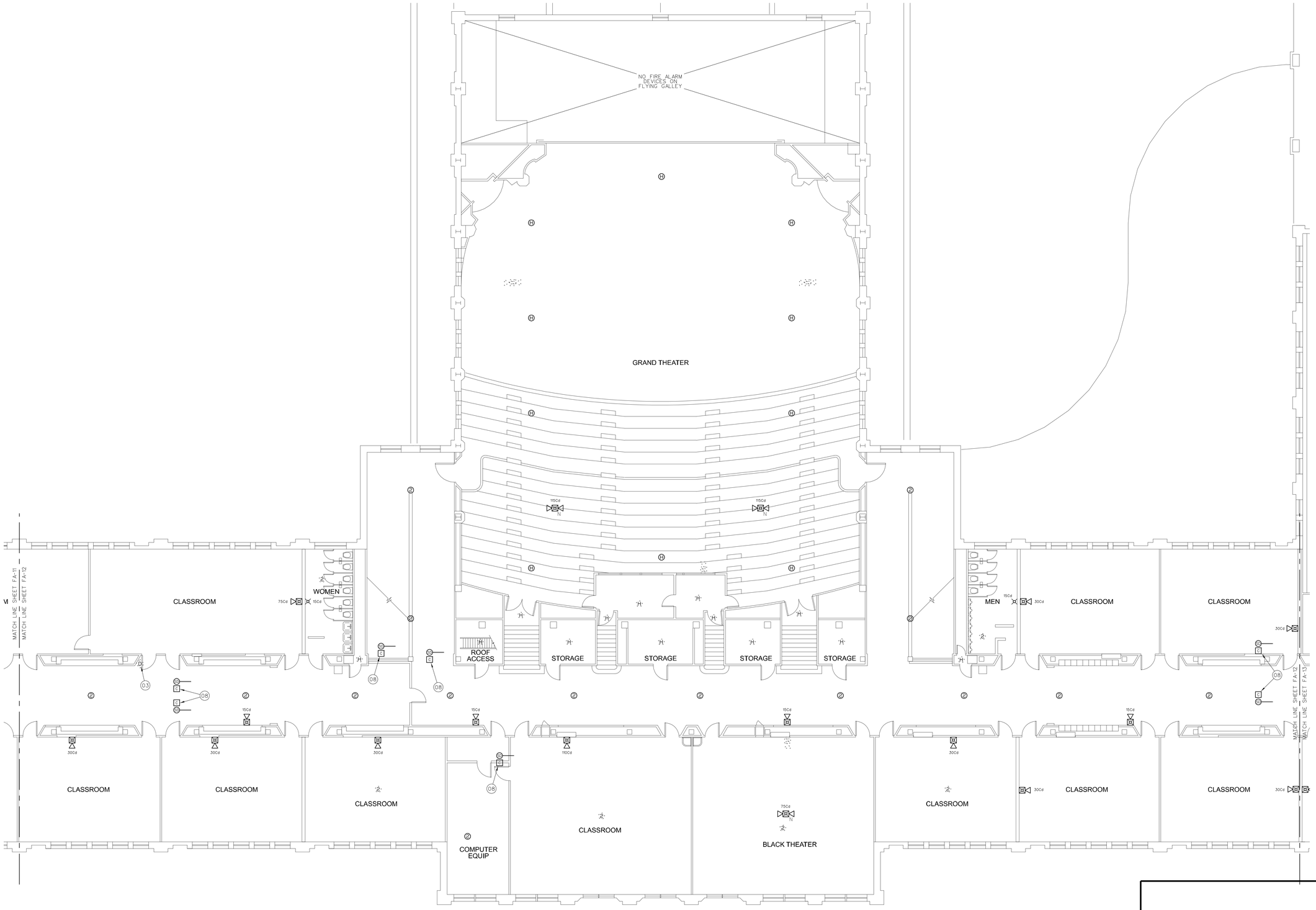
FIRE ALARM PLAN
THIRD FLOOR
AREA A

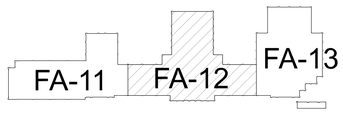
FA-11




THIRD FLOOR FIRE ALARM PLAN (AREA B)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - THIRD FLOOR

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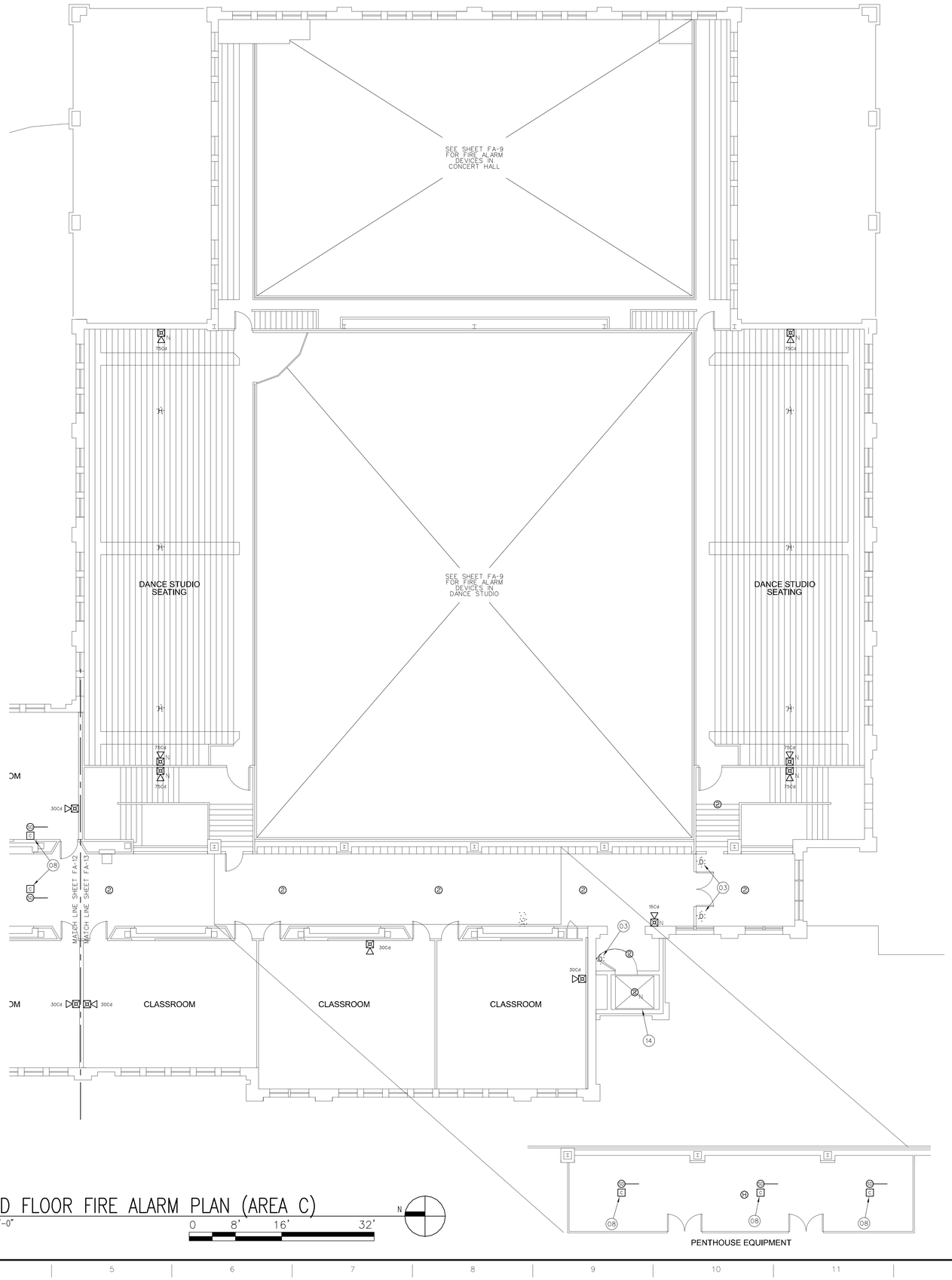
FIRE ALARM PLAN
THIRD FLOOR
AREA B

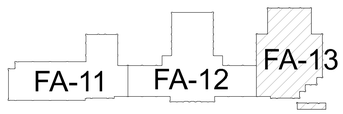
FA-12




THIRD FLOOR FIRE ALARM PLAN (AREA C)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - THIRD FLOOR

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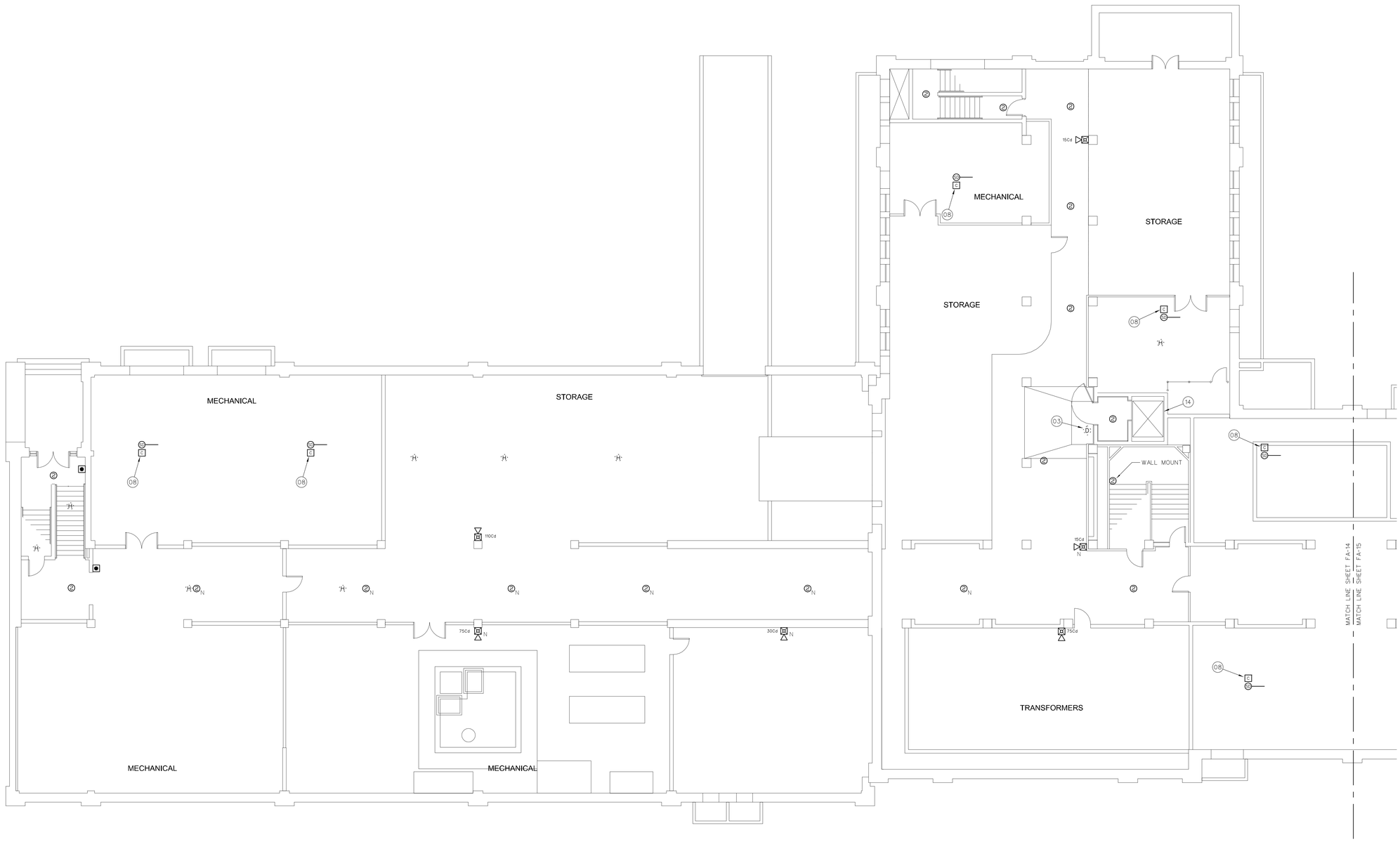
FIRE ALARM PLAN
THIRD FLOOR
AREA C

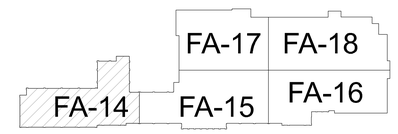
FA-13




BASEMENT FIRE ALARM PLAN (AREA A)

1/8" = 1'-0"

0 8' 16' 32'




KEY PLAN - BASEMENT

LICENSED PROFESSIONAL ENGINEER
No. 191330
GREGORY T. JONES
STATE OF UTAH

DATE: 01/14/09

PROTECTION CONSULTANTS, INC.
1199 South Main Suite 101
Centerville, UT 84014
PH:(202)363-2280-0000 • FAX(202)-677-0000
EC@MAIN@pcui.com
Fire Protection Engineers
-Since 1983-

JOB NO. 104306
DWG ISSUE: BID SET

DRAWN BY: BBH
CHECKED BY: GTJ

REVISIONS:

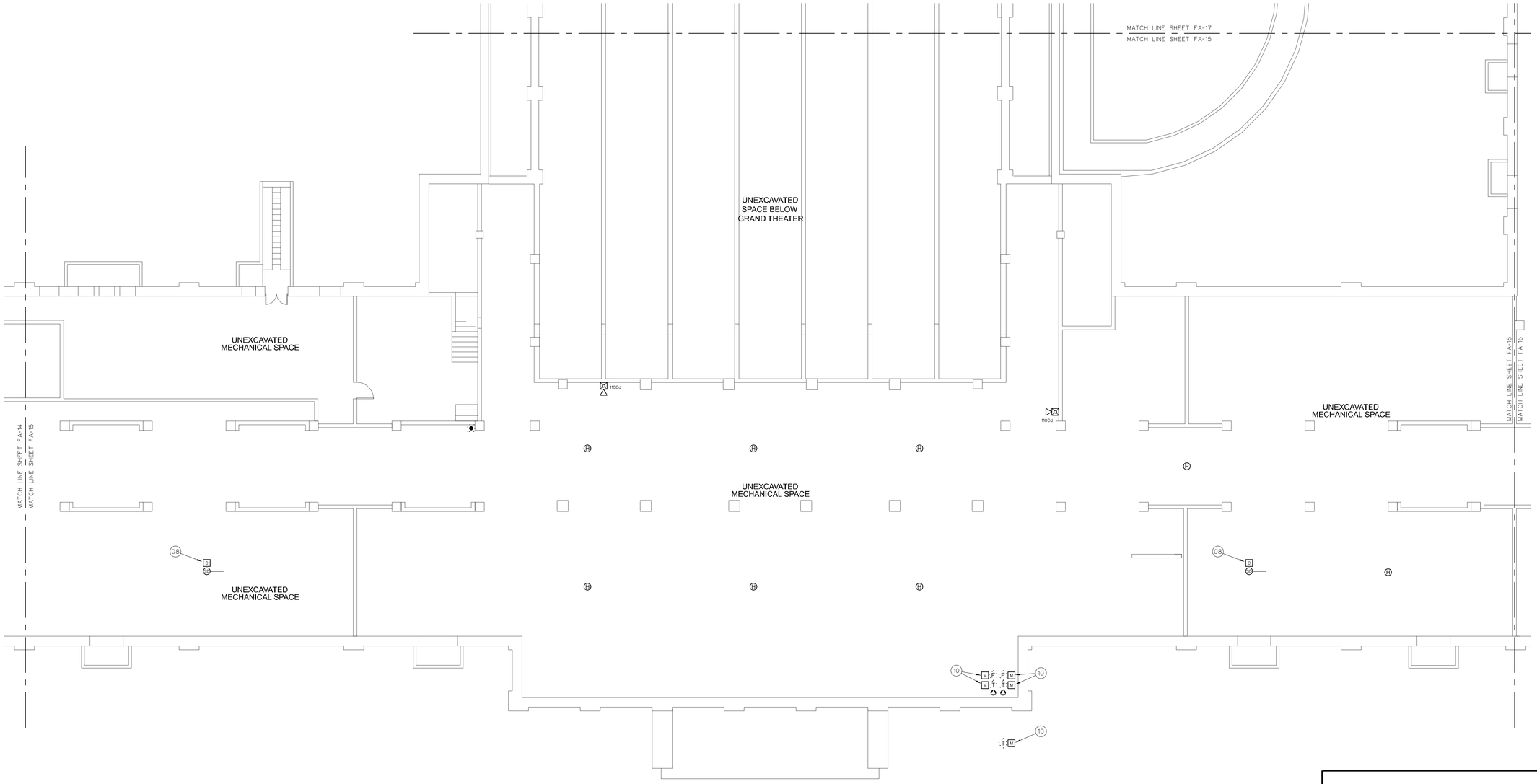
DRAWING DATE: 01/14/09

REVISION DATE: 00/00/00

SLCC SOUTH CAMPUS
SALT LAKE CITY, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

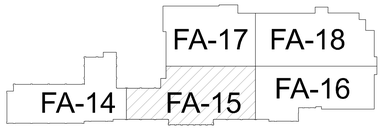
FIRE ALARM PLAN
BASEMENT
AREA A
FA-14




BASEMENT FIRE ALARM PLAN (AREA B)

1/8" = 1'-0"

0 8' 16' 32'

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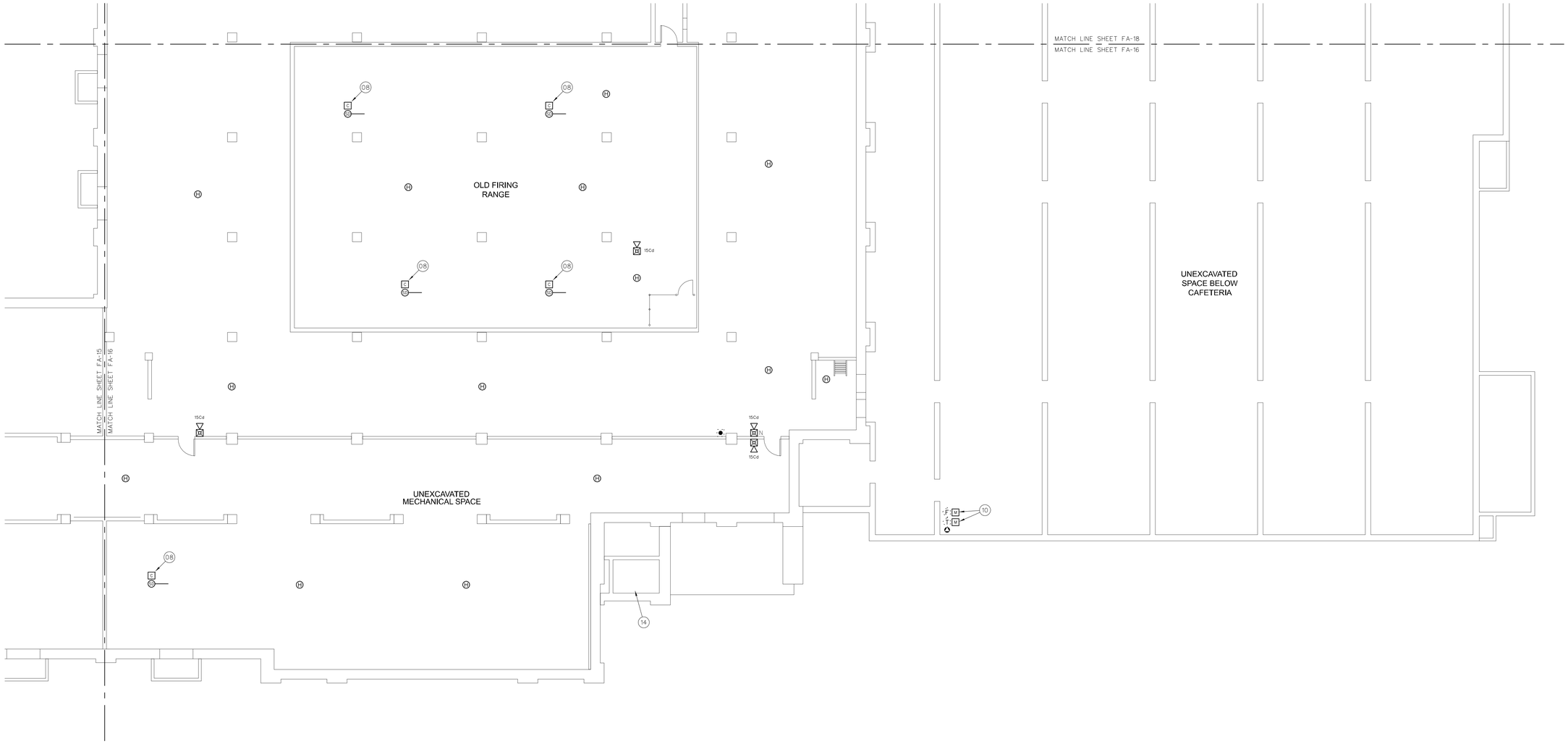
FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

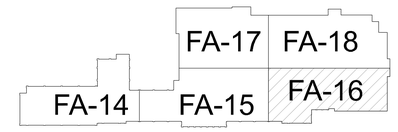
FIRE ALARM PLAN
BASEMENT
AREA B
FA-15




BASEMENT FIRE ALARM PLAN (AREA C)

1/8" = 1'-0"

0 8' 16' 32'

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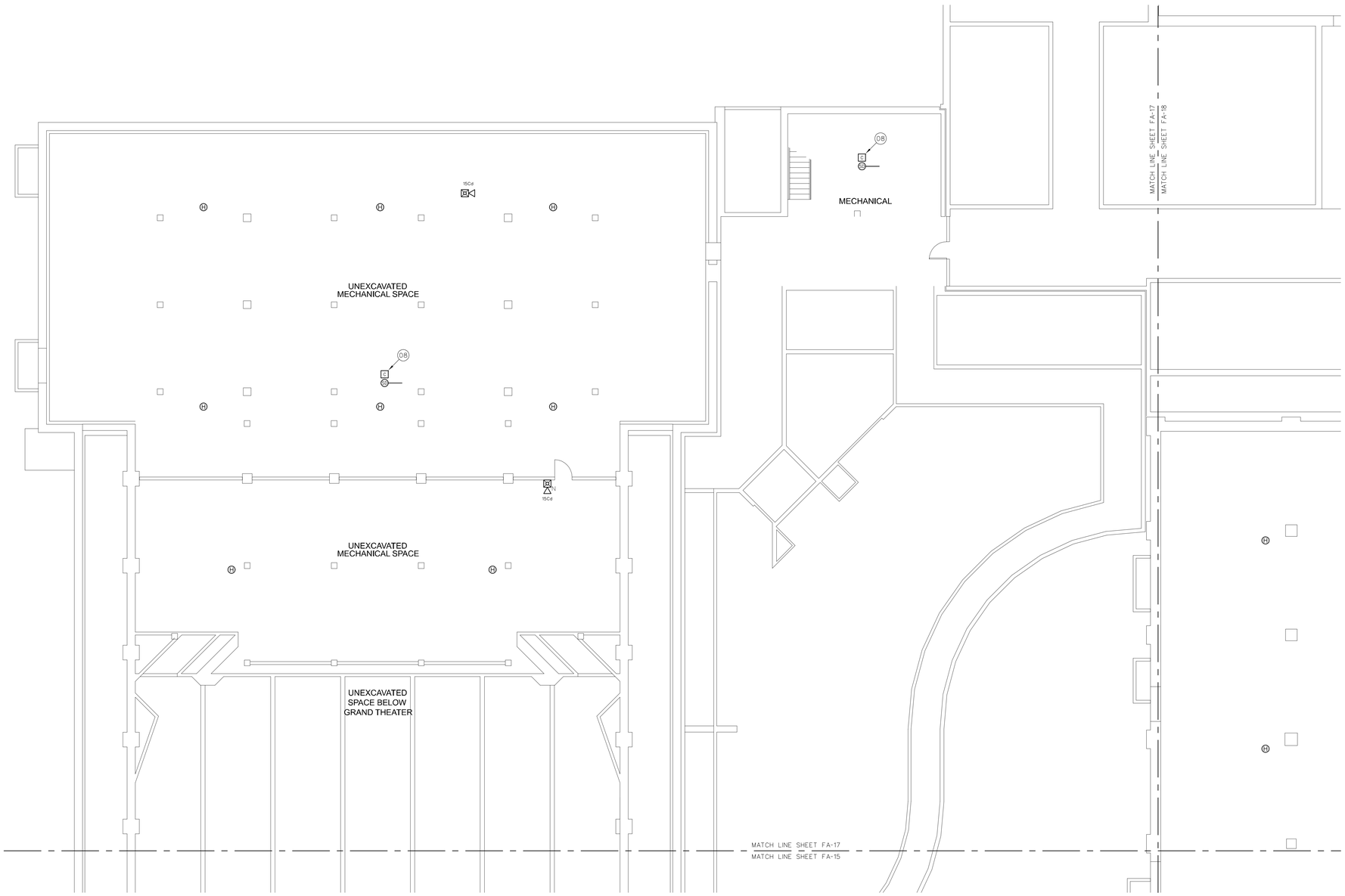
SALT LAKE CITY, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

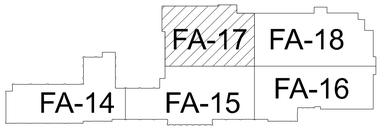
FIRE ALARM PLAN
BASEMENT
AREA C
FA-16




BASEMENT FIRE ALARM PLAN (AREA D)

1/8" = 1'-0"

0 8' 16' 32'

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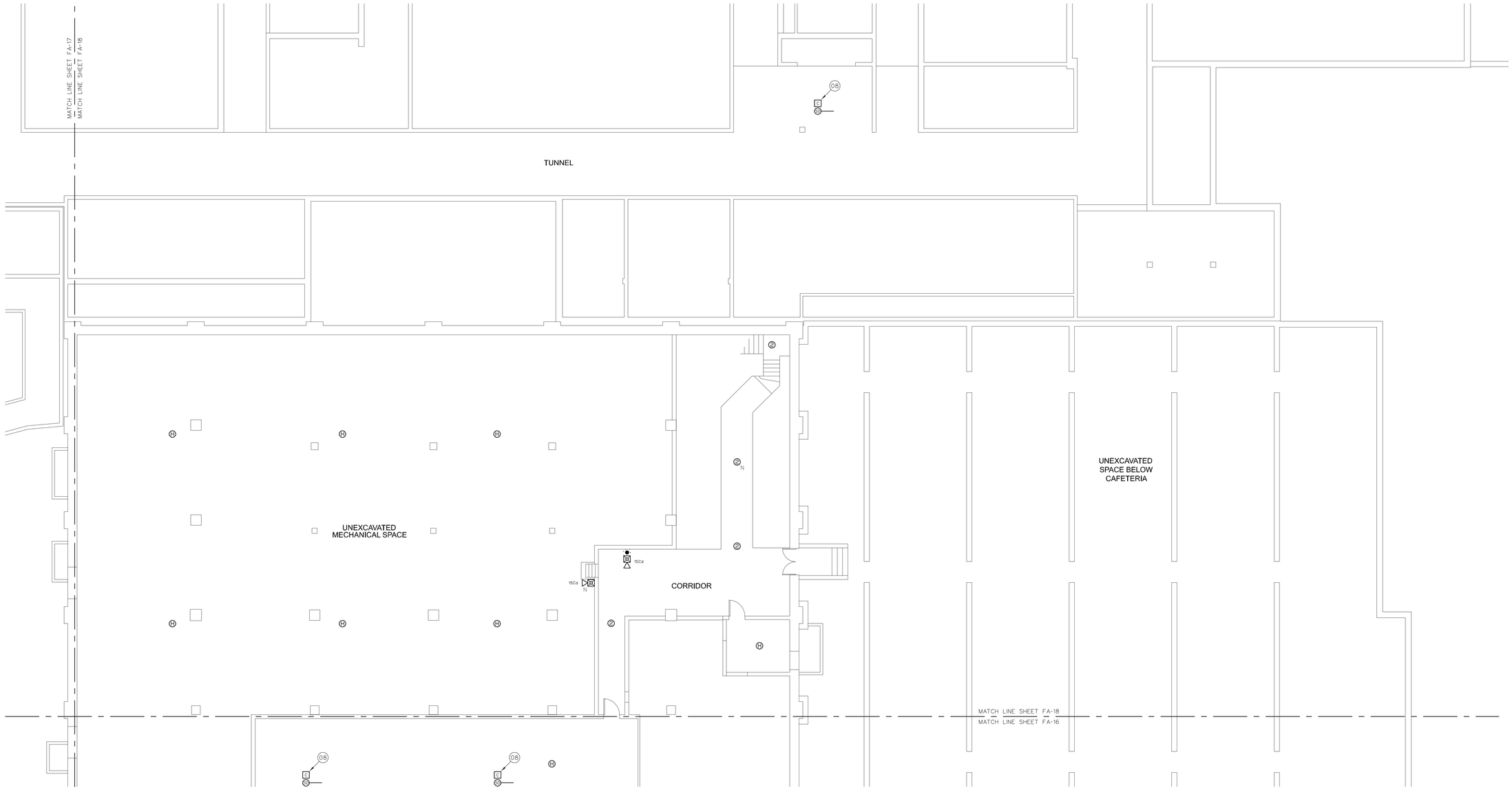
SALT LAKE CITY, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

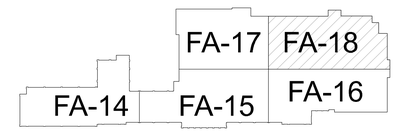
FIRE ALARM PLAN
BASEMENT
AREA D
FA-17




BASEMENT FIRE ALARM PLAN (AREA E)

1/8" = 1'-0"

0 8' 16' 32'

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SALT LAKE CITY, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

FIRE ALARM PLAN
BASEMENT
AREA E
FA-18

# FIRE ALARM SYSTEM GENERAL NOTES

1. SCOPE OF WORK: WORK SHALL INCLUDE UPGRADING ALL EXISTING FIRE ALARM SYSTEMS (CONTROL EQUIPMENT, INITIATING DEVICES AND OUTPUT RELAYS) TO NEW, ADDRESSABLE FIRE ALARM EQUIPMENT. EXISTING OCCUPANT NOTIFICATION SHALL BE UPGRADED TO COMPLY WITH CURRENT IBC, NFPA 72 AND ADA REQUIREMENTS. EXISTING CONDUIT, J-BOXES AND WIRING MAY BE RECONFIGURED AND REUSED WHERE COMPLETELY FUNCTIONAL AND COMPATIBLE WITH NEW NEW EQUIPMENT/CIRCUITS. INSTALL NEW CIRCUITS WHERE REQUIRED TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM. RECONFIGURE EXISTING FACP TO CONTROL ALL DEVICES IN EXISTING ADJACENT SHOP BUILDING. FIRE ALARM SYSTEMS SHALL CONFORM TO ALL APPLICABLE REQUIREMENTS OF THE IBC, IFC NFPA 72, EQUIPMENT MANUFACTURER (FCI), THESE DRAWINGS AND THE PROJECT SPECIFICATIONS.

2. APPLICABLE CODES/STANDARDS:
   INTERNATIONAL BUILDING CODE - 2006 EDITION
   INTERNATIONAL FIRE CODE - 2006 EDITION
   INTERNATIONAL MECHANICAL CODE - 2006 EDITION
   UTAH STATE FIRE MARSHAL RULE R710-4
   NFPA 70 - 2005 EDITION
   NFPA 72 - 2007 EDITION
   NFPA 90A - 2002 EDITION

3. QUALITY ASSURANCE: ALL EQUIPMENT, MATERIAL AND DEVICES USED FOR THE FIRE ALARM SYSTEM INSTALLATION SHALL BE UL LISTED AND/OR FM APPROVED FOR USE IN FIRE PROTECTION SYSTEMS. ALL INITIATING DEVICES SHALL BE LISTED COMPATIBLE WITH THE FIRE ALARM CONTROL PANEL (FACP). FIRE ALARM EQUIP. (INCLUDING PROGRAMMING/COMMISSIONING) SHALL BE PROVIDED BY NELSON FIRE SYSTEMS UNDER SOLE SOURCE ARRANGEMENT APPROVED BY DFCM FOR SALT LAKE COMMUNITY COLLEGE. BIDDING CONTRACTOR SHALL CONTACT NELSON FIRE SYSTEMS FOR EQUIPMENT QUOTE:
   CONTACT: DAMON BOWCUT
   ADDRESS: 1481 SOUTH MAJOR STREET SALT ALKE CITY, UT 84115
   PHONE: 801-468-8300
   FAX: 801-468-8305
   EMAIL: DAMON@NELSONFIRE.COM

4. PROJECT SHALL BE COMPLETED IN TWO PHASES AS DESCRIBED BELOW. PHASE I SHALL COMPLETED WITHIN 10 WEEKS OF RECEIPT OF NOTICE TO PROCEED AND PHASE II SHALL BE COMPLETED BY SUBSTANTIAL COMPLETION DATE INDICATED IN CONTRACT GENERAL CONDITIONS.

   PHASE I: PLANNING AND MOBILIZATION
   SHOP DRAWING PREPARATION AND SUBMITTAL
   INSTALLATION OF NEW FACP
   REPLACEMENT OF EXISTING INITIATING DEVICES WITH NEW ADDRESSABLE INITIATING DEVICES
   RECONFIGURE EXISTING SIGNALLING LINE CIRCUITS (LOOPS) AND CONNECT TO NEW FACP

   PHASE II: NOTIFICATION APPLIANCE POWER SUPPLIES
   INSTALL/RECONFIGURE INITIATING DEVICE CIRCUITS
   NOTIFICATION APPLIANCES
   ANNUNCIATOR PANELS
   PROTECTED PREMISE FIRE SAFETY FUNCTIONS
   ALL OTHER WORK REQUIRED TO PROVDE A COMPLETE AND FUNCTIONAL SYSTEM

5. SUBMITTALS: CONTRACTOR SHALL PREPARE AND SUBMIT COMPLETE SHOP DRAWINGS AND CALCULATIONS FOR FIRE ALARM SYSTEM TO STATE FIRE MARSHAL, OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ORDERING OR INSTALLING ANY EQUIPMENT. SUBMITTALS SHALL CONFORM TO THE CONSTRUCTION DOCUMENTS REQUIREMENTS OF IFC 907.1.1.

6. DEMOLITION: IT IS THE INSTALLER'S RESPONSIBILITY FOR THE DEMOLITION OF THE EXISTING FIRE ALARM SYSTEM. NEW DEVICES WILL REPLACE THE OLD AND GENERALLY REUSE THE EXISTING LOCATIONS. ANY EXISTING DEVICES AND CONDUIT NOT BEING REUSED THAT ARE VISIBLE, SUCH AS CABINETS, NOTIFICATION APPLIANCES, INITIATING DEVICES, ETC. SHALL BE REMOVED AND REMAINING WALL OR CEILING SURFACE REPAIRED OR REPLACED TO MATCH SURROUNDING AREAS. REMOVE ALL UNUSED WIRE IN ALL REMAINING J-BOXES AND/OR CONDUITS. ANY CEILING TILE DAMAGED BY THE INSTALLER MUST BE REPLACED WITH THE SAME OR EQUIV. TILE.

7. SYSTEM TYPE: FIRE ALARM SYSTEM SHALL MEET THE RQMNTS FOR PROTECTED PREMISE FIRE ALARM SYSTEMS (AS DEFINED BY NFPA 72). SYSTEM SHALL PROVIDE OFF-PREMISE NOTIFICATION OF STATUS TO CENTRAL STATION DETERMINED BY OWNER.

8. OCCUPANT NOTIFICATION: RECEIPT OF ANY FIRE ALARM SIGNAL AT THE FACP SHALL RESULT IN THE ACTIVATION OF ALL NOTIFICATION APPLIANCES IN THE BUILDING (STROBES AND HORN/STROBES). FOR PURPOSES OF FIRE ALARM NOTIFICATION, THE BUILDING SHALL BE CONSIDERED AS A SINGLE ZONE.

9. WIRING:
   A. EXISTING WIRING MAY BE REUSED IN NEW FIRE ALARM SYSTEM WHERE COMPATIBLE WITH NEW FIRE ALARM CIRCUITS/DEVICES, FREE OF OPENS SHORTS AND GROUND FAULTS.
   B. INSTALL NEW WIRING AS REQUIRED FOR NEW OR RECONFIGURED CIRCUITS.
   C. NEW WIIRNG SHALL MEET THE REQUIREMENTS OF FIRE ALARM EQUIPMENT MANUFACTURER (FCI) AND BE FREE OF OPENS, SHORTS AND GROUND FAULTS.
   D. ALL NEW WIRING SHALL BE FPL (FIRE POWER LIMITED) WITH MINIMUM 300V INSULATION OR EQUIVALENT AS PER ARTICLE 760 OF NFPA 70.

10. CONDUIT:
   A. EXISTING CONDUIT AND J-BOXES MAY BE REUSED FOR NEW FIRE ALARM SYSTEM.
   B. ALL FIRE ALARM WIRING SHALL BE INSTALLED IN METALLIC CONDUIT OR RACEWAY (RIGID, EMT, FLEX, MC, WIRE MOLD, ETC.).
   C. CONTRACTOR IS NOT REQUIRED TO PROVIDE NEW CONDUIT FOR EXISTING CIRCUITS THAT ARE REUSED. CONTRACTOR SHALL NOTIFY OWNER IN WRITING IF EXISTING FIRE ALARM CIRCUITS WITHOUT CONDUIT ARE PRESENT.
   D. INSTALL NEW CONDUIT AS REQUIRED FOR NEW OR RECONFIGURED CIRCUITS.
   E. MINIMUM CONDUIT SIZE FOR NEW CONDUIT SHALL BE 1/2".
   F. CONDUIT SHALL BE INSTALLED CONCEALED IN FINISHED AREAS AND MAY BE UXPOSED IN UNFINISHED AREAS.
   G. NEW CONDUIT SHALL MATCH (TYPE, COLOR, APPREARANCE) EXISTING.
   H. EXPOSED CONDUIT IN UNFINISHED AREAS MAY BE UNPAINTED BUT SHALL BE PERIODICALLY MARKED WITH RED TAPE OR PAINT.
   I. EXPOSED CONDUIT IN FINISHED AREAS SHALL BE PAINTED TO MATCH SURROUNDINGS.

11. CONDUIT (CONTINUED):
   J. FLEXIBLE CONDUIT MAY BE USED FOR DROPS TO SINGLE DEVICES.
   K. ALL PENETRATIONS THROUGH RATED PARTITIONS SHALL BE FIRE STOPPED WITH A SUITABLE CAULKING COMPOUND.

12. WIRING STYLES(PER NFPA 72): INITIATING DEVICE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE D CIRCUITS. SIGNALING LINE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE 6 CIRCUITS. NOTIFICATION APPLIANCE CIRCUITS SHALL MEET THE REQUIREMENTS FOR CLASS A STYLE Z.

13. POWER: PROVIDE 120VAC (15 AMP MIN.) CIRCUIT FROM EXISTING POWER DISTRIBUTION PANELS TO FACP AND EACH POWER SUPPLY. EXISTING BRANCH CIRCUITS MAY BE REUSED WHERE COMPLETELY FUNCTIONAL.
   FURNISH A BATTERY BACKUP TO PROVIDE SECONDARY POWER SUPPLY TO FIRE ALARM PANELS AND REMOTE POWER SUPPLIES. BATTERY BACKUP SHALL BE OF SUFFICIENT CAPACITY TO PROVIDE 24 HOURS OF STANDBY POWER WITH AN ADDITIONAL RESERVE TO OPERATE SYSTEM FOR 5 MINUTES IN ALARM.

14. INITIATING DEVICES:
   SLC CIRCUITS: SLC LOOP DEVICE ADDRESSING SHALL NOT EXCEED 160 DEVICES (80 DETECTORS AND 80 MODULES) PER LOOP. AT LEAST 20 ADDRESSES (20%) SHALL BE LEFT VACANT ON EACH SLC LOOP IN ORDER TO ALLOW SPACE FOR ADJUSTMENTS/EXPANSION.

   SMOKE DETECTORS: INSTALL SMOKE DETECTORS AS SHOWN ON PLANS IN ALL CORRIDORS AND LOBBIES AND ABOVE CONTROL EQUIP. MAXIMUM SPACING OF DETECTORS SHALL BE 30' BETWEEN DETECTORS OR 15' FROM FURTHEST WALL. INSTALL DETECTORS ON RECESSED OR OR SURFACE MOUNT J-BOXES TIGHT TO CEILING/DECK. SMOKE DETECTORS LOCATED WITHIN 36" OF HVAC DIFFUSERS SHALL BE RELOCATED TO A MINIMUM DISTANCE OF 36" FROM DIFFUSER.

   HEAT DETECTORS: INSTALL HEAT DETECTORS AS SHOWN ON PLANS IN AREAS WITHOUT FIRE SPRINKLERS OR SMOKE DETECTORS AND IN MECHANICAL/EQUIPMENT AREAS. MAXIMUM SPACING OF DETECTORS SHALL BE 50' BETWEEN DETECTORS OR 25' FROM FURTHEST WALL. REDUCE SPACING PER NFPA 72 FOR INSTALLATION IN HIGH CEILING AREAS. INSTALL DETECTORS ON RECESSED OR SURFACE MOUNT J-BOXES TIGHT TO CEILING/DECK. FOLLOW REQUIREMENTS OF NFPA 72 FOR INSTALLATION UNDER BEAMED CEILINGS.

   MANUAL PULL STATIONS: INSTALL NEW PULL STATIONS AS SHOWN ON PLANS AT EACH BUILDING EXIT AND IN BOILER ROOMS. INSTALL PULL STATIONS ON RECESSED OR SURFACE MOUNT J-BOXES WITH THE OPERATING ELEMENT AT 48" AFF. ADJUST HEIGHT OF EXISTING J-BOXES AS REQUIRED.

   DUCT SMOKE DETECTORS: INSTALL DUCT SMOKE DETECTORS (SAMPLING TUBE TYPE) IN SUPPLY AND/OR RETURN DUCTS OF ALL AIR MOVEMENT SYSTEMS WITH A CAPACITY IN EXCESS OF 2,000 CFM. INSTALL NEW DETECTORS AT SAME LOCATION AS EXISTING DETECTORS WHERE PRESENT. INSTALL PER NFPA 72 AND MANUFACTURER'S REQUIREMENTS.

14. INITIATING DEVICES (CONTINUED):
   BEAM DETECTORS: INSTALL PROJECTED BEAM TYPE SMOKE DETECTORS AS INDICATED ON PLANS FOR LARGE OPEN AREAS WITH HIGH CEILINGS. DETECTORS SHALL BE SINGLE-ENDED, REFLECTIVE TYPE WITH ADJUSTABLE SENSITIVITY AND BUILT-IN SENSITIVITY TEST FEATURE (INSTALL REMOTE TEST SWITCH). INSTALL PER NFPA 72 AND MANUFACTURER'S REQUIREMENTS.

   INPUT MODULES: PROVIDE ADDRESSABLE MODULES TO MONITOR NEW OR EXISTING CONVENTIONAL INITIATING DEVICES (FIRE SPKR SWITCHES, BEAM DETECTORS, ETC.). LOCATE MODULES ADJACENT TO DEVICE MONITORED IN AN ACCESSIBLE LOCATION OR ABOVE REMOVABLE CEILING TILE. MODULE SHALL HAVE EXTERNALLY VISIBLE LED TO INDICATE STATUS. LABEL MODULE WITH THE TYPE AND ADDRESS OF THE DEVICE MONITORED.

15. NOTIFICATION APPLIANCES: PROVIDE AUDIBLE AND VISUAL NOTIFICATION APPLIANCES THROUGHOUT BUILDING. VOLUME OF HORNS SHALL BE SUFFICIENT TO PROVIDE A SOUND LEVEL OF 15 Db ABOVE AMBIENT IN ALL OCCUPIED AREAS. VISIBLE ALARMS SHALL BE PROVIDED THROUGHOUT ALL OCCUPIED AREAS OF THE BUILDING AS REQURIED BY THE IBC AND ADA GUIDELINES. STROBES SHALL FLASH IN SYNCHRONIZATION. CONFIGURE CIRCUITS TO ALLOW HORNS TO BE SILENCED WHILE STROBES CONTINUE TO FLASH.

16. PROTECTED PREMISE FIRE SAFETY FUNCTIONS: INSTALL PROGRAMMABLE OUTPUT MODULES WITH RELAY CONTACTS TO INITIATE REQUIRED FIRE SAFETY FUNCTIONS (DOOR RELEASE, FAN SHUTDOWN, ELEVATOR RECALL, ETC.). OUTPUT MODULES SHALL BE INSTALLED WITHIN 36" OF DEVICE OR CIRCUIT CONTROLLED. ALL EXISTING PROTECTED PREMISE FIRE SAFETY FUNCTIONS CONTROLLED BY EXISTING FIRE ALARM SYSTEM SHALL BE MIGRATED TO NEW SYSTEM AND TESTED TO VERIFY PROPER FUNCTION.

17. PHASING: PLAN SEQUENCE OF WORK TO MINIMIZE DOWN TIME OF FIRE ALARM SYSTEM. WHERE FIRE ALARM SYSTEM DISRUPTION OCCURS FOR A PERIOD OF LONGER THAN 4 HOURS WITHIN A 24 HOUR PERIOD BUILDING MUST BE EVACUATED OR AN APPROVED FIRE WATCH PROVIDED. IT IS THE INSTALLER'S RESPONSIBILITY TO NOTIFY PROPER AUTHORITIES AND PROVIDE A FIRE WATCH DURING INTERRUPTIONS OF FIRE DETECTION AND ALARM SERVICE IN THE BUILDING.

18. TESTING: SCHEDULE AND PERFORM ALL ACCEPTANCE TESTS REQUIRED BY NFPA 72. TESTING SHALL BE WITNESSED BY STATE FIRE MARSHAL'S OFFICE, PROJECT ENGINEER, DFCM AND BUILDING MAINTENANCE PERSONNEL. SUBMIT A WRITTEN TESTING PLAN DETAILING EACH TEST TO BE PERFORMED TO EACH AGENCY AT LEAST ONE DAY PRIOR TO SCHEDULED TEST.

19. ACCESS PANELS: TO FACILITATE INSTALLATION OF FIRE ALARM CIRCUITS AND DEVICES IN AREAS WITH PLASTER OR SHEETROCK CEILINGS, CONTRACTOR MAY CUT CEILINGS AND INSTALL APPROVED ACCESS PANELS. SIZE, STYLE AND LOCATION OF ACCESS PANELS SHALL BE APPROVED ON A CASE BY CASE BASIS BY THE OWNER IN WRITING. ACCESS PANELS SHALL BE INSTALLED PER MANUFACTURER'S RECCOMMENDATIONS AND PATCHED/PAINTED TO MATCH SURROUNDING FINISHED SURFACES.

NAC NOTES:
1. NUMBER AND LAYOUT OF NAC CIRCUITS TO BE DETERMINED BY CONTRACTOR.
2. DESIGN CIRCUITS TO LIMIT VOLTAGE DROP TO A MAXIMUM OF %20.
3. PROVIDE ADDITIONAL POWER SUPPLIES AS REQUIRED.
4. CONTRACTOR TO PROVIDE VOLTAGE DROP CALCULATIONS FOR EACH CIRCUIT.

## FIRE ALARM PANEL SCHEMATIC
NO SCALE

## OUTPUT ACTIONS

| SYSTEM INPUTS | ACTIVATE LOCAL FIRE ALARM NOTIFICATION APPLIANCES (ALL CIRCUITS) | TRANSMIT FIRE ALARM SIGNAL TO CENTRAL STATION | TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION | TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION | INITIATE ELEVATOR RECALL FUNCTIONS (NORTH OR SOUTH ELEVATORS - INDEPENDENTLY) | RELEASE FIRE DOORS WITH MAGNETIC HOLDERS | RELEASE ROLL DOWN OR CURTAIN TYPE FIRE DOOR (EACH DOOR INDEPENDENTLY) | | SHUTDOWN AIR MOVEMENT SYSTEMS | RELEASE PROSCEMUM CURTAIN | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| (SPOT TYPE OR PROJECTED BEAM TYPE) | X | X | | | | X | | | X | | |
| PROJECTED BEAM SMOKE DETECTOR TROUBLE | | | X | | | | | | | | |
| HEAT DETECTOR | X | X | | | | X | | | X | | |
| PULL STATION | X | X | | | | X | | | X | | |
| DUCT SMOKE DETECTOR | | | X | | | | | | X | | |
| WET CHEMICAL FIRE SUPPRESSION SYSTEM ACTIVATION | X | X | | | | X | | | X | | |
| FIRE SPRINKLER WATER FLOW SWITCH | X | X | | | | X | | | X | | |
| FIRE SPRINKLER VALVE SUPERVISORY SWITCH | | | X | | | | | | | | |
| SMOKE DETECTOR IN ELEVATOR LOBBY, SHAFT OR EQUIPMENT ROOM | X | X | | | X | X | | | X | | |
| SMOKE DETECTOR ON EITHER SIDE OF FIRE DOOR | X | X | | | | X | X | | X | | |
| HEAT DETECTOR IN THEATER OR WATER FLOW SWITCH FOR THEATER ZONE | X | X | | | | X | | | X | X | |
| RECEIPT OF FIRE ALARM SIGNAL FROM SHOP BUILDING FACP | | X | | | | | | | | | |
| RECEIPT OF FIRE SUPERVISORY SIGNAL FROM SHOP BUILDING FACP | | | X | | | | | | | | |
| RECEIPT OF FIRE TROUBLE SIGNAL FROM SHOP BUILDING FACP | | | | X | | | | | | | |
| LOSS OF AC POWER | | | X | | | | | | | | |
| LOW BATTERY VOLTAGE | | | | X | | | | | | | |
| REMOTE POWER SUPPLY TROUBLE | | | X | | | | | | | | |
| CIRCUIT FAULTS | | | | X | | | | | | | |

## FIRE ALARM SYSTEM SEQUENCE OF OPERATION
NO SCALE

## FIRE ALARM EQUIPMENT LEGEND

| DEVICE | DESCRIPTION | MOUNTING | REMARKS | EST. QTY* |
|---|---|---|---|---|
| FACP | FIRE ALARM CONTROL PANEL (NEW) | SURFACE MOUNT AT SAME HEIGHT AS EXISTING | FCI E3 SERIES. TO CONTROL ALL DEVICES IN MAIN BLDG. | 1 |
| FACP | FIRE ALARM CONTROL PANEL (EXISTING) | EXISTING | RECONFIGURE TO CONTROL ONLY DEVICES IN SHOP BLDG | 1 |
| DACT | DIGITAL ALARM COMMUNICATOR/ TRANSMITTER (EXISTING) | EXISTING | EXISTING TO REMAIN. RECONFIGURE TO RELAY SIGANLS FROM BOTH NEW AND EXISTING CONTROL PANELS | 1 |
| FAPS | REMOTE POWER SUPPLY | SURFACE MOUNT AT 54" AFF | FCI PM-9 POWER SUPPLY TO POWER NOTIFICATION APPLIANCES. QUANTITY AND LOCATION TO BE DETERMINED BY CONTRACTOR | TBD |
| ANN | FIRE ALARM ANNUNCIATOR PANEL | SURFACE MOUNT AT 54" AFF | FCI LCD-ES KEYPAD/ANNUNCIATOR | 1 |
| C | PROGRAMMABLE CONTROL RELAY | MOUNT ON J-BOX WITHIN 3' OF DEVICE OR CIRCUIT CONTROLLED | FCI AOM-2RF CONTROL MODULE. TO INITIATE PROTECTED PREMISE FIRE SAFETY FUNCTIONS | 61 |
| M | ADDRESSABLE MONITOR MODULE | SURFACE MOUNT ON J-BOX NEAR CONVENTIONAL DEVICE TO BE MONITORED | FCI AMM-4F. TO MONITOR CONVENTIONAL INITIATING DEVICE AS AN ADDRESSABLE POINT | 17 |
| | PHOTOELECTRIC SMOKE DETECTOR | CEILING MOUNT ON EXISTING J-BOX | FCIN ASD-PL2F. REPLACE EXISTING SMOKE DETECTOR WITH NEW DEVICE | 304 |
| N | PHOTOELECTRIC SMOKE DETECTOR | CEILING MOUNT ON NEW J-BOX | FCI ASD-PL2F. ADD NEW DETECTOR WHERE INDICATED ON PLAN | 36 |
| | EXISTING SMOKE DETECTOR | EXISTING | REMOVE EXISTING DETECTOR AND INSTALL COVER PLATE ON REMAINING J-BOX | 28 |
| H | FIXED TEMPERATURE HEAT DETECTOR | CEILING MOUNT ON EXISTING OR RELOCATED J-BOX | FCI ATD-L2F. REPLACE EXISTING HEAT DETECTOR WITH NEW HEAT DETECTOR | 90 |
| H N | FIXED TEMPERATURE HEAT DETECTOR | CEILING MOUNT ON NEW RECESSED J-BOX | FCI ATD-L2F. ADD NEW DETECTOR WHERE SHOWN ON PLAN | 2 |
| H | EXISTING HEAT DETECTOR | EXISTING | REMOVE EXISTING DETECTOR AND INSTALL COVER PLATE ON REMAINING J-BOX | 99 |
| | ADDRESSABLE MANUAL PULL STATION | WALL MOUNT ON EXISTING J-BOX | FCI MS-7AF. REPLACE EXISTING PULL STATION WITH NEW DEVICE | 22 |
| | EXISTING MANUAL PULL STATION | EXISTING | REMOVE EXISTING PULL STATION AND INSTALL COVER PLATE ON REMAINING J-BOX | 2 |
| T/R | PROJECTED BEAM TYPE SMOKE DETECTOR | WALL OR CEILING MOUNT ON EXISTING J-BOX | GAMEWELL PROJECTED BEAM DETECTOR. REPLACE EXISTING BEAM DETECTOR WITH NEW DEVICE | 6 |
| SD | ADDRESSABLE DUCT MOUNTED SMOKE DETECTOR | EXISTING | FCI AOPF. REPLACE EXISTING DUCT SMOKE DETECTOR WITH NEW DEVICE | 37 |
| D | MAGNETIC DOOR HOLD-OPEN DEVICE (EXISTING) | EXISTING | EXISTING DEVICE TO REMAIN. CONNECT TO NEW FACP TO PROVIDE POWER AND CONTROL | 42 |
| | STROBE | WALL MOUNT ON EXISTING OR RELOCATED J-BOX BETWEEN 80" AND 96" AFF | INSTALL NEW NOTIFICATION APPLIANCE TO REPLACE EXISTING OR IN NEW LOCATION AS INDICATED ON PLAN. CANDELA RATING AS INDICATED ON DWGS. STROBES SHALL BE SYNCHRONIZED. DEVICES COLOR SHALL BE WHITE. | 19 |
| N | STROBE | WALL MOUNT ON NEW RECESSED J-BOX BETWEEN 80" AND 96" AFF | | 16 |
| | HORN/STROBE (WALL MOUNT) | WALL MOUNT ON EXISTING OR RELOCATED J-BOX BETWEEN 80" AND 96" AFF | INSTALL NEW NOTIFICATION APPLIANCE TO REPLACE EXISTING OR IN NEW LOCATION AS INDICATED ON PLAN. CANDELA RATING AS INDICATED ON DWGS. STROBES SHALL BE SYNCHRONIZED. DEVICES COLOR SHALL BE WHITE. | 144 |
| N | HORN/STROBE (WALL MOUNT) | WALL MOUNT ON NEW RECESSED J-BOX BETWEEN 80" AND 96" AFF | | 79 |
| | HORN/STROBE (EXISTING) | EXISTING | REMOVE EXISTING DEVICE AND PROVIDE COVER PLATE ON EXISTING J-BOX. | 13 |
| | HORN/STROBE (CEILING MOUNT) | WALL MOUNT ON EXISTING OR RELOCATED J-BOX BETWEEN 80" AND 96" AFF | INSTALL NEW NOTIFICATION APPLIANCE TO REPLACE EXISTING OR IN NEW LOCATION AS INDICATED ON PLAN. CANDELA RATING AS INDICATED ON DWGS. STROBES SHALL BE SYNCHRONIZED. DEVICES COLOR SHALL BE WHITE. | 9 |
| N | HORN/STROBE (CEILING MOUNT) | CEILING MOUNT ON NEW RECESSED OR SURFACE MOUNT J-BOX | | 47 |
| | HORN/STROBE (EXISTING) | EXISTING | REMOVE EXISTING DEVICE AND PROVIDE COVER PLATE ON EXISTING J-BOX | 3 |
| | EXTERIOR HORN/STROBE | WALL MOUNT ON EXISTING WEATHERPROOF J-BOX | INSTALL NEW NOTIFICATION APPLIANCE TO REPLACE EXISTING OR IN NEW LOCATION AS INDICATED ON PLAN. CANDELA RATING AS INDICATED ON DWGS. STROBES SHALL BE SYNCHRONIZED. DEVICES COLOR SHALL BE WHITE. | 2 |
| N | EXTERIOR HORN/STROBE | WALL MOUNT ON NEW WATERPROOF J-BOX AT 10'-0" AFF | | 1 |

*QTY TO BE VERIFIED BY CONTRACTOR

# FIRE ALARM SYSTEM KEY NOTES

(01) EXISTING FIRE ALARM NOTIFICATION APPLIANCE IS LOCATED ABOVE MAXIMUM HEIGHT OF 96" ALLOWED BY NFPA 72. REMOVE EXISTING NOTIFICATION APPLIANCE AND J-BOX AND RELOCATE TO BE BETWEEN 80" AND 96" AFF. INSTALL NEW J-BOX RECESSED INTO WALL WITH ALL CONDUITS CONCEALED INSIDE WALL. PATCH AND PAINT WALL AS REQUIRED TO PROVIDE A FINISHED SURFACE TO MATCH SURROUNDINGS.

(02) INSTALL NEW ADDRESSABLE RELAY TO OPERATE EXISTING FIRE DOOR. PROGRAM RELAY TO RELEASE FIRE DOOR UPON ACTIVATION OF SMOKE DETECTORS ON EITHER SIDE OF DOOR. TEST FIRE DOOR FOR PROPER OPERATION. PERFORM MINOR REPAIRS/ADJUSTMENTS TO EXISTING DOOR AS REUQIRED. NOTIFY OWNER/ENGINEER IN WRITING IF DOOR IS NOT OPERATIONAL OR IF DOOR REQUIRES MAJOR REPAIR.

(03) EXISTING FLOOR OR WALL MOUNTED MAGNETIC DOOR HOLD-OPEN DEVICE TO REMAIN. PROVIDE POWER SUPPLY TO EXISTING DOOR HOLDERS FROM NEW FACP OR REMOTE POWER SUPPLIES (120 VAC POWER FROM BUILDING POWERE SYSTEM IS ALSO ACCEPTABLE). INSTALL FIRE ALARM RELAY TO DISCONNECT POWER AND CLOSE DOORS UPON ANY FIRE ALARM SIGNAL.

(04) EXISTING COMMERCIAL COOKING HOOD WITH WET CHEMICAL FIRE SUPPRESSION SYSTEM TO REMAIN. PROVIDE ADDRESSABLE MONITOR MODULE TO INTERFACE ACTUATION RELAY OF FIRE SUPPRESSION SYSTEM TO BUILDING FIRE ALARM SYSTEM. PROGRAM ACTIVATION OF FIRE SUPPRESSION SYSTEM AS A FIRE ALARM SIGNAL.

(05) ACCEPTABLE LOCATION FOR INSTALLATION OF REMOTE NOTIFICATION APPLIANCE CIRCUIT POWER SUPPLIES (CONTRACTOR'S OPTION). PROVIDE DEDICATED 120 VAC POWER CIRCUIT TO POWER SUPPLIES FROM ANY NEARBY POWER DISTRIBUTION PANEL AND PROVIDE SECONDARY POWER SUPPLY (BATTERIES) SIZED TO PROVIDE A MINIMUM OF 24 HOURS OF STANDBY POWER PLUS AN ADDITIONAL 5 MINUTES OF ALARM POWER. CONNECT POWER SUPPLIES TO FACP TO PROVIDE ACTIVATION FOR NOTIFICATION APPLIANCES AND SUPERVISION OF POWER SUPPLY AND NAC CIRCUITS (TROUBLE CONDITION).

(06) INSTALL NEW FCI E3 SERIES FIRE ALARM CONTROL PANEL (FACP) TO CONTROL ALL FIRE ALARM INITIATING DEVICES, NOTIFICATION APPLIANCES, ANNUNCIATORS, CONTROL RELAYS, FIRE ALARM INTERFACES, ETC. IN MAIN SOUTH CAMPUS BUILDING. INSTALL FACP AT LOCATION OF EXISTING ANNUNCIATOR PANEL TO BE REMOVED. INSTALL ALL REQUIRED CABINETS, MODULES, INTERFACE CARDS, POWER SUPPLIES, ETC. TO PROVIDE A COMPLETE AND FUNCTIONAL FIRE ALARM SYSTEM. FACP SHALL HAVE SUFFICIENT CAPACITY TO MONITOR ALL INITIATING DEVICES SHOWN ON THE PLANS WITH AN ADDITIONAL SPARE CAPACITY OF 20% FOR FUTURE EXPANSION. EXISTING 120 VAC DEDICATED POWER CIRCUIT MAY BE REUSED BUT PROVIDE NEW BATTERIES FOR THE SECONDARY POWER SUPPLY. PROVIDE NEW SIGNALLING LINE CIRCUITS FROM FACP TO ALL INITIATING DEVICES/CONTROL RELAYS AND PROVIDE NOTIFICATION APPLIANCE CIRCUITS FROM FACP (OR REMOTE POWER SUPPLIES) TO ALL NOTIFICATION APPLIANCES. EXISTING CIRCUITS MAY BE RECONFIGURED AND REUSED IF COMPLETELY FUNCTIONAL AND COMPATIBLE WITH NEW FACP/DEVICES.

(07) EXISTING GAMEWELL ANNUNCIATOR PANEL TO BE REMOVED AND REPLACED WITH NEW FACP. REMOVE EXISTING CABINET AND REPLACE WITH NEW SURFACE MOUNT CABINET FOR FACP. PATCH/REFINISH EXPOSED WALL SURFACE AS REQUIRED TO MATCH SURROUNDINGS. UPDATE DEVICE MAPS MOUNTED ADJACENT TO ANNUNCIATOR AS REQUIRED TO REFLECT CHANGES TO FIRE ALARM SYSTEM PERFORMED UNDER THIS CONTRACT AND MOUNT NEW DEVICE MAPS IN EXISTING FRAMES.

(08) INSTALL PROGRAMMABLE RELAY AND INTERFACE WITH HVAC SYSTEM CONTROLS TO PROVIDE SHUT DOWN OF ALL AIR MOVEMENT SYSTEMS WITH A CAPACITY IN EXCESS OF 2,000 CFM. CONTRACTOR TO FIELD VERIFY LOCATION AND NUMBER OF HVAC SYSTEMS TO INTERFACE WITH FIRE ALARM SYSTEM AND COORDINATE CONNECTION OF CONTROLS WITH BUILDING MAINTENANCE PERSONNEL. PROGRAM RELAYS TO SHUT DOWN ALL SYSTEMS WITHING BUILDING UPON ACTIVATION OF ANY DUCT SMOKE DETECTOR OR ANY GERNAL FIRE ALARM SIGNAL. RELAY SHALL BE NORMALLY ENERGIZED AND FAN CONTROLS SHALL BE CONNECTED TO NORMALLY CLOSED CONTACTS ON THE RELAY. RELAY SHALL NOT RESTORE UNTIL FACP HAS BEEN RESET.

(09) REPLACE EXISTING PROJECTED BEAM TYPE SMOKE DETECTORS WITH NEW GAMEWELL PROJECTED BEAM SMOKE DETECTORS (OR APPROVED EQUAL). INSTALL TWO MONITOR MODULES (FOR ALARM AND TROUBLE RELAYS) AT EACH DETECTOR CONTROLLER TO FACILITATE CONNECTION OF DETECTOR TO FACP AS AN ADDRESSABLE POINT. PROVIDE SUPERVISED 24 VDC POWER TO DETECTOR CONTROLLER FROM FIRE ALARM SYSTEM (FACP OR REMOTE POWER SUPPLY).

(10) INSTALL MONITOR MODULES TO FACILITATE CONNECTION OF EXISTING INTERIOR AND EXTERIOR FIRE SPRINKLER DEVICES (WATER FLOW SWITCHES AND VALVE SUPERVISORY SWITCHES) TO NEW FIRE ALARM SYSTEM. PROVIDE A SEPARATE MODULE/ADDRESS FOR EACH CONTROL VALVE AND WATER FLOW SWITCH. PROGRAM ACTIVATION OF VALVE SUPERVISORY SWITCHES AS A SUPERVISORY SIGNAL AND ACTIVATION OF WATER FLOW SWITCHES AS A FIRE ALARM SIGNAL.

(11) EXISTING HEAT DETECTOR IS MOUNTED ON WALL OF ROOM MORE THAN 12" BELOW CEILING/DECK IN VIOLATION OF NFPA 72. REMOVE DETECTOR, JUNCTION BOX AND CONDUIT. RELOCATE AND REINSTALL JUNCTION BOX ON CEILING/DECK OR WALL 4" TO 12" BELOW CEILING/DECK. INSTALL NEW ADDRESSABLE HEAT DETECTOR ON RELOCATED JUNCTION BOX.

(12) NOT USED

(13) EXISTING FIRE ALARM CONTROL PANEL TO REMAIN. RECONFIGURE EXISTING PANEL TO CONTROL ONLY FIRE ALARM DEVICES IN ADJACENT SHOP BUILDING. PROVIDE ADDRESSABLE MODULES FROM NEW FIRE ALARM SYSTEM TO RELAY ALARM, SUPERVISORY AND TROUBLE SIGNALS FROM SHOP BUILDING TO OFF-PREMISE CENTRAL STATION VIA DACT IN NEW FACP.

(14) INSTALL NEW, ADDRESSABLE RELAYS AT ELEVATOR EQUIPMENT TO INITIATE PRIMARY AND SECONDARY ELEVATOR RECALL FUNCTIONS. RECALL FUNCTIONS FOR EACH ELEVATOR SHALL BE INDEPENDENT OF ALL OTHER ELEVATORS. PRIMARY RECALL TO INITIATE UPON ACTIVATION OF SMOKE/HEAT DETECTORS IN ELEVATOR SHAFT, EQUIPMENT ROOM OR BASEMENT, SECOND AND THIRD FLOOR ELEVATOR LOBBIES. SECONDARY RECALL TO INITIATE UPON ACTIVATION OF SMOKE DETECTOR IN FIRST FLOOR ELEVATOR LOBBY. COORDINATE CONNECTION OF CONTROL RELAYS TO ELEVATOR EQUIPMENT WITH ELEVATOR SERVICE CONTRACTOR.

(15) INSTALL NEW DIGITAL ALARM COMMUNICATOR/TRANSMITTER (DACT) IN FACP AND CONNECT/CONFIGURE TO RELAY ALL FIRE ALARM, SUPERVISORY AND TROUBLE SIGNALS FROM EXISTING (SHOPS BUILDING) AND NEW (SOUTH CAMPUS BUILDING) FIRE ALARM CONTROL PANELS TO REMOTE MONITORING STATION. EXISTING PHONE LINES AND MONITORING ACCOUNT MAY BE REUSED.

(16) INSTALL NEW FCI LVD-E3 REMOTE ANNUNCIATOR PANEL ADJACENT OT PULL STATION AT MAIN BUILDING ENTRY. ANNUNCIATOR MAY BE SURFACE MOUNTED BUT ALL CONDUIT SHALL BE CONCEALED IN WALL. PROVIDE NEW CIRCUIT (MINUMUM OF 4 CONDUCTORS) FROM FACP TO ANNUNCIATOR.

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SLCC SOUTH CAMPUS
SALT LAKE CITY, UTAH

FIRE ALARM SYSTEM UPGRADES
DFCM PROJECT #08074670

FIRE ALARM NOTES DETAILS & SCHEDULES
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