

**HENRY ADAMS**  
CONSULTING ENGINEERS



# HOWARD COUNTY PUBLIC SCHOOL SYSTEM

# CAFETERIA HVAC UNIT CONVERSIONS

## HCPSS BID NO. 123.23.B3

CONSTRUCTION DOCUMENTS  
MAY 25, 2023

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## APPLICABLE CODES AND STANDARDS

IBC 2021. INTERNATIONAL BUILDING CODE.  
IECC 2021. INTERNATIONAL ENERGY CONSERVATION CODE.  
IMC 2021. INTERNATIONAL MECHANICAL CODE.  
NFPA 70, 2020. NATIONAL ELECTRICAL CODE.

## SCHOOLS IN PROJECT

DAYTON OAKS ELEMENTARY SCHOOL - DAYTON, MD  
ELKRIDGE LANDING MIDDLE SCHOOL - ELKRIDGE, MD  
FULTON ELEMENTARY SCHOOL - FULTON, MD  
GLENELG HIGH SCHOOL - GLENELG, MD  
GORMAN CROSSING ELEMENTARY SCHOOL - LAUREL, MD  
HARPERS CHOICE MIDDLE SCHOOL - COLUMBIA, MD  
HOLLIFIELD STATION ELEMENTARY SCHOOL - ELLICOTT CITY, MD  
MAYFIELD WOODS MIDDLE SCHOOL - ELKRIDGE, MD  
OAKLAND MILLS HIGH SCHOOL - COLUMBIA, MD  
RIVER HILL HIGH SCHOOL - CLARKSVILLE, MD  
VETERANS ELEMENTARY SCHOOL - ELLICOTT CITY, MD



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PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

## CAFETERIA HVAC UNIT CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

[illegible]

## KEY PLAN

# GENERAL COVER SHEET

PROJECT NUMBER	PQ-10028674
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DATE 05/25/2023

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DRAWN BY BMB

CHECKED BY \_\_\_\_\_ SRH

G001



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NO.	DESCRIPTION	DATE

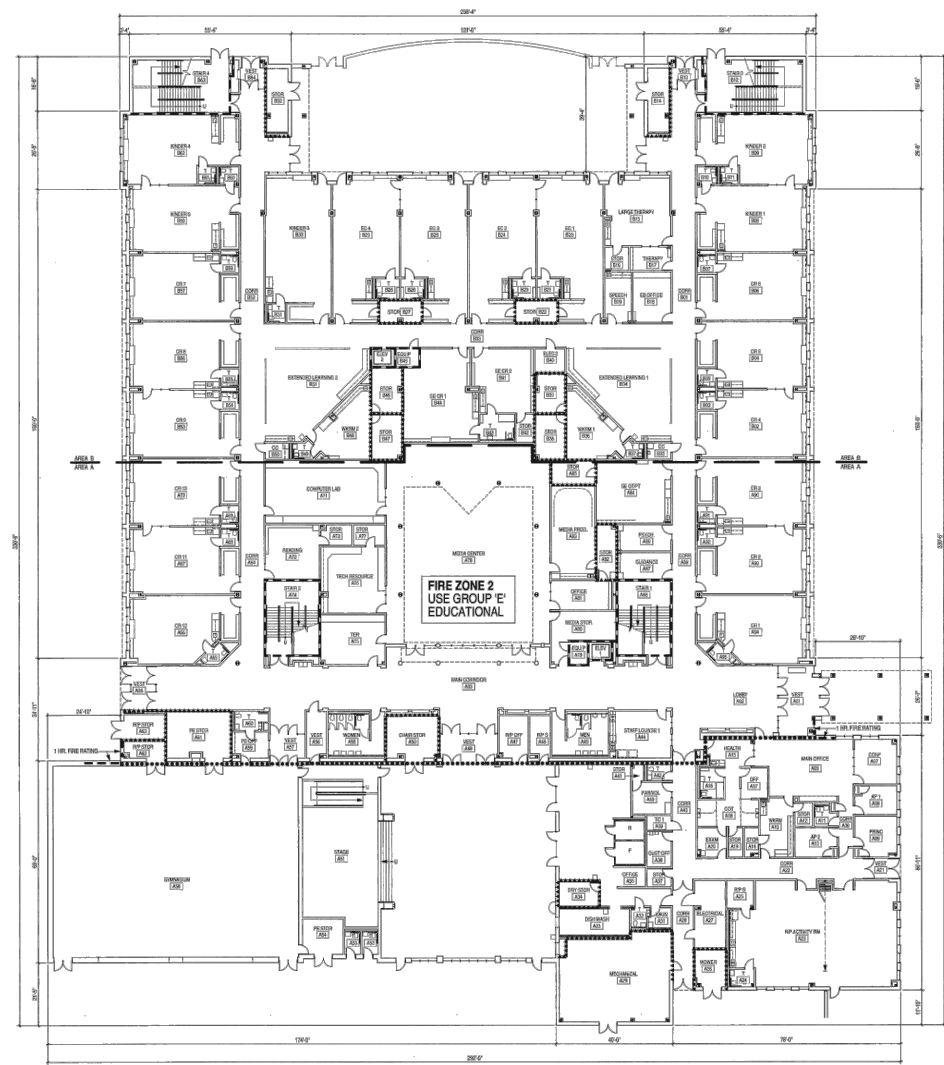
KEY PLAN

KEY PLANS

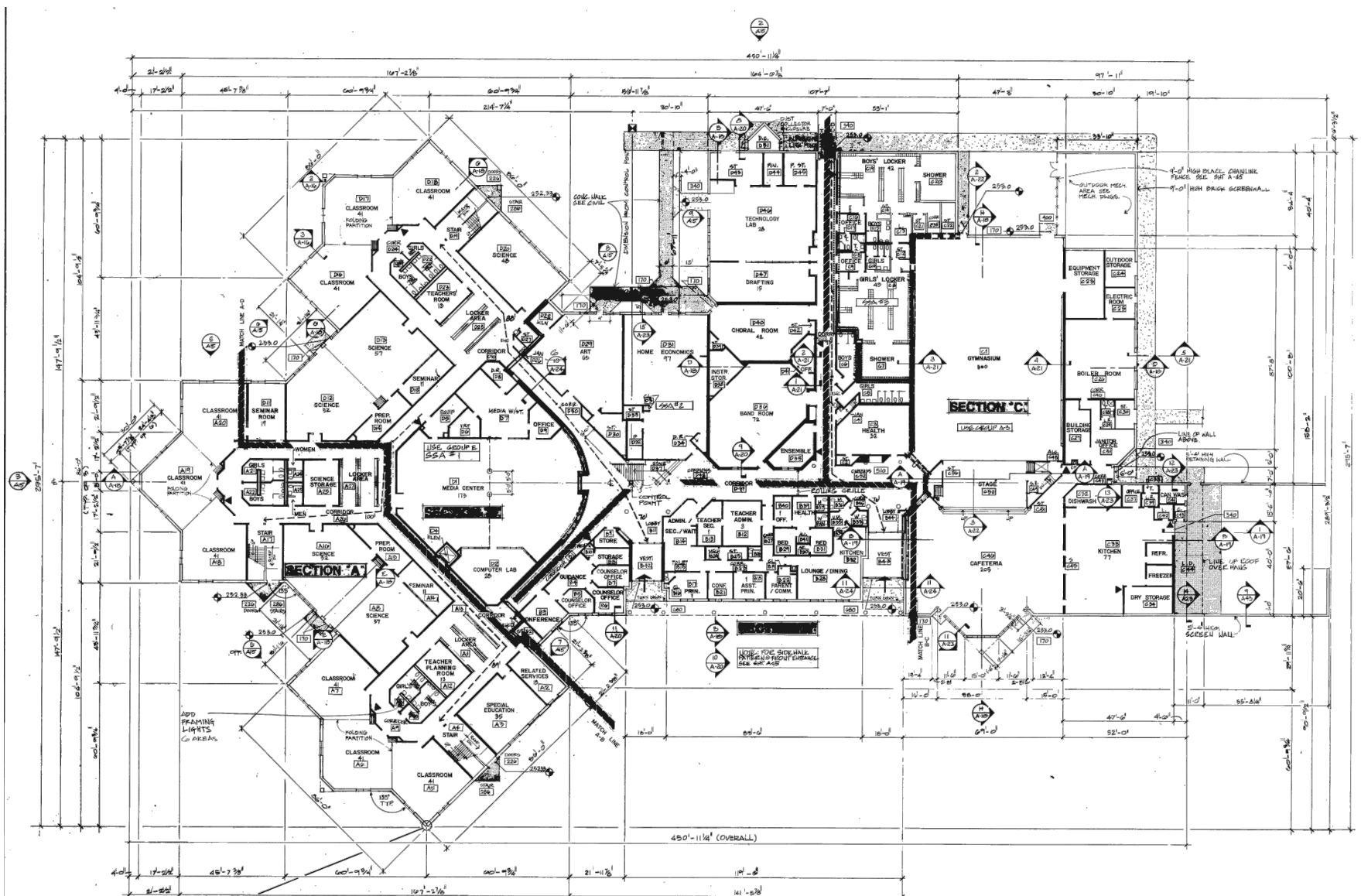
PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	BMB
CHECKED BY	SRH

G002

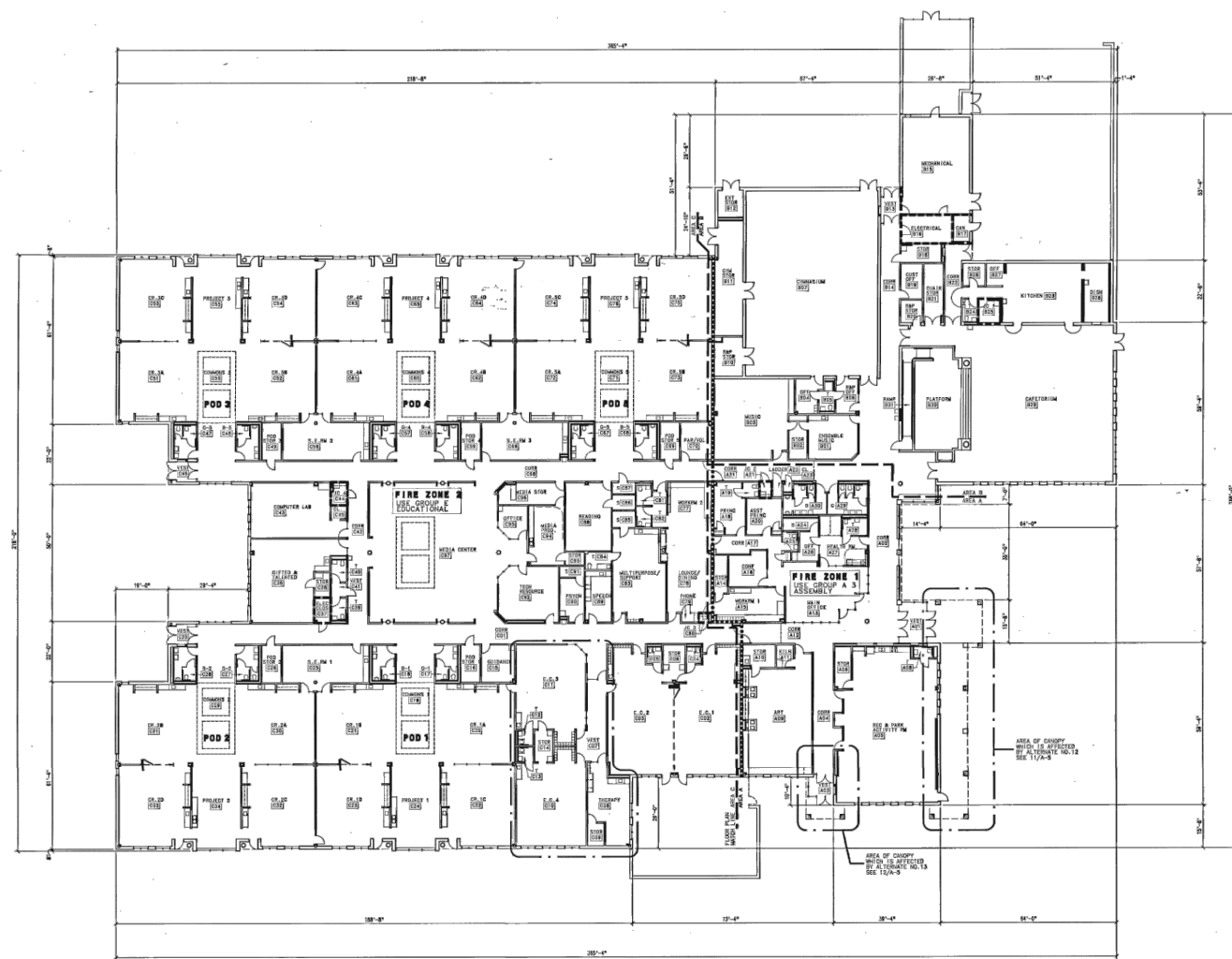
SCOPE SUMMARY									
UNIT NO	LOCATION	PACKAGED UNIT - SINGLE POINT POWER CONNECTION	SA FAN	RA FAN	EA FAN	NEW VFD'S	ELECTRIC REHEAT COIL	HOT WATER REHEAT COIL	NOTES
AHU-5	DAYTON OAKS ES	NO	YES	YES, W/EX VFD	NO	NO	NO	YES	
AHU-5	ELKRIDGE LANDING MS	NO	YES	NO	NO	YES	NO	YES	
RTU-3	FULTON ES	NO	YES	YES	NO	YES	NO	YES	
AHU-2	GLENELG HS	NO	YES	NO	NO	YES	YES	NO	
AQU-3	GORMAN CROSSING ES	YES	YES	NO	YES, W/EX VFD	NO	NO	YES, EX	
AHU-4	HARPER'S CHOICE ES	NO	YES	NO	NO	YES	YES	NO	
RF-4	HARPER'S CHOICE ES	NO	NO	YES	NO	YES	N/A	N/A	
AHU-3	HOLLIFIELD STATION ES	NO	YES	YES	NO	YES	NO	YES	
AQU-2	HOLLIFIELD STATION ES	YES	YES	NO	YES, W/EX VFD	NO	NO	YES, EX	
AHU-5	MAYFIELD WOODS MS	NO	YES	NO	NO	YES	NO	YES	
AHU-4	OAKLAND MILLS HS	NO	YES	NO	NO	YES	NO	YES	
AHU-12	RIVER HILL HS	NO	YES	YES	NO	YES	NO	YES	
AHU-5	VETERANS ES	NO	YES	YES, W/EX VFD	NO	NO	NO	YES	



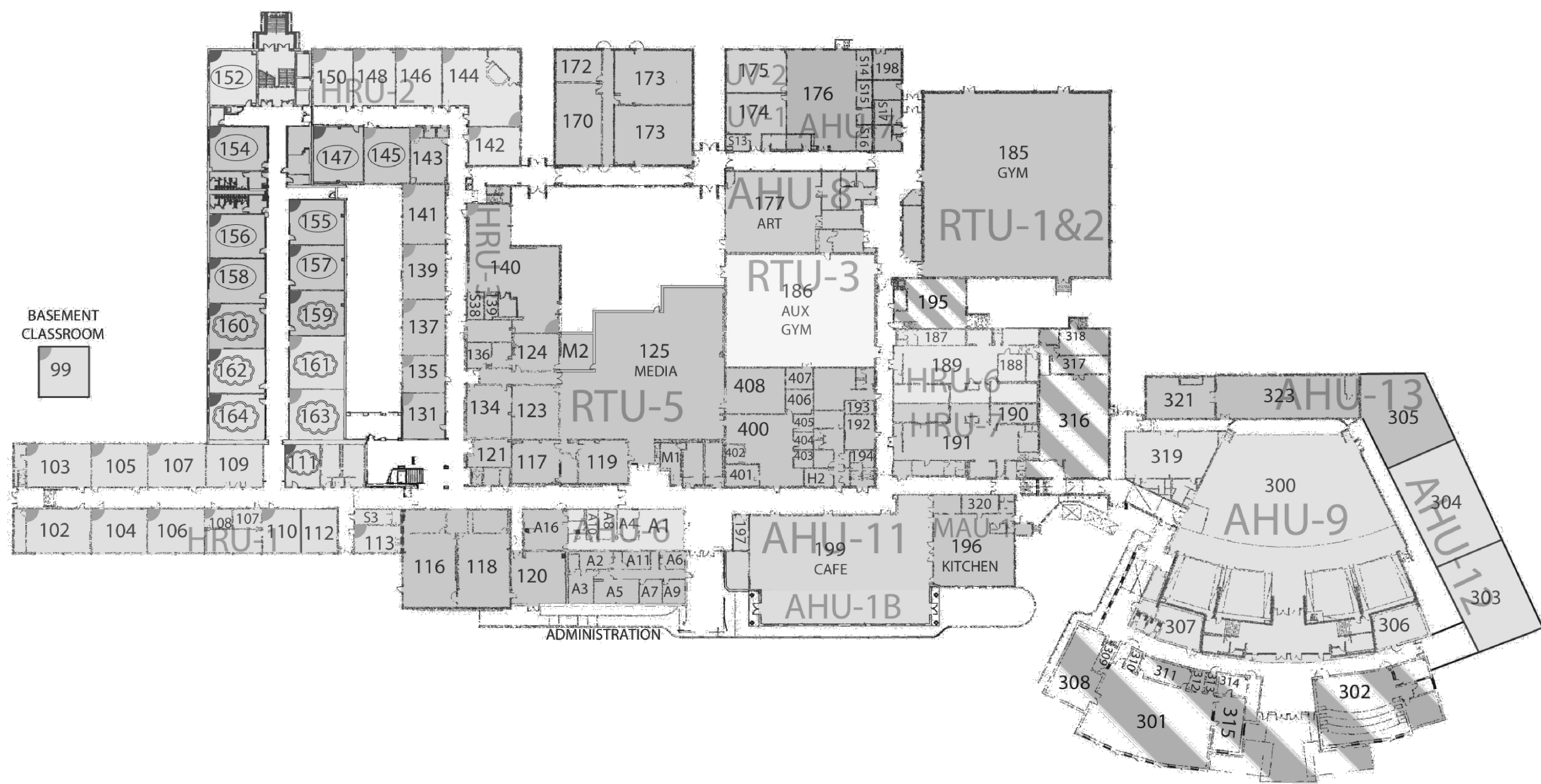
1 DAYTON OAKS ES - FIRST FLOOR PLAN  
G002 1/64" = 1'-0"



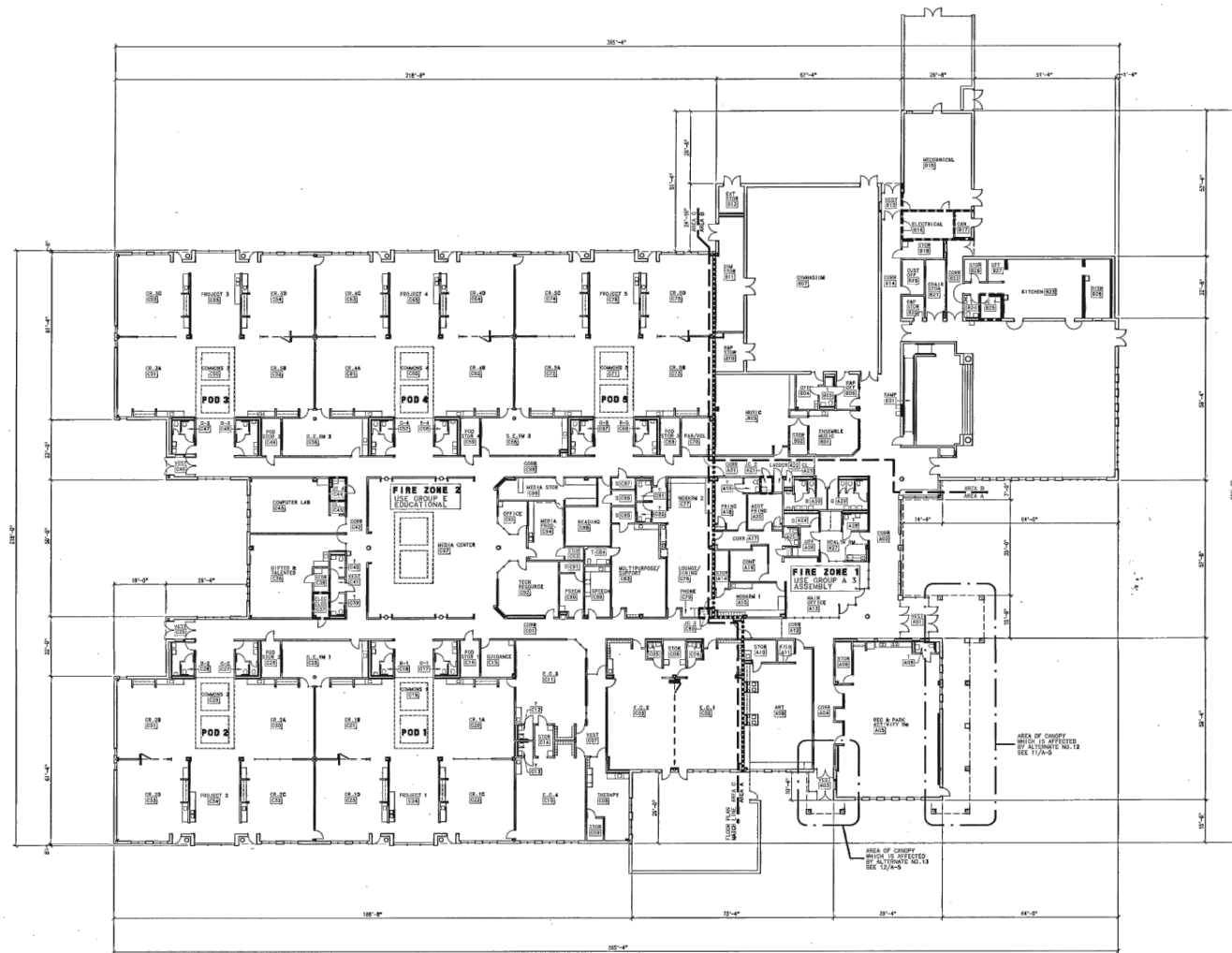
2 ELKRIDGE LANDING ES - FIRST FLOOR PLAN  
G002 1/64" = 1'-0"



3 FULTON ES - FIRST FLOOR PLAN  
G002 1/64" = 1'-0"



4 GLENELG ES - FIRST FLOOR PLAN  
G002 1/64" = 1'-0"



5 GORMAN CROSSING ES - FIRST FLOOR PLAN  
G002 1/64" = 1'-0"



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EXPIRATION DATE: 01/09/2024

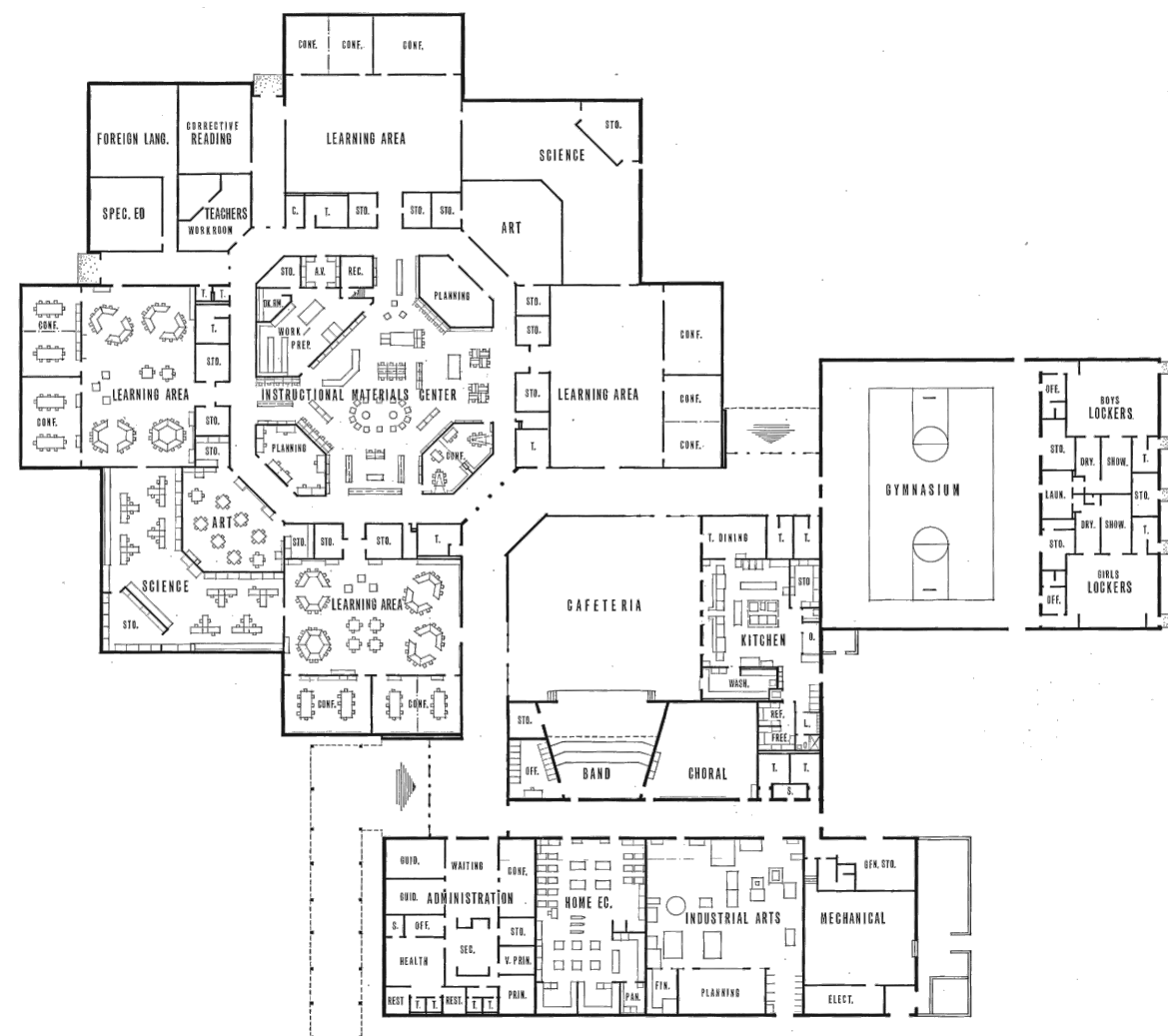
NO.	DESCRIPTION	DATE

KEY PLAN

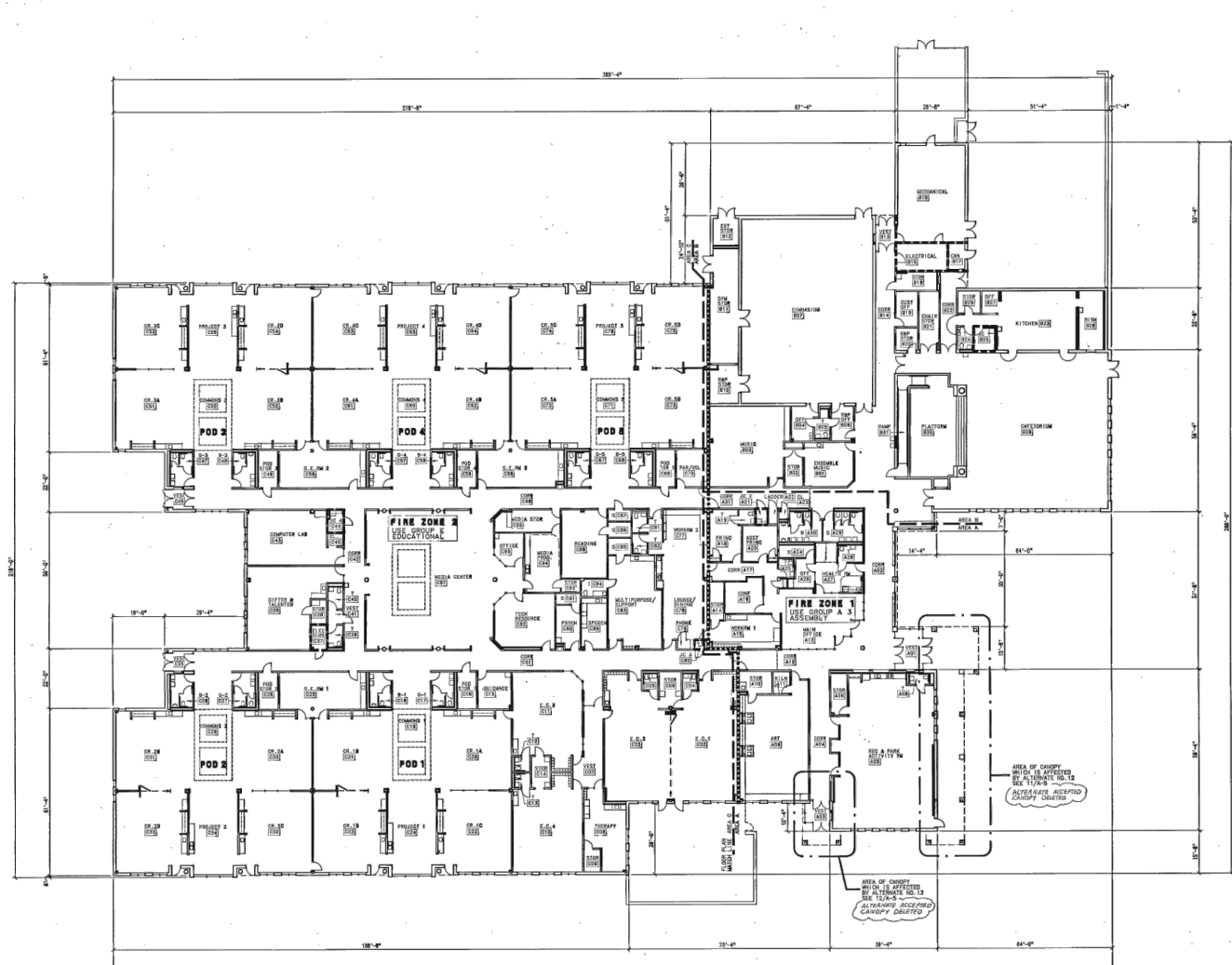
KEY PLANS

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
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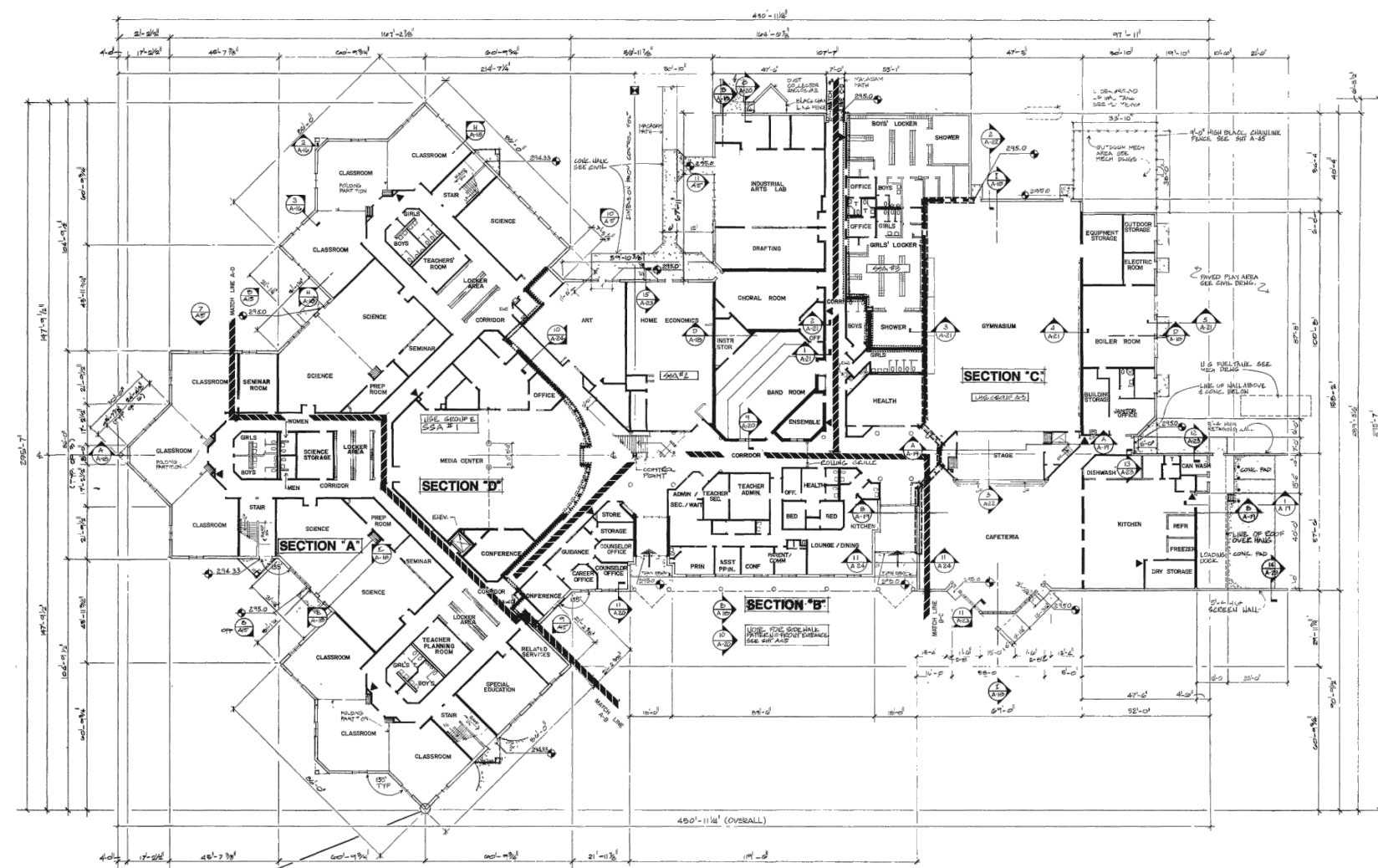
G003



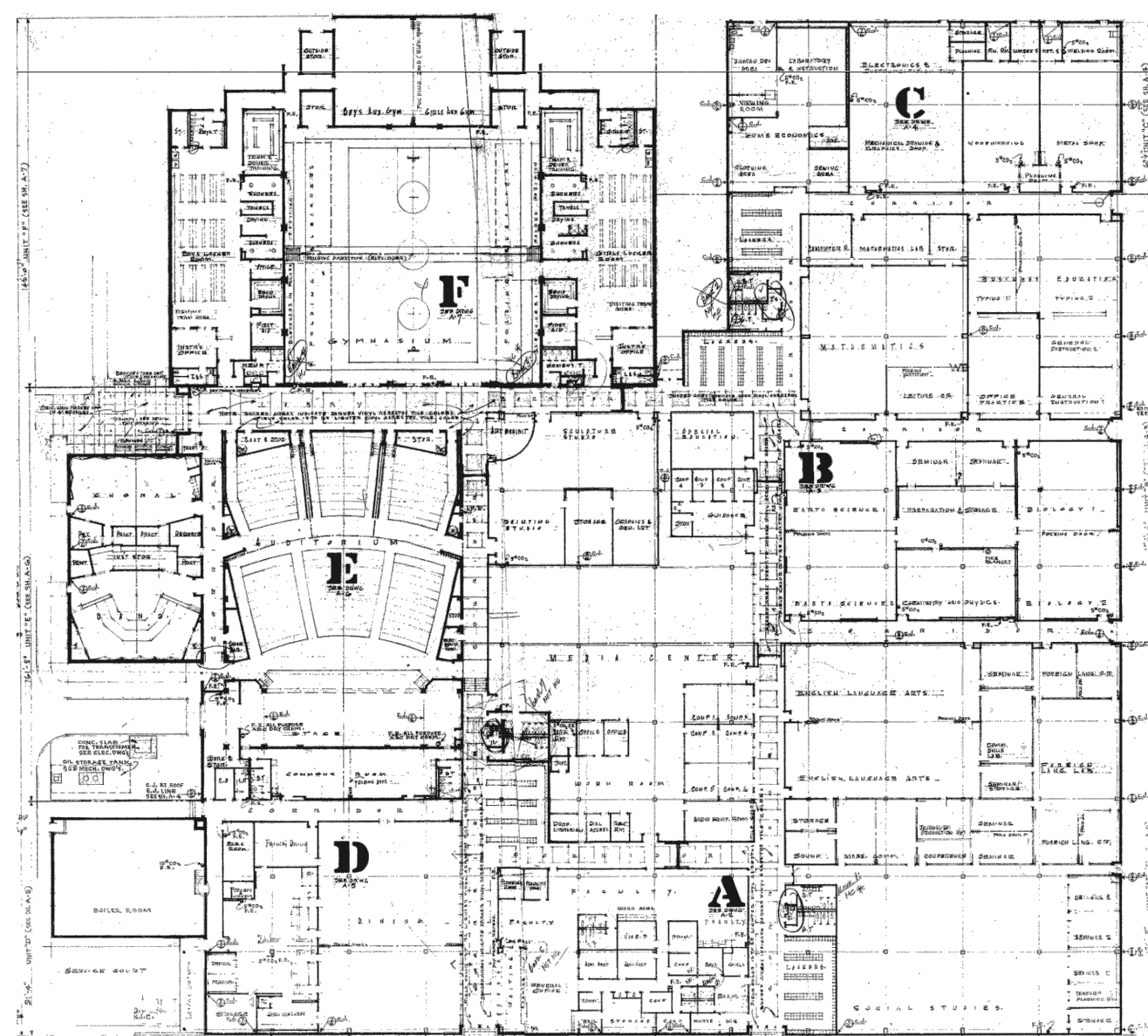
1 HARPER'S CHOICE ES - FIRST FLOOR PLAN  
G003 1/16" = 1'-0"



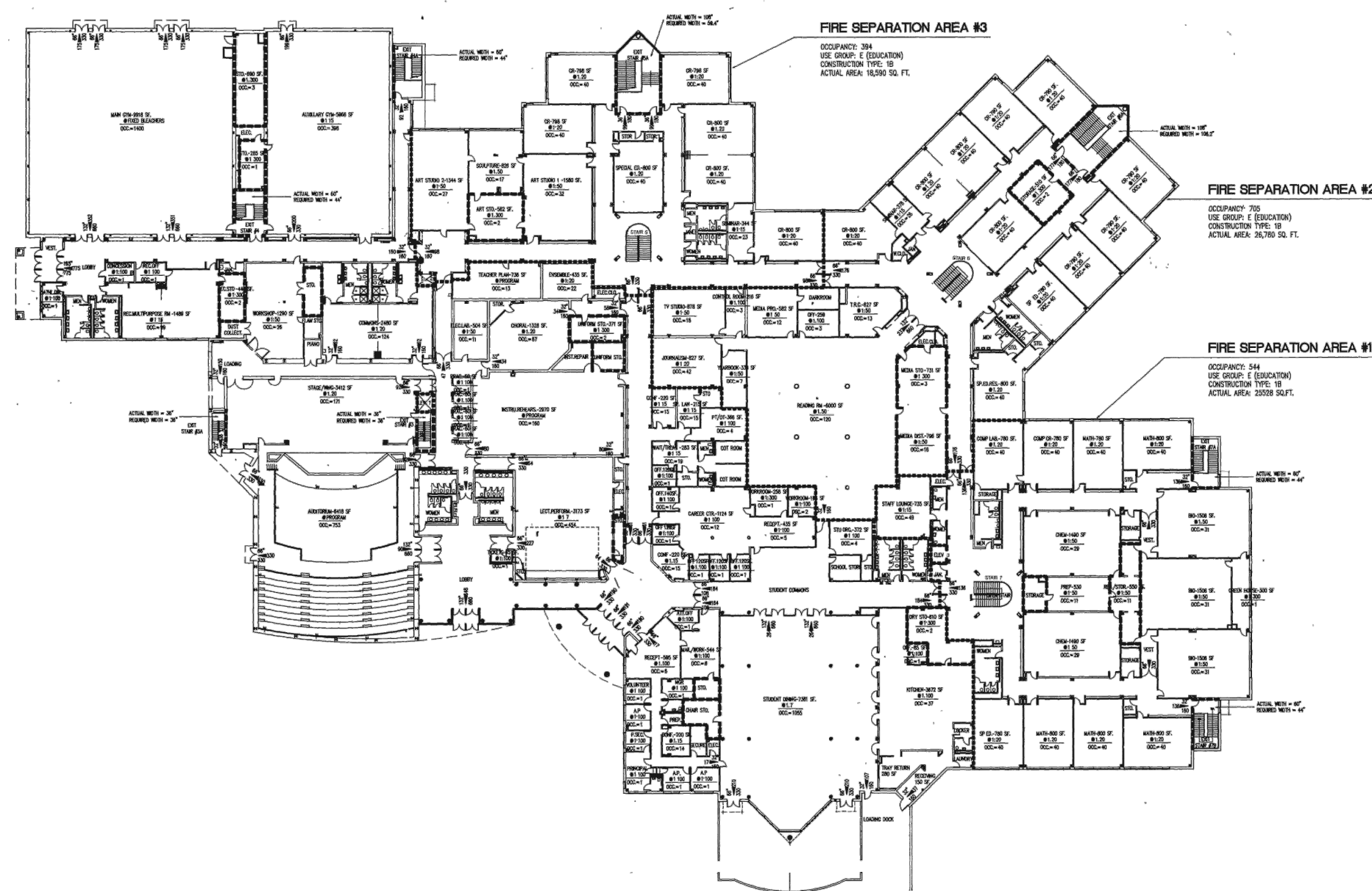
2 HOLLIFIELD STATION ES - FIRST FLOOR PLAN  
G003 1/16" = 1'-0"



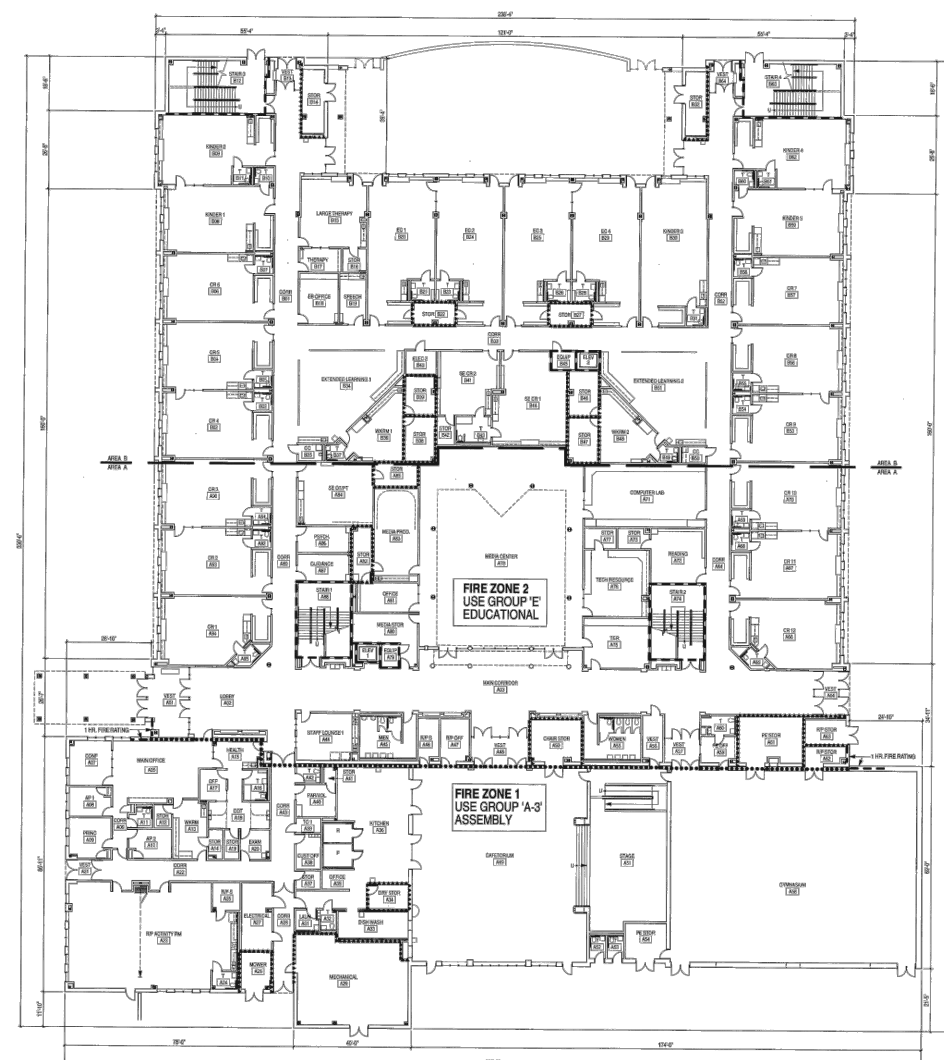
3 MAYFIELD WOODS MS - FIRST FLOOR PLAN  
G003 1/16" = 1'-0"



4 OAKLAND MILLS HS - FIRST FLOOR PLAN  
G003 1/16" = 1'-0"



5 RIVER HILL HS - UPPER LEVER FLOOR PLAN  
G003 1/16" = 1'-0"



7 VETERANS ES - FIRST FLOOR PLAN  
G003 1/16" = 1'-0"



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LICENSE NO: 3724

EXPIRATION DATE: 01/09/202

[illegible]

### KEY PLAN

## MECHANICAL COVER SHEET















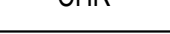
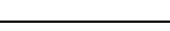
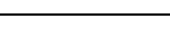

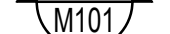
PROJECT NUMBER	PO-1002867
DATE	05/25/2020
DRAWN BY	BM
CHECKED BY	SR

# M001

(APPLICABLE TO ALL MECHANICAL DRAWINGS)

1. COORDINATE ALL MECHANICAL WORK WITH WORK OF OTHER TRADES SHOWN ON OTHER DRAWINGS.
2. INSTALL DUCTWORK SO THAT ALL DAMPERS ARE ACCESSIBLE.
3. CERTAIN ITEMS SUCH AS ACCESS DOORS, RISE AND DROPS IN DUCTWORK, ETC., ARE INDICATED ON THE DRAWINGS FOR CLARITY OR A SPECIFIC LOCATION REQUIREMENT AND SHOULD BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THESE ITEMS AS REQUIRED ELSEWHERE IN THE CONTRACT DOCUMENTS.
4. WHERE THE INSTALLATION OF NEW SERVICES OR THE EXTENSION OF EXISTING SERVICES REQUIRES CUTTING OF EXISTING FLOORS, WALLS, PARTITIONS, ETC., CHECK FOR THE PRESENCE OF EXISTING MECHANICAL, PLUMBING AND ELECTRICAL SERVICES WITHIN OR IMMEDIATELY BENEATH CONSTRUCTION. EXERCISE NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO THE SERVICES OR INJURY TO PERSONNEL DUE TO CONTACT WITH SAME. TEMPORARILY DISCONNECT SERVICES DURING THE CUTTING OPERATION. SCHEDULE SERVICE OUTAGES IN ADVANCE WITH THE COR.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR RESEARCHING ALL SYSTEMS THAT A PARTICULAR OUTAGE WILL AFFECT AS WELL AS LOCATING ALL SHUTOFF POINTS. INCLUDE THIS INFORMATION IN THE OUTAGE PLAN AND SUBMIT TO COR FOR APPROVAL.
6. EXCEPT AS OTHERWISE NOTED, LOCATE ALL ROOM THERMOSTATS ABOVE FINISHED FLOOR ON SAME HORIZONTAL CENTERLINE AS LIGHT SWITCH. WHERE LIGHT SWITCH AND THERMOSTAT ARE ADJACENT TO EACH OTHER, LIGHT SWITCH SHALL BE CLOSEST TO THE DOOR. COORDINATE WITH ELECTRICAL CONTRACTOR. NOTIFY THE COR OF ROOMS WHERE THE ABOVE LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.
7. RECYCLE MERCURY SWITCH THERMOSTATS THAT ARE REMOVED. DELIVER RECYCLED THERMOSTATS TO PARTICIPATING WHOLESALERS.

(APPLICABLE TO ALL MECHANICAL DRAWINGS)

SYMBOL	DESCRIPTION
	PIPE CAP
	CONNECT TO EXISTING
	END OF DEMOLITION
	SUPPLY AIR DUCT
	EXHAUST AIR DUCT
	RETURN AIR DUCT
	VOLUME DAMPER
	BAROMETRIC RELIEF DAMPER
	FAN MOTOR
	THERMOSTAT/ TEMPERATURE SENSOR
	COMBINATION THERMOSTAT/ HUMIDITY SENSOR/ CARBON DIOXIDE SENSOR
	OCCUPANCY SENSOR
	REHEAT COIL
	ELECTRIC DUCT HEATER
	FLEXIBLE DUCT
	CHILLED WATER RETURN
	CHILLED WATER SUPPLY
	HEATING WATER RETURN
	HEATING WATER SUPPLY
	PLAN/SECTION DESIGNATION TOP - PLAN/SECTION REFERENCE BOTTOM - REFERENCED DRAWING

(APPLICABLE TO ALL MECHANICAL DRAWINGS)

ACRONYM	SCHOOL
DOES	DAYTON OAKS ELEMENTARY SCHOOL
ELMS	ELKRIDGE LANDING MIDDLE SCHOOL
FES	FULTON ELEMENTARY SCHOOL
GHS	GLENELG HIGH SCHOOL
GCES	GORMAN CROSSING ELEMENTARY SCHOOL
HCES	HARPERS CHOICE MIDDLE SCHOOL
HSES	HOLLIFIELD STATION ELEMENTARY SCHOOL
MMWS	MAYFIELD WOODS MIDDLE SCHOOL
OMHS	OAKLAND MILLS HIGH SCHOOL
RHHS	RIVER HILL HIGH SCHOOL
VES	VETERANS ELEMENTARY SCHOOL

(APPLICABLE TO ALL MECHANICAL DRAWINGS)

ACU	AIR CONDITIONING UNIT
ADJ	ADJUSTABLE
AHU	AIR HANDLING UNIT
APD	AIR PRESSURE DROP
BAS	BUILDING AUTOMATION SYSTEM
CC	COOLING COIL
CFM	CUFT CUBIC PER MINUTE
CHS	CHILLED WATER SUPPLY
CHR	CHILLED WATER RETURN
COR	CONTRACTING OFFICER'S REPRESENTATIVE
CSR	CURRENT SENSING RELAY
CS	COMBINATION THERMOSTAT/ HUMIDITY SENSOR
	CARBON DIOXIDE SENSOR
D	DAMPER
DIFF	DIFFUSER
DPS	DIFFERENTIAL PRESSURE SWITCH
DTC	DUAL TEMPERATURE COIL
DIR	DUAL TEMPERATURE RETURN
DTS	DUAL TEMPERATURE SUPPLY
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EF	EXHAUST FAN
ES	ELEMENTARY SCHOOL
EWI	ENTERING WATER TEMPERATURE
EX	EXISTING
F	FREEZE/STAT
FLEX	FLEXIBLE DUCT
FST	FIRE STAT
G	GRILLE
GPM	GALLONS PER MINUTE
H	HEIGHT / HUMIDITY SENSOR
HC	HEATING COIL
HP	HORSEPOWER
HWC	HEATING WATER COIL
HS	HEATING WATER SUPPLY / HIGH SCHOOL
HR	HEATING WATER RETURN
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
M	MECHANICAL
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MIN	MINIMUM
MS	MIDDLE SCHOOL
N	NORTH
NC	NORMALLY CLOSED
NO	NORMALLY OPEN/ NUMBER
O	OCCUPANCY SENSOR
OA	OUTDOOR AIR
OED	OPEN END DUCT
OS	OCCUPANCY SENSOR
PH	PHASE
RA	RETURN AIR
RF	RETURN FAN
RHC	REHEAT COIL
RTU	ROOFTOP AIR HANDLING UNIT
RX	REMOVE EXISTING
S	END SWITCH
SA	SUPPLY AIR
SCR	SILICON CONTROLLED RECTIFIER
SD	SMOKE DETECTOR
SF	SUPPLY FAN
SPD	SPEED
SIS	START/STOP
T	TEMPERATURE / TEMPERATURE SENSOR
TYP	TYPICAL
V	VALVE / VOLTS
VD	VOLUME DAMPER
VFD	VARIABLE FREQUENCY DRIVE
W	WIDTH
WPD	WATER PRESSURE DROP

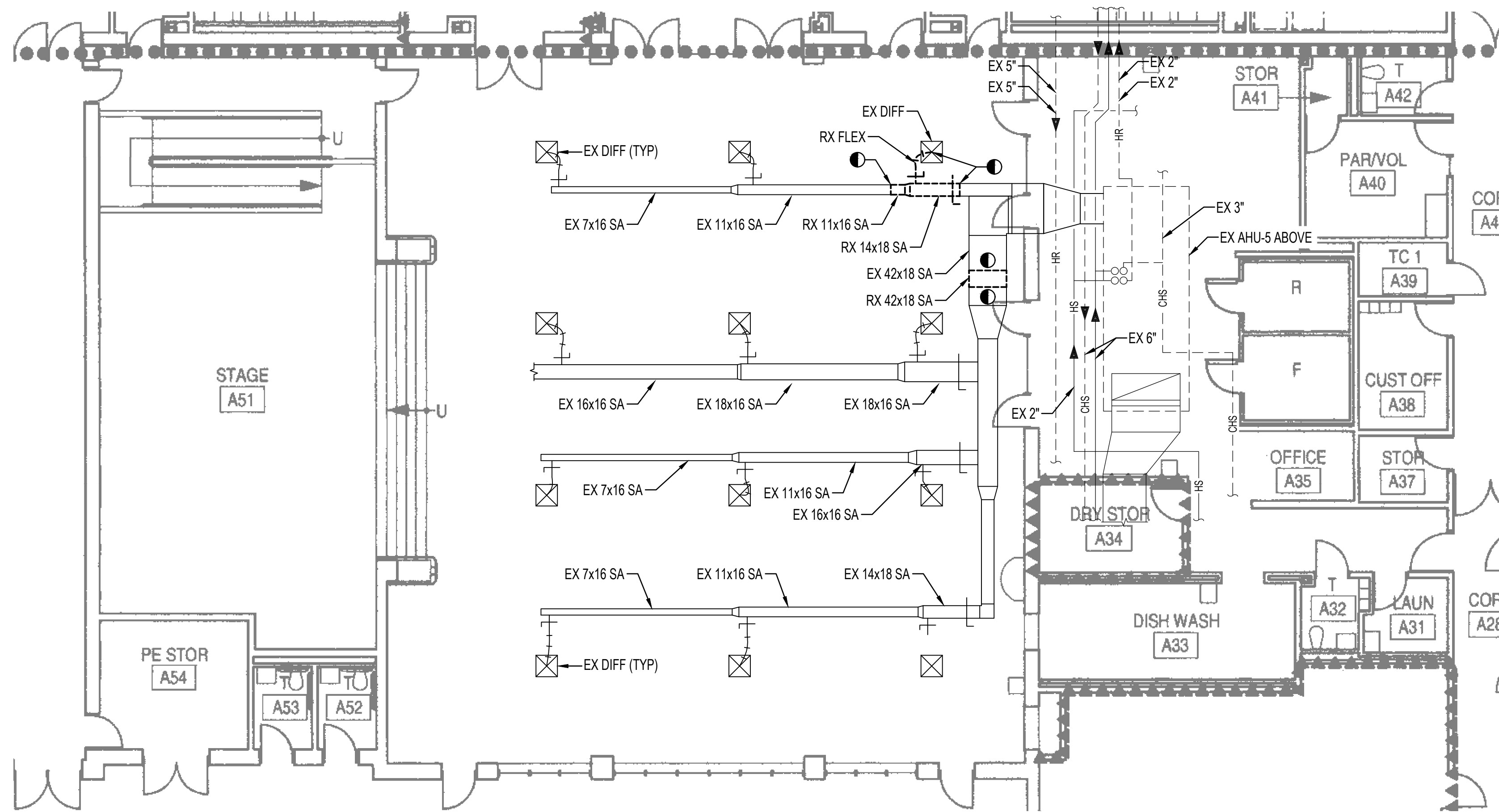


SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

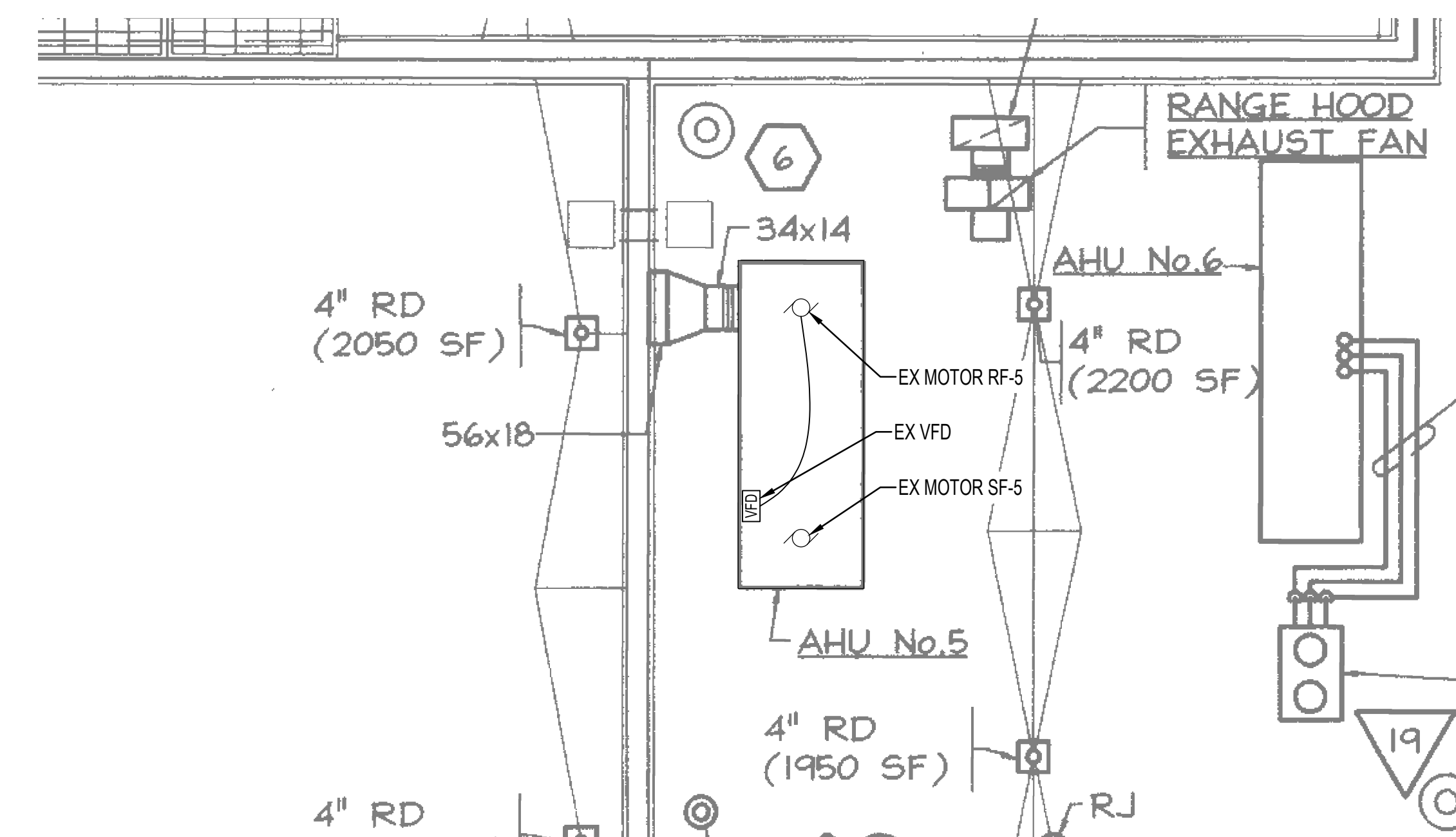
- 1 REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN A/C PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
- 2 PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
- 3 PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-5. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
- 4 BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 11M201 FOR THE DESIGN AIRFLOW RATES.

**DRAWING NOTES:** (APPLICABLE TO THIS DRAWING ONLY)

- |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | EXISTING SHOWN WITH LIGHT WEIGHT LINE. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2. | DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE. - - - - -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3. | NEW WORK SHOWN WITH HEAVY WEIGHT LINE. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4. | <p>INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL, OR DIMENSION. UNDER NO CIRCUMSTANCES SHALL THIS DRAWING BE USED AS AN IMMEDIATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 5. | <p>ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.</p> <p>FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SYSTEMS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CROQUIS METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).</p> |

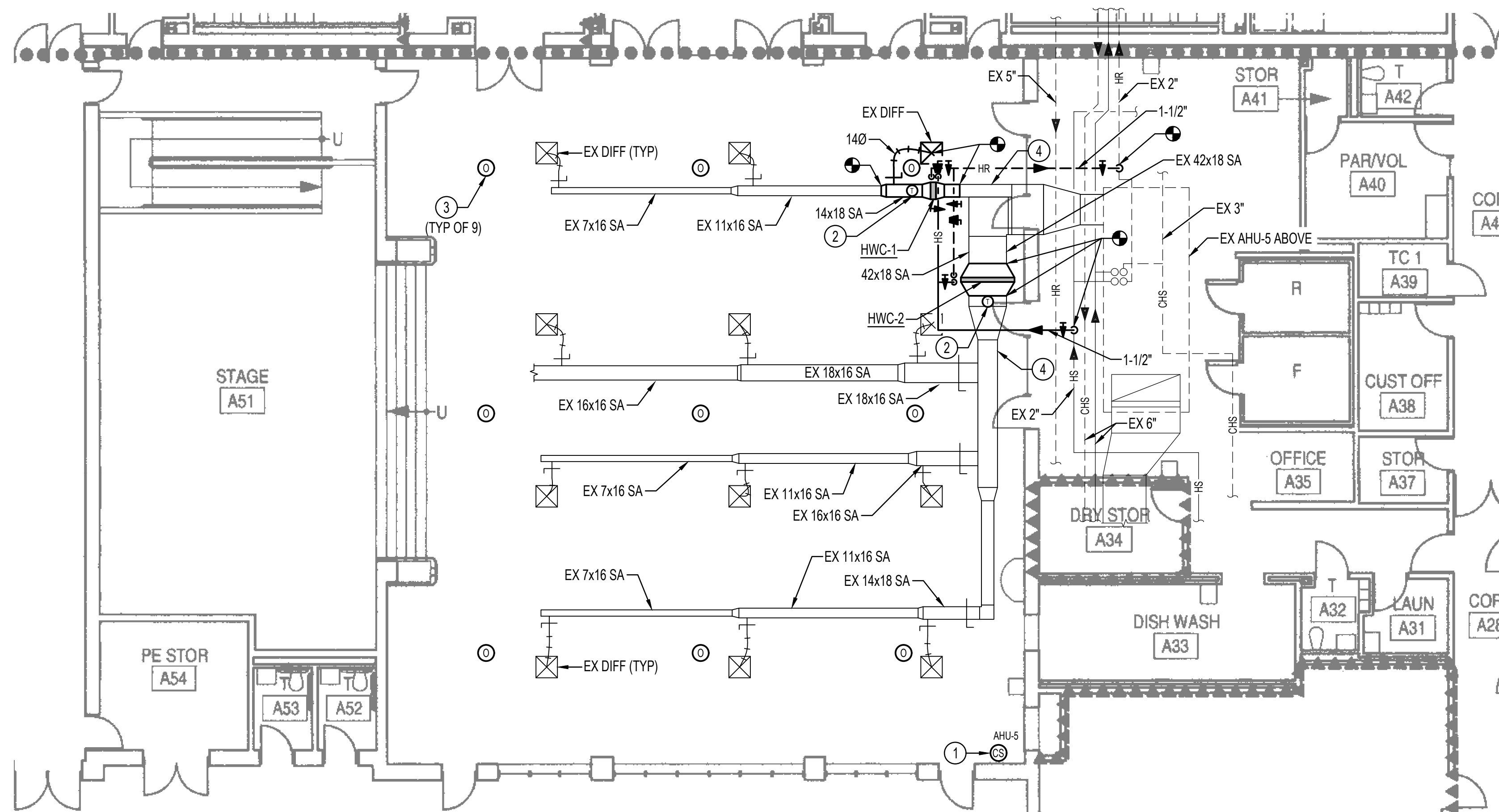


1 DAYTON OAKS ES - PARTIAL FIRST FLOOR PLAN - MECHANICAL - DEMOLITION



2 DAYTON OAKS ES - PARTIAL ROOF PLAN - MECHANICAL - EXISTING

NOTE: REFER TO AUTOMATIC CONTROLS FOR REQUIRED NEW WORK



3 DAYTON OAKS ES - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK



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05/25/2023

SEAL

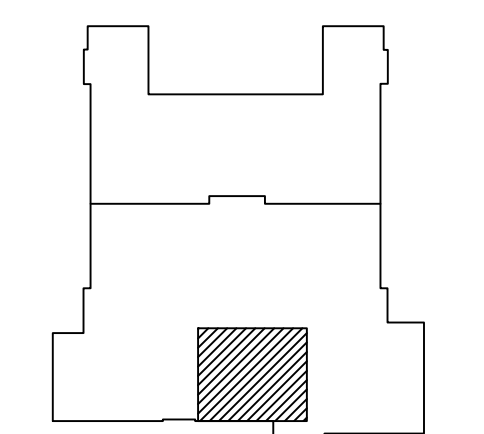
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

[illegible]

## KEY PLAN

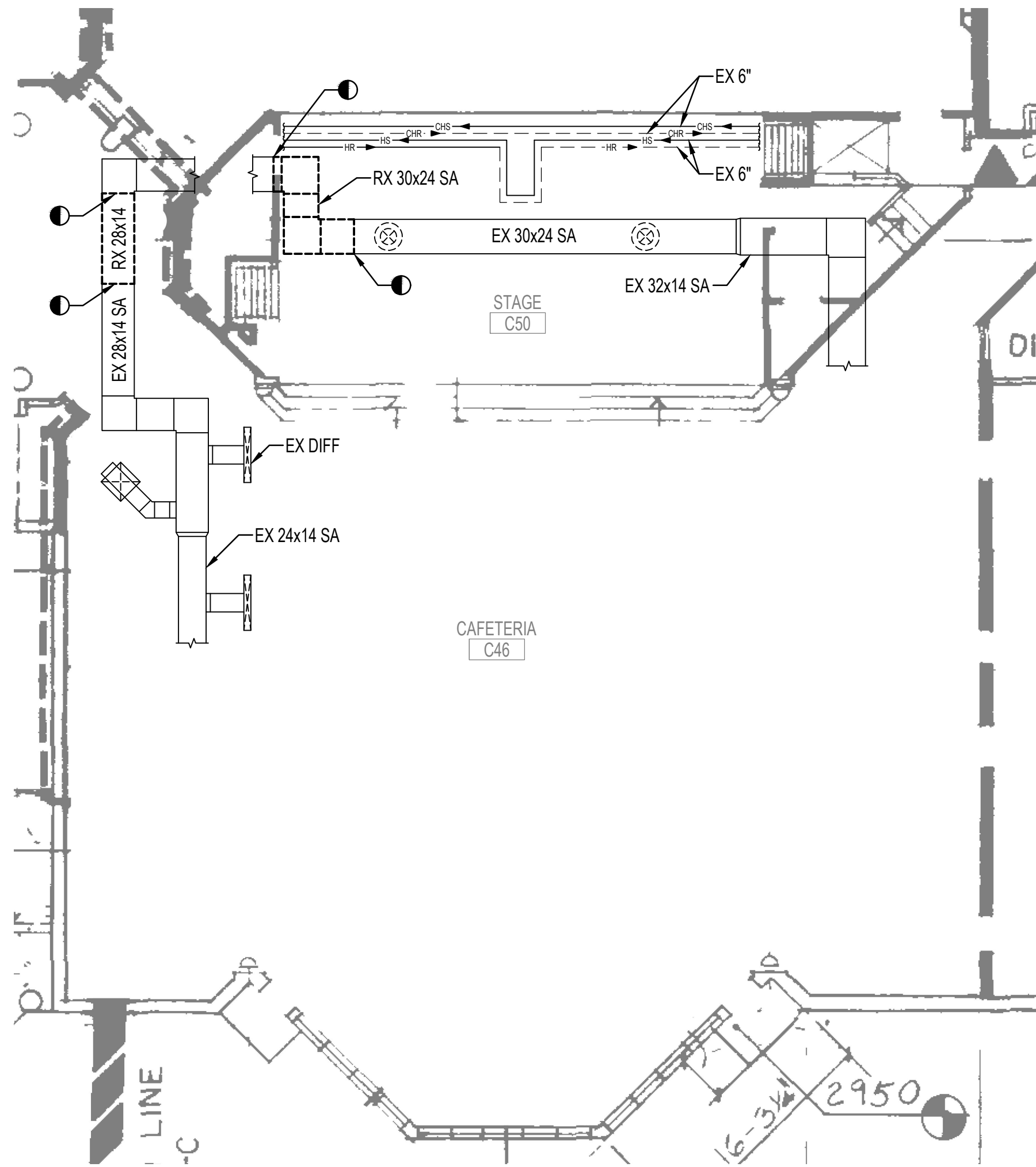


DAYTON OAKS ES - MECHANICAL WORK

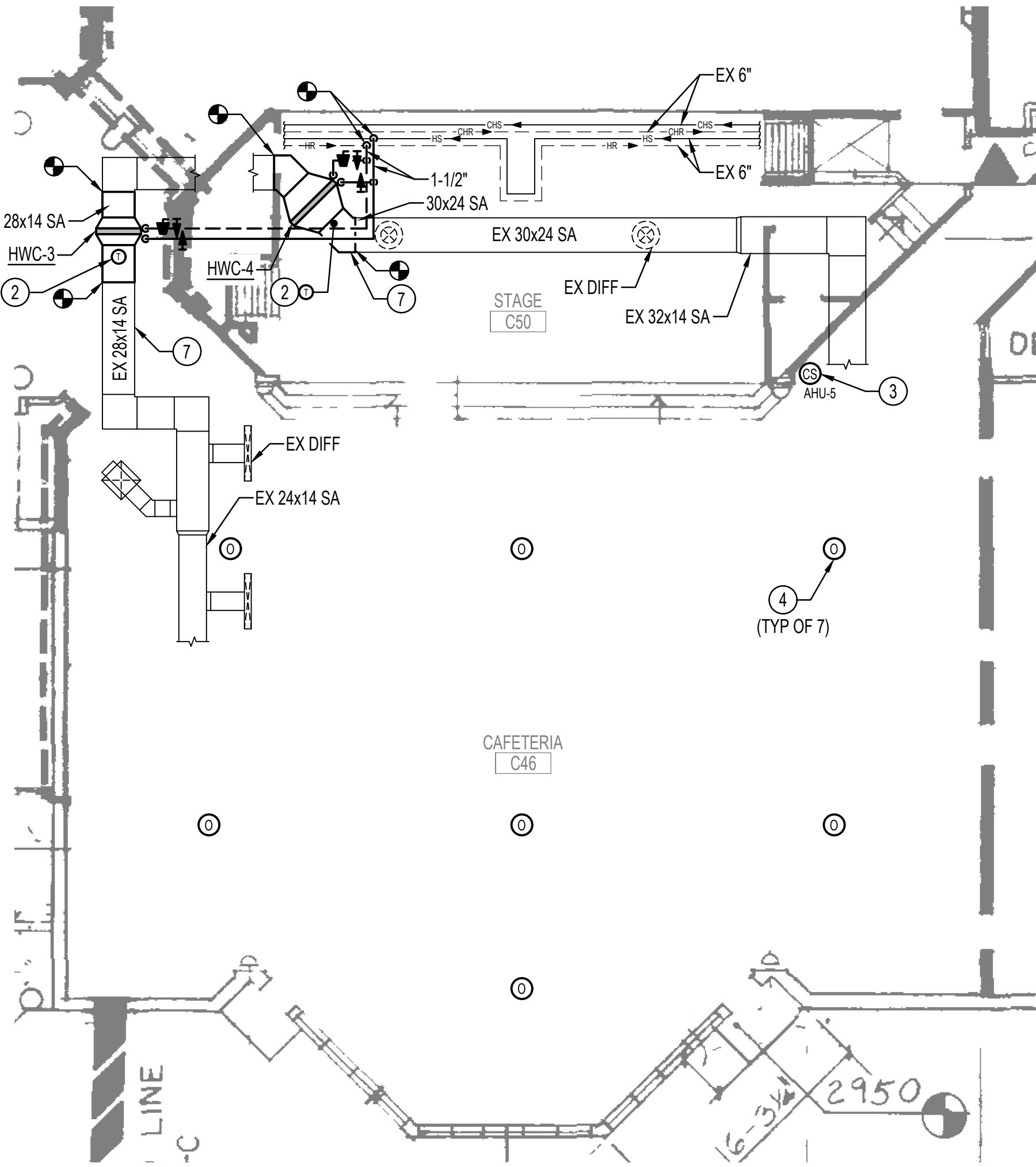
PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	NCV
CHECKED BY	BMB

M101





1 ELKRIDGE LANDING MS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - DEMOLITION  
M102 1/8" = 1'-0"



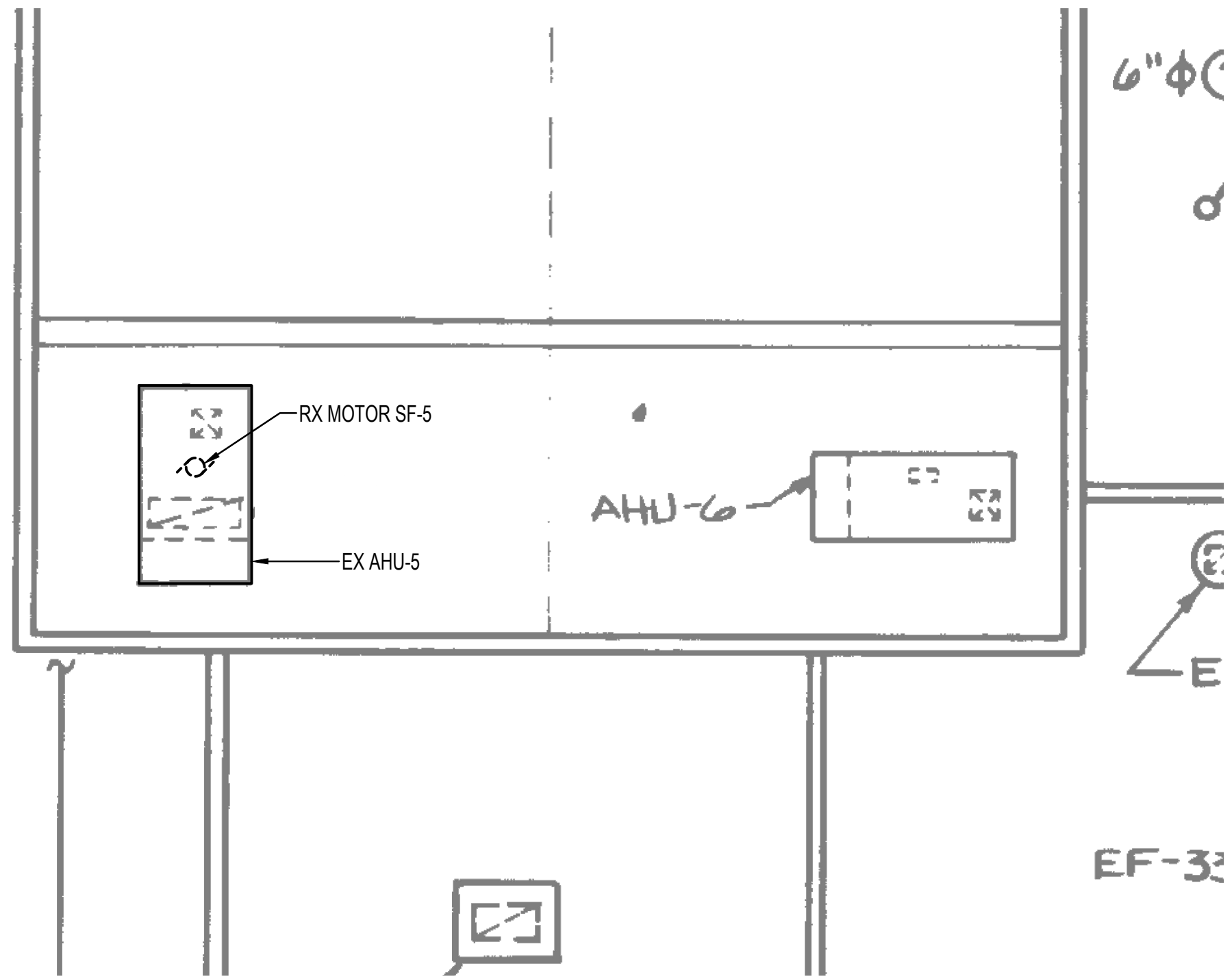
3 ELKRIDGE LANDING MS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK  
M102 1/8" = 1'-0"

SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

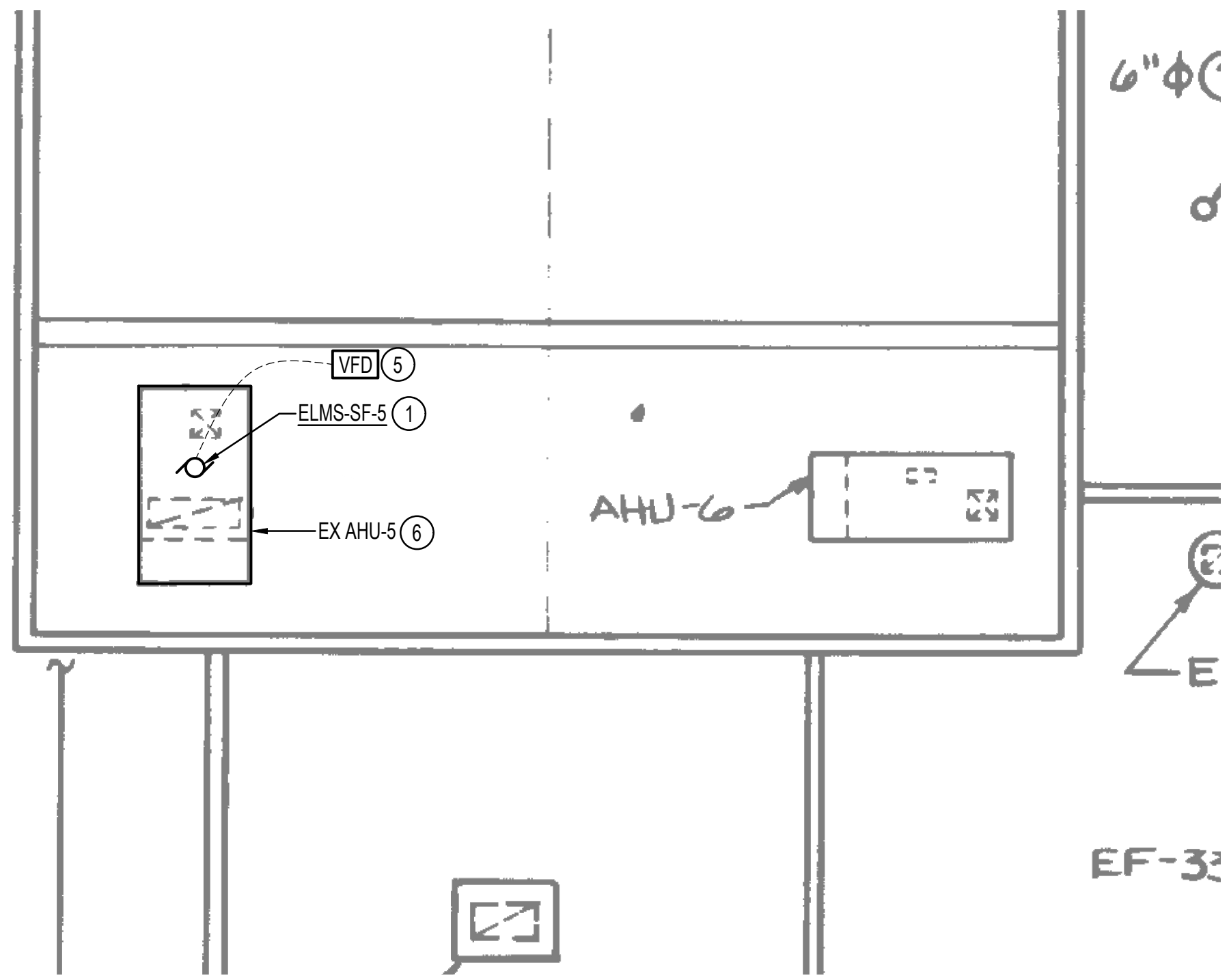
1. PROVIDE NEW INVERTER DUTY FAN MOTOR FOR ELMS-SF-5. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
2. PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
3. REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN ATC PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
4. PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-5. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
5. PROVIDE VFD IN NEMA-3R ENCLOSURE. VFD SHALL BE MOUNTED ON UNITSTRUT FRAMING ON ROOF. UNITSTRUT FRAMING SHALL BE SUPPORTED BY EXISTING STRUCTURE.
6. PROVIDE JACE CONTROLLER FOR EXISTING AHU-5. INTEGRATE THE JACE CONTROLLER INTO THE EXISTING HONEYWELL TRIDUUM BAS. COORDINATE WITH HCPSS FOR PREFERRED LOCATION.
7. BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 2/M201 FOR THE DESIGN AIRFLOW RATES.

DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

1. EXISTING SHOWN WITH LIGHT WEIGHT LINE, \_\_\_\_\_
2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE, - - - - -
3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE, \_\_\_\_\_
4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
5. ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
6. FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SPEAKERS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).



2 ELKRIDGE LANDING MS - PARTIAL ROOF PLAN - MECHANICAL - DEMOLITION  
M102 1/8" = 1'-0"



4 ELKRIDGE LANDING MS - PARTIAL ROOF PLAN - MECHANICAL - NEW WORK  
M102 1/8" = 1'-0"



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Consulting Engineers

MECHANICAL ELECTRICAL & PLUMBING ENGINEERS

MEP ENGINEERING  
**HENRY ADAMS, LLC**  
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SUITE 400  
BALTIMORE, MD 21204  
(410) 296-6500

PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

CAFETERIA HVAC UNIT  
CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

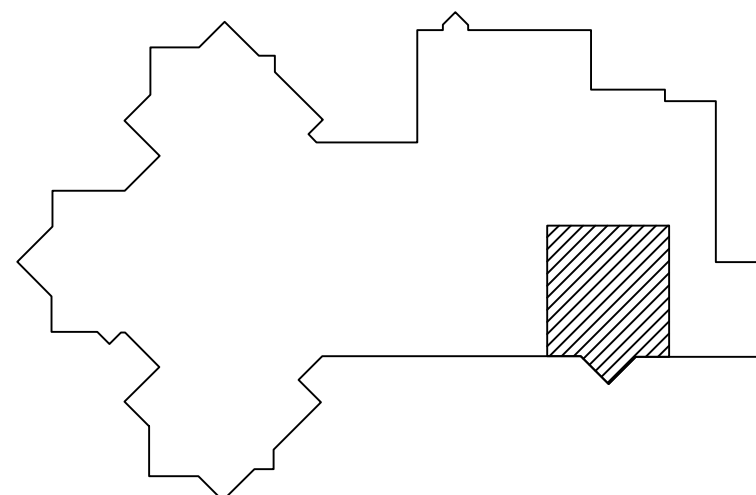
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LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

NO.	DESCRIPTION	DATE

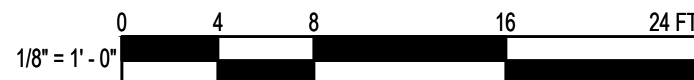
KEY PLAN



ELKRIDGE LANDING MS - MECHANICAL  
WORK

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	NCV
CHECKED BY	BMB

M102





SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

1. PROVIDE NEW INVERTER DUTY FAN MOTOR FOR FES-RF-3. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
2. PROVIDE NEW INVERTER DUTY FAN MOTOR FOR FES-SF-3. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
3. REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN ATC PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
4. PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
5. PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-3. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
6. PROVIDE VFD IN NEMA-3R ENCLOSURE. VFD SHALL BE MOUNTED ON UNITSTRUT FRAMING ON ROOF. UNITSTRUT FRAMING SHALL BE SUPPORTED BY EXISTING STRUCTURE.
7. BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 3/M201 FOR THE DESIGN AIRFLOW RATES.

DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

1. EXISTING SHOWN WITH LIGHT WEIGHT LINE.
2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE, -----
3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE.
4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
5. ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
6. FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SPEAKERS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISSURED, CERTAINTED FINE FISSURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).



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PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

CAFETERIA HVAC UNIT  
CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

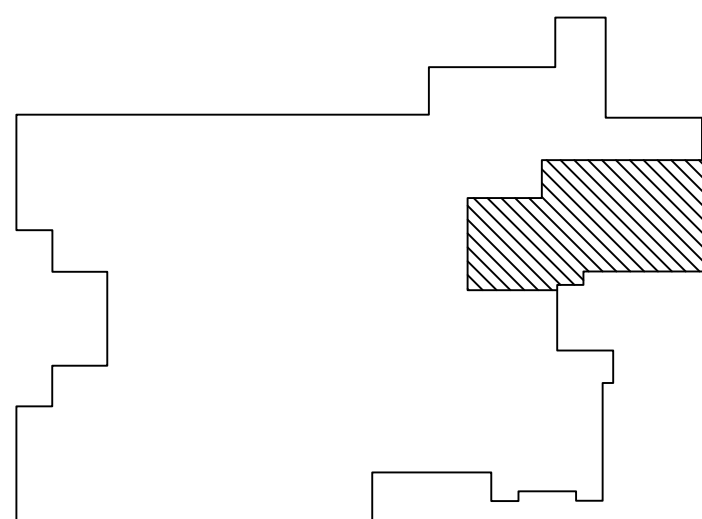
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LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

NO.	DESCRIPTION	DATE

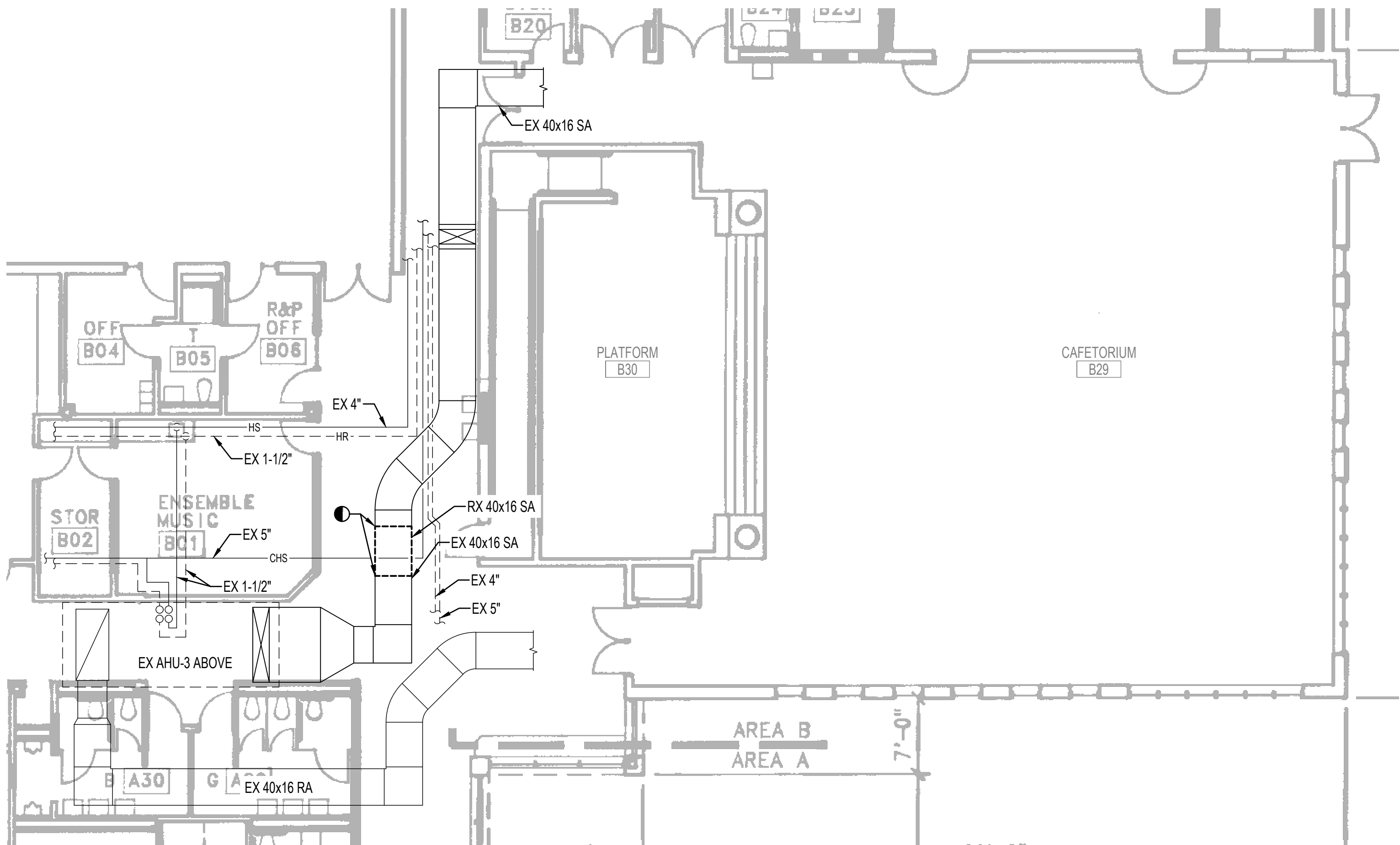
KEY PLAN



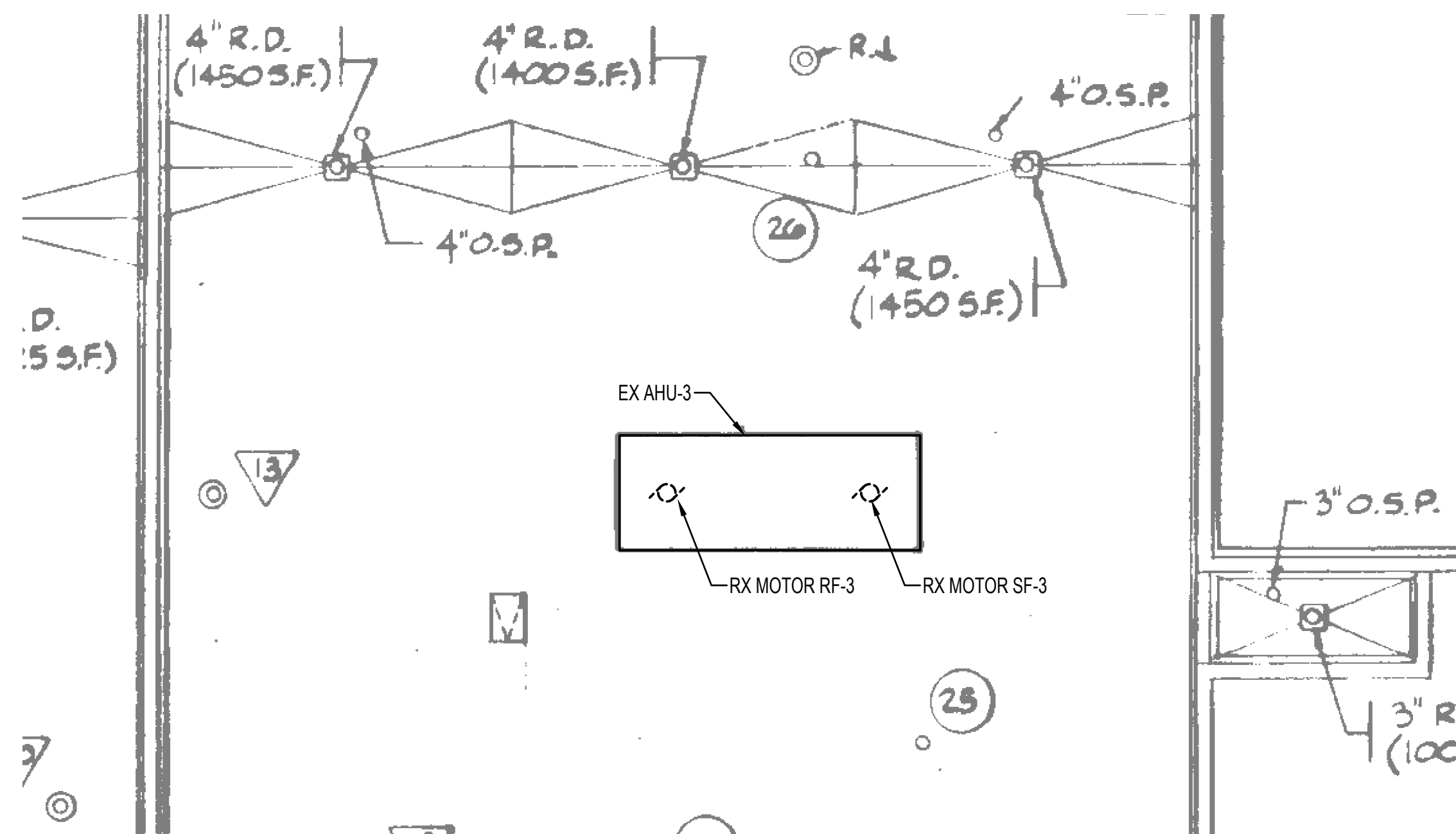
FULTON ES - MECHANICAL WORK

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	NCV
CHECKED BY	BMB

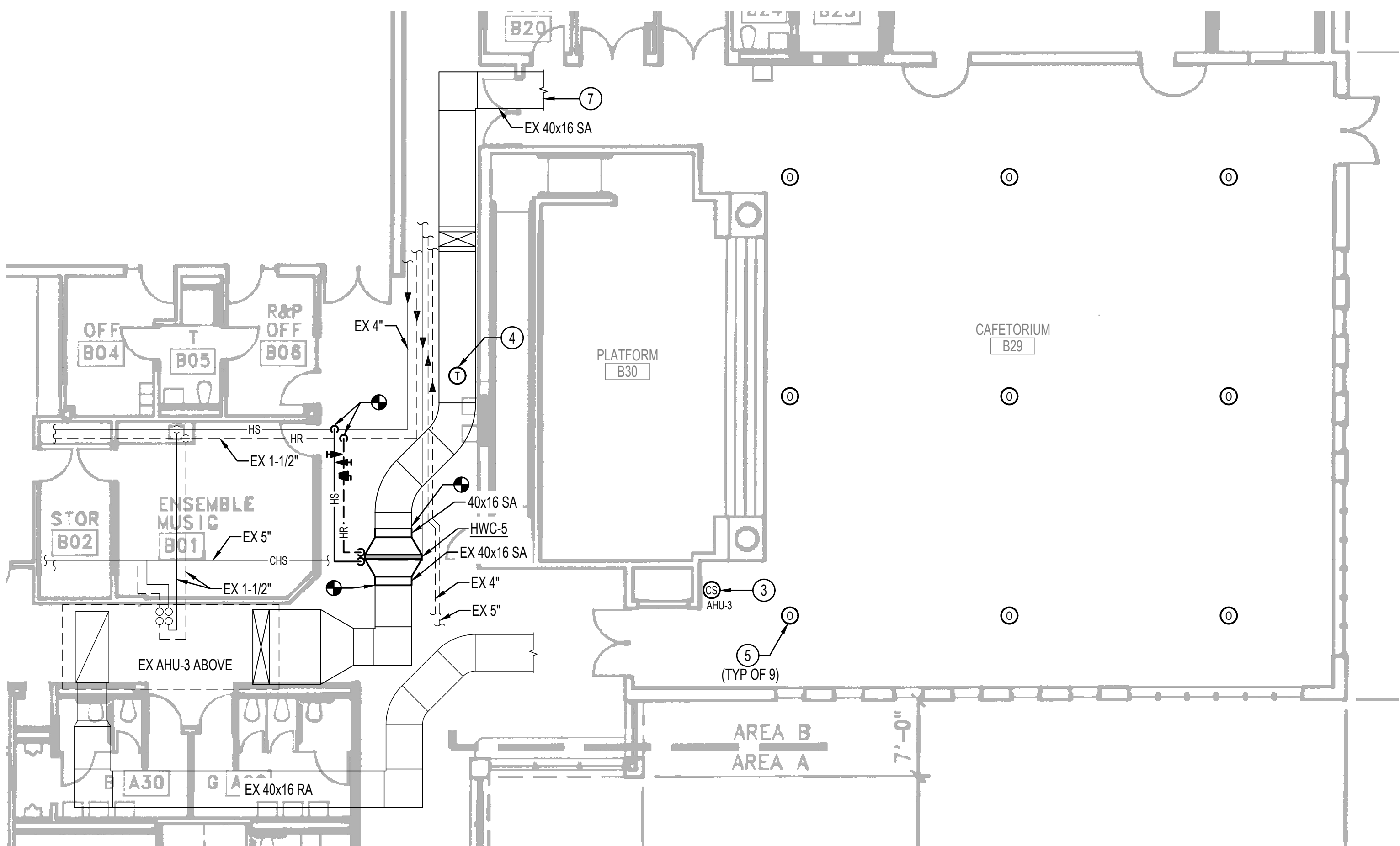
M103



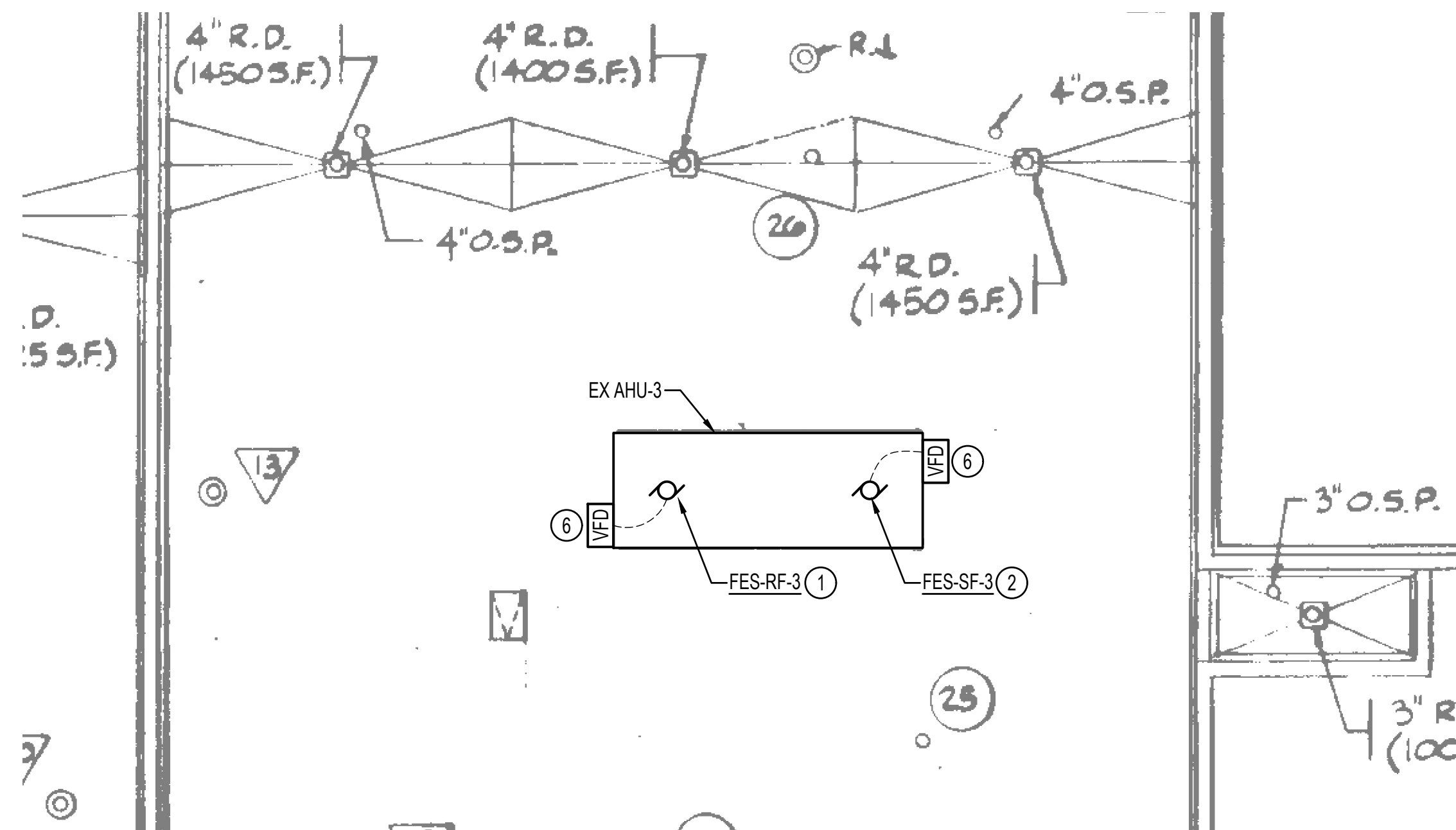
1 FULTON ES - PARTIAL FIRST FLOOR PLAN - MECHANICAL - DEMOLITION  
M103 1/8" = 1'-0"



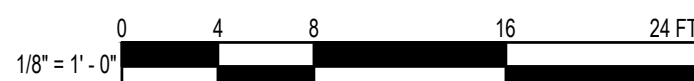
2 FULTON ES - PARTIAL ROOF PLAN - MECHANICAL - DEMOLITION  
M103 1/8" = 1'-0"



3 FULTON ES - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK  
M103 1/8" = 1'-0"



4 FULTON ES - PARTIAL ROOF PLAN - MECHANICAL - NEW WORK  
M103 1/8" = 1'-0"





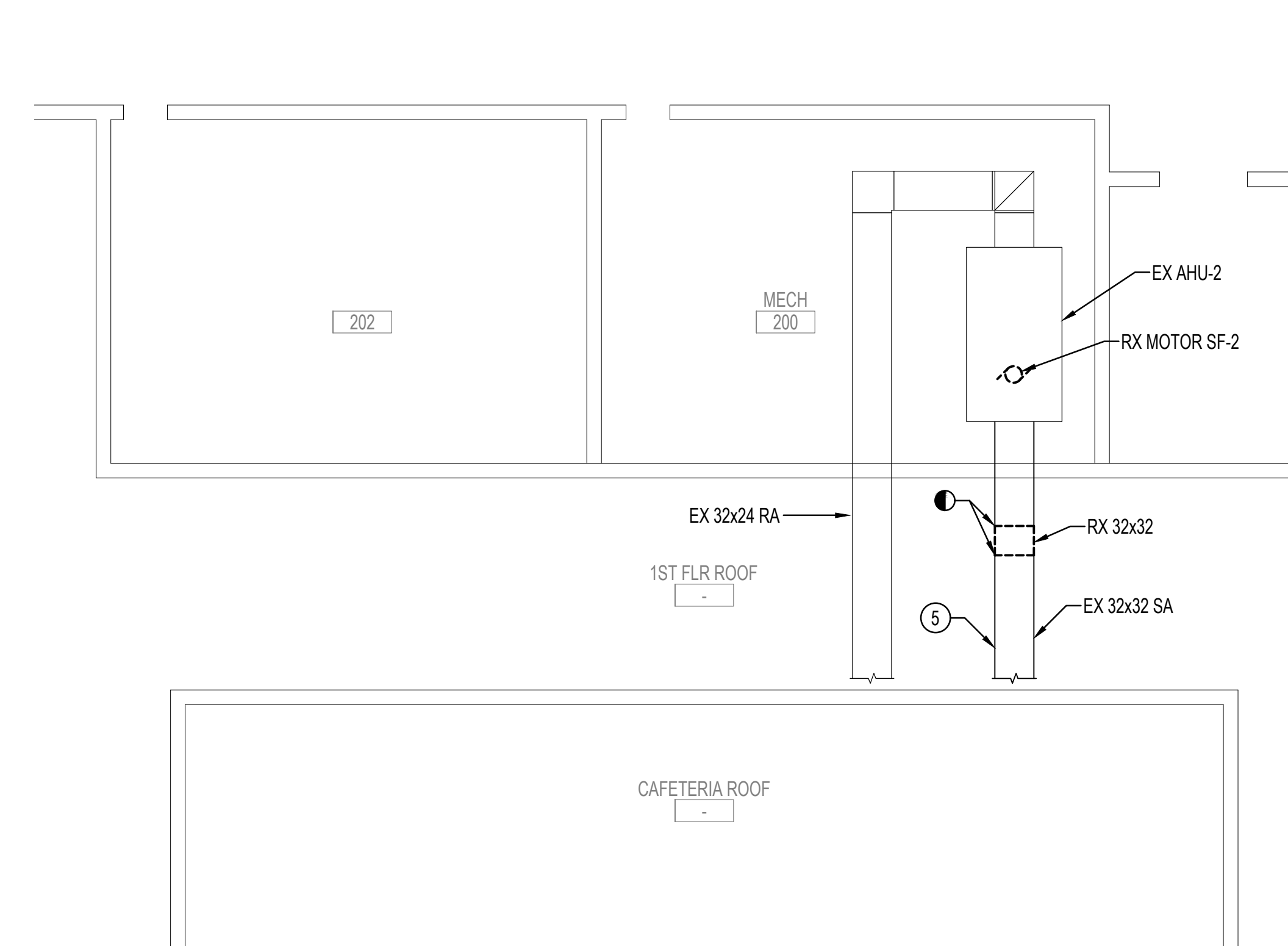
SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

- ① PROVIDE NEW INVERTER DUTY FAN MOTOR FOR GHS-SF-2. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
- ② REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN A/C PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
- ③ PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
- ④ PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHJ-2. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
- ⑤ MEASURE AND RECORD EXISTING AIRFLOWS OF ALL DOWNSTREAM AIR DEVICES PRIOR TO ANY DEMOLITION OR NEW WORK.
- ⑥ REBALANCE EXISTING DOWNSTREAM AIR DEVICES TO PREVIOUSLY MEASURED AIR FLOW.
- ⑦ VFD SHALL BE WALL MOUNTED.

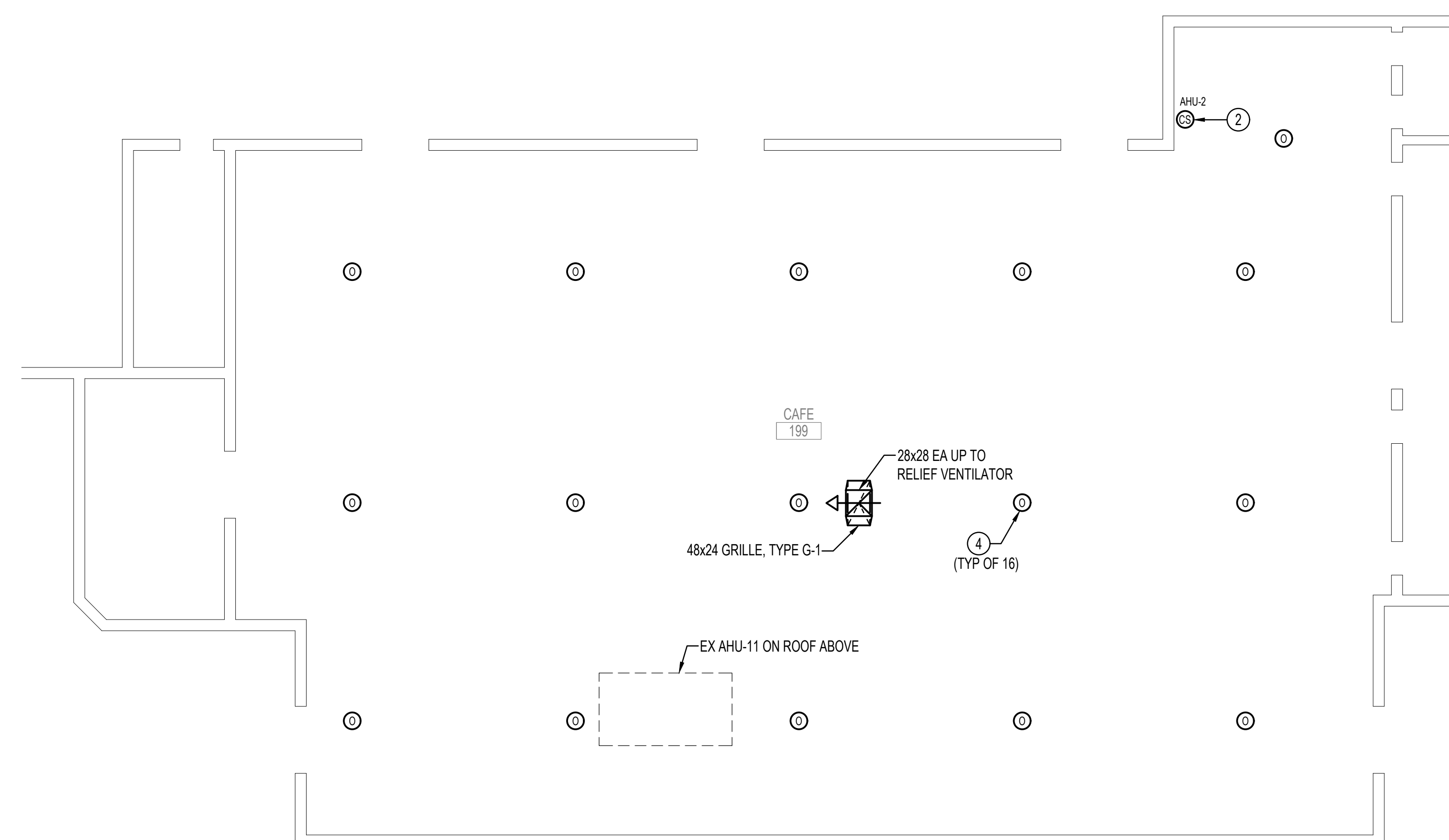
**DRAWING NOTES:** (APPLICABLE TO THIS DRAWING ONLY)

- |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | EXISTING SHOWN WITH LIGHT WEIGHT LINE. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 2. | DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE. - - - - -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 3. | NEW WORK SHOWN WITH HEAVY WEIGHT LINE. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4. | <p>INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL, OR DIMENSION. UNDER NO CIRCUMSTANCES SHALL THIS DRAWING BE USED AS AN IMMEDIATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.</p>                                        |
| 5. | <p>ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.</p>                                                                                                                                                                                                                                                                                                                                                           |
| 6. | <p>FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SYSTEMS, WIRE, AND ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).</p> |

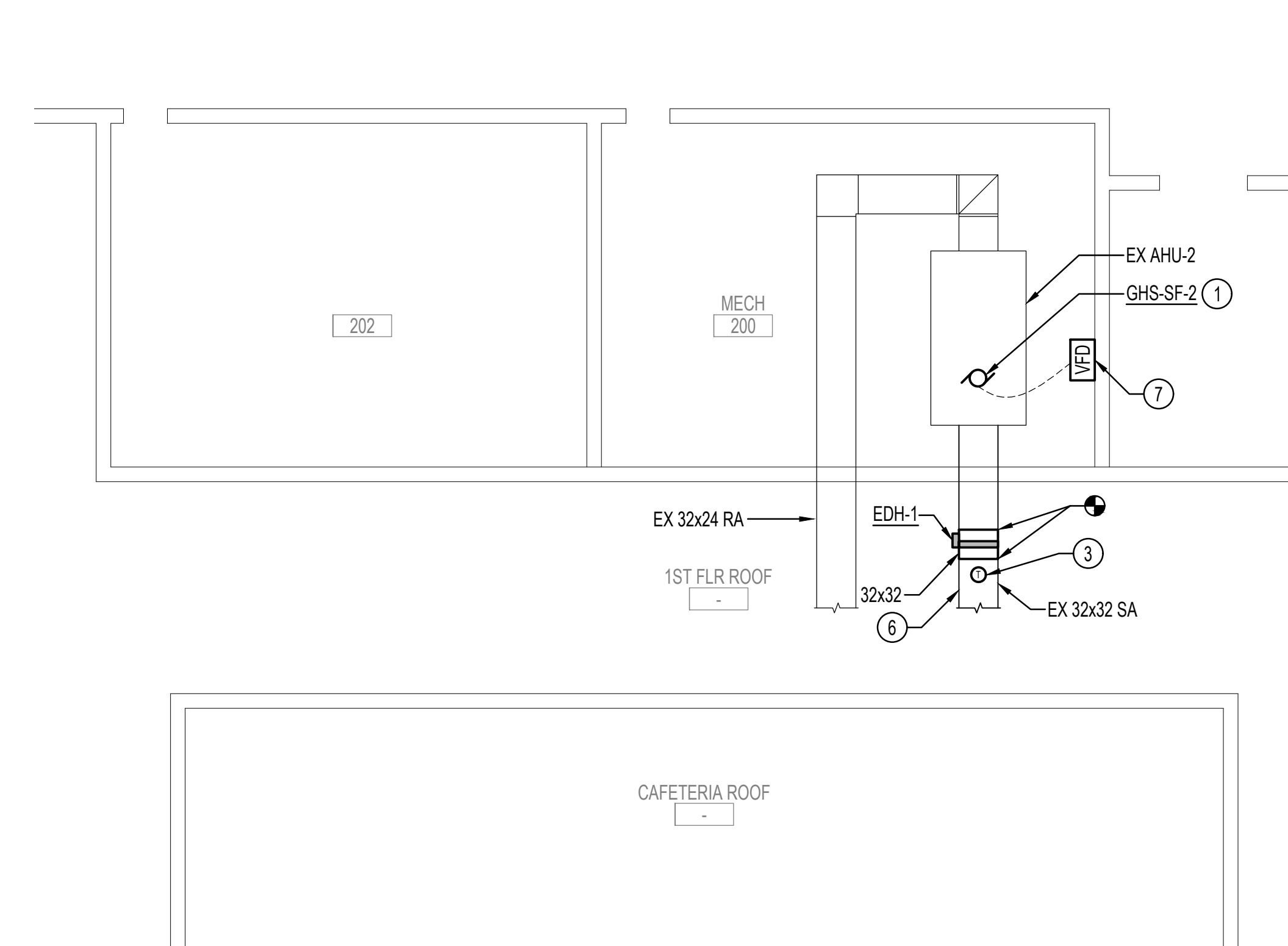
1 GLENELG HS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - DEMOLITION  
M104 1/8" = 1'-0" 



2 GLENELG HS - PARTIAL ROOF PLAN - MECHANICAL - DEMOLITION  
M104 1/8" = 1'-0"



3 GLENELG HS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK



4 GLENELG HS - PARTIAL ROOF PLAN - MECHANICAL - NEW WORK  
N104 1/8" = 1'-0" N



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Consulting Engineers

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PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

## CAFETERIA HVAC UNIT CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

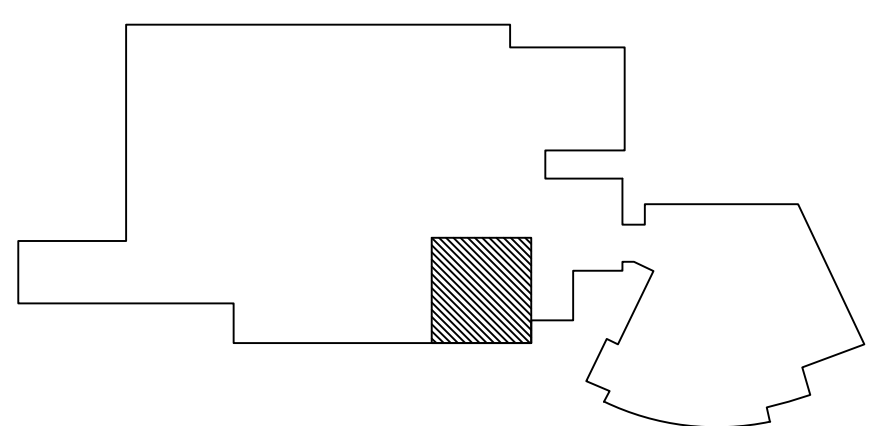
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LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

[illegible]

## KEY PLAN



GLENELG HS - MECHANICAL WORK

PROJECT NUMBER	PQ-10028674
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DATE 05/25/2023

DRAWN BY \_\_\_\_\_ NCV

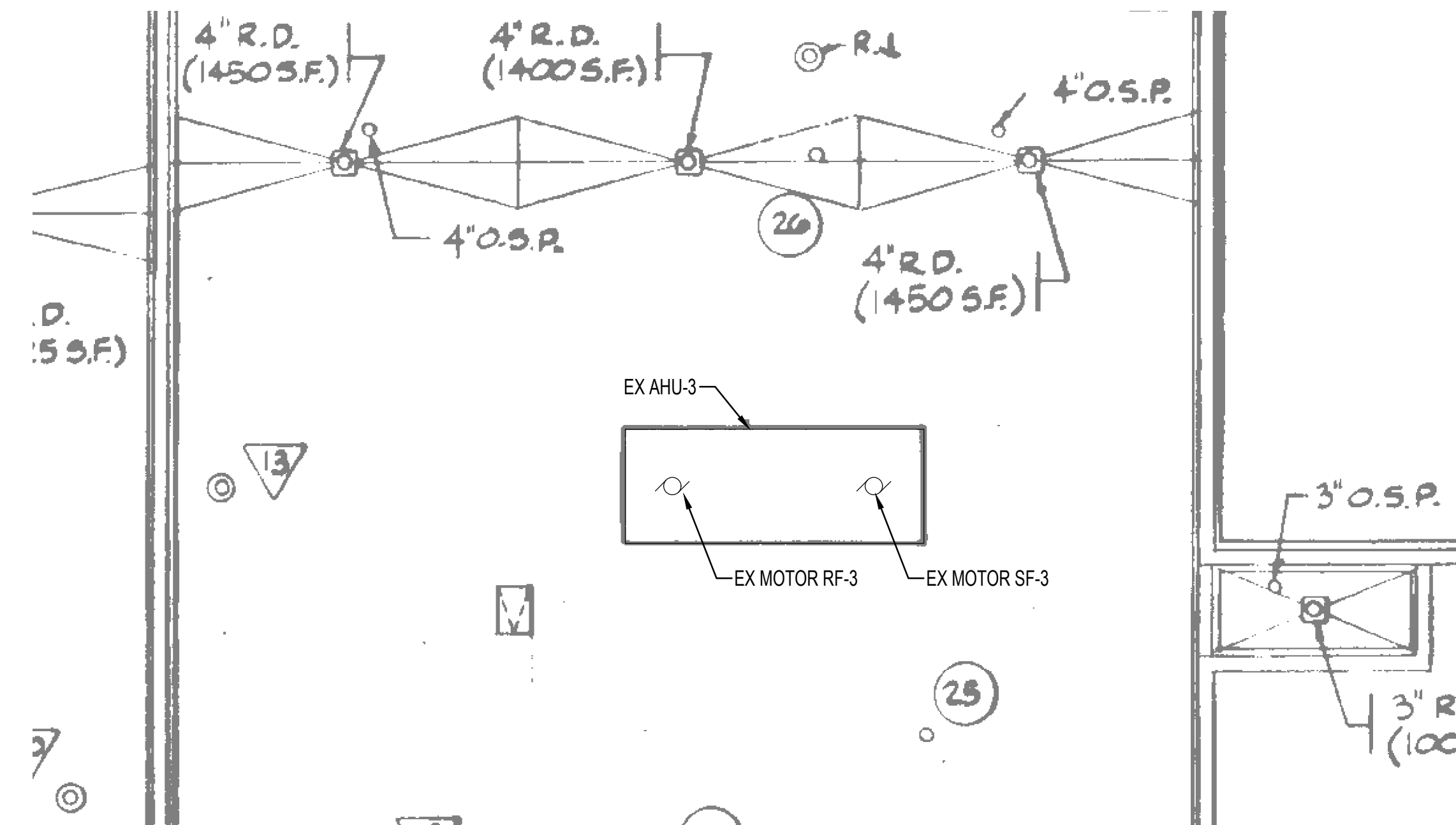
CHECKED BY	RMB
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M104



DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

1. EXISTING SHOWN WITH LIGHT WEIGHT LINE. \_\_\_\_\_
2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE, -----
3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE. \_\_\_\_\_
4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING RECORDS OR GENERAL FIELD OBSERVATION, AND DOES NOT INDICATE ANY ACTUAL EXISTING CONDITIONS IN FINAL OR PUBLIC EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
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6. FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SPEAKERS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).



2  
M105 1/8" = 1'-0" GORMAN CROSSING ES - PARTIAL ROOF PLAN - MECHANICAL - EXISTING

NOTE: REFER TO AUTOMATIC CONTROLS FOR REQUIRED NEW WORK



MECHANICAL ELECTRICAL &amp; PLUMBING ENGINEERS

PROJECT

## CAFETERIA HVAC UNIT CONVERSIONS

SEAL

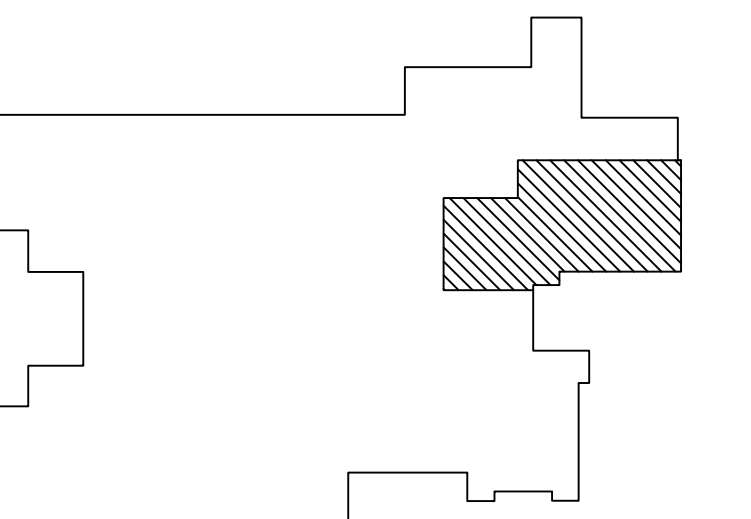
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[illegible]

## KEY PLAN



PROJECT NUMBER	PQ-10028674
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DATE 05/25/2023

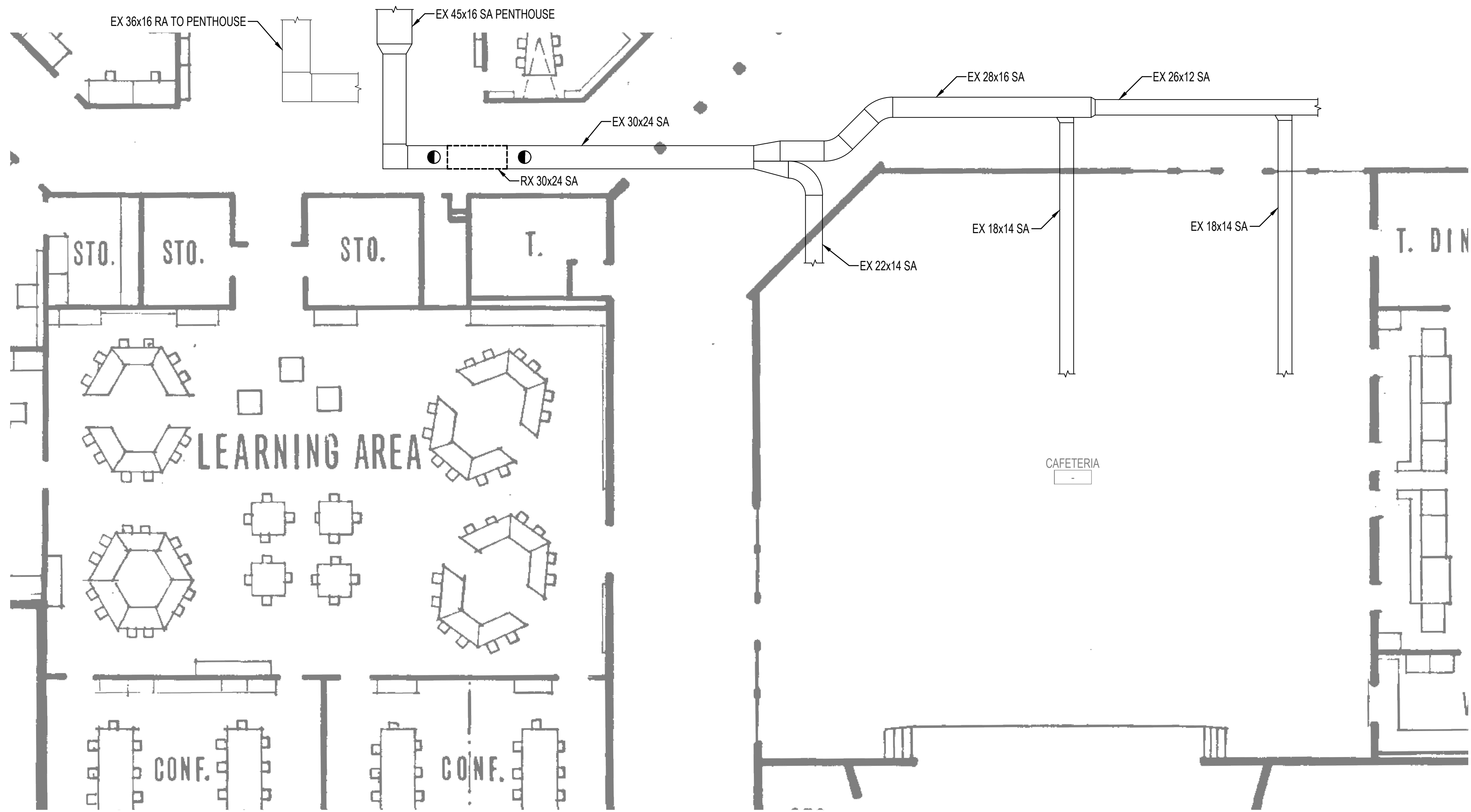
DRAWN BY NGV/

CHECKED BY	DMS
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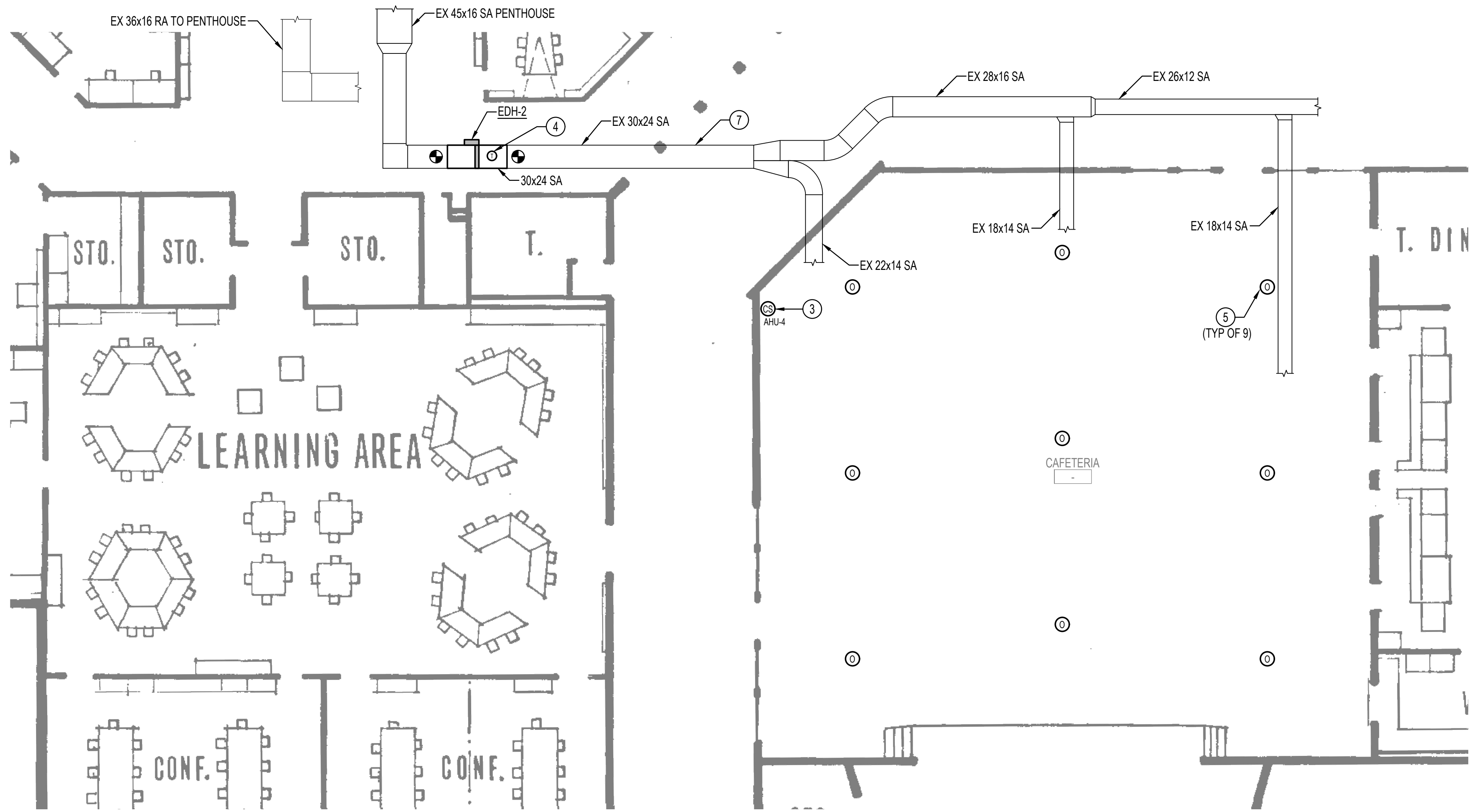
# M105



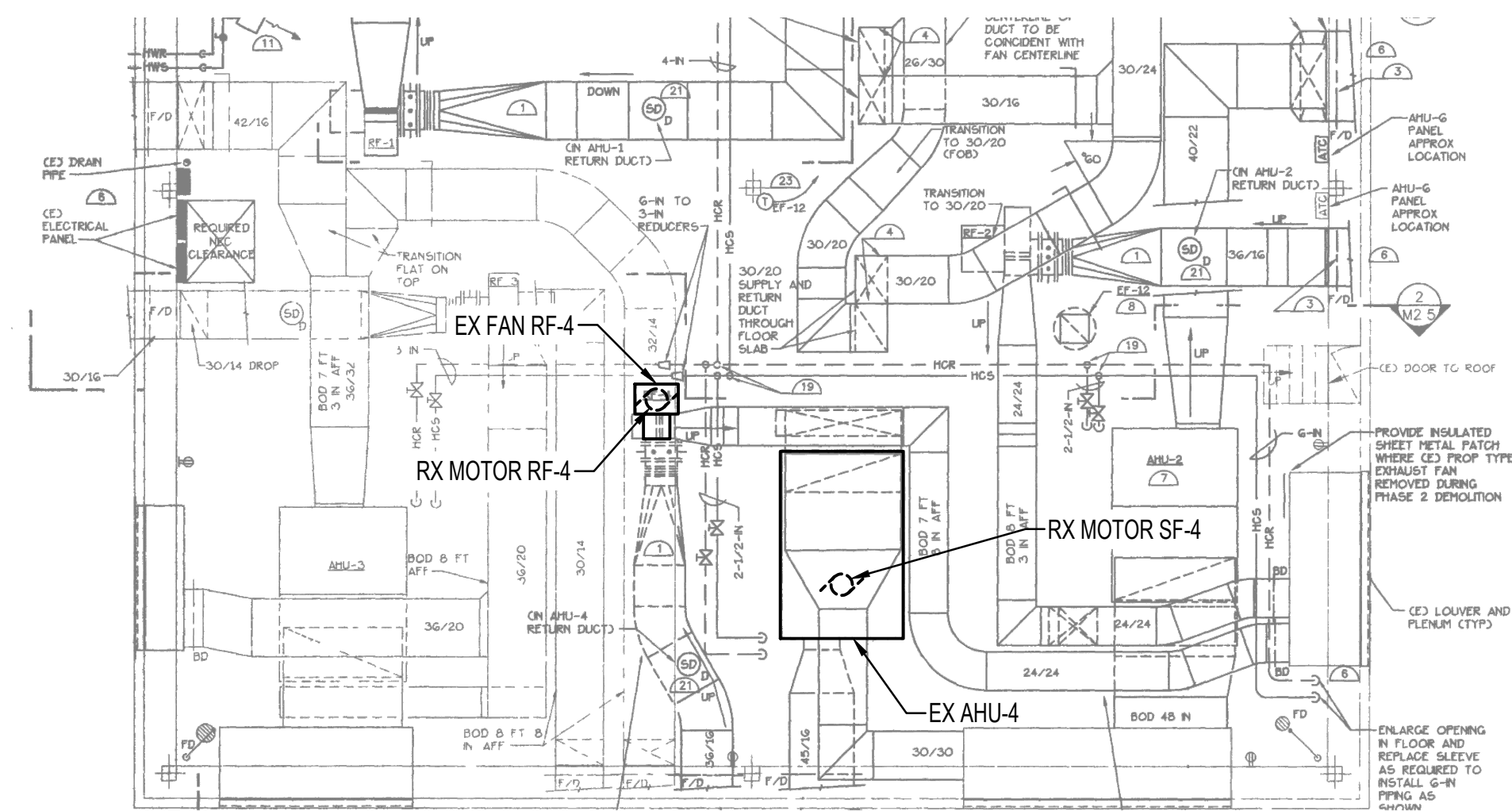




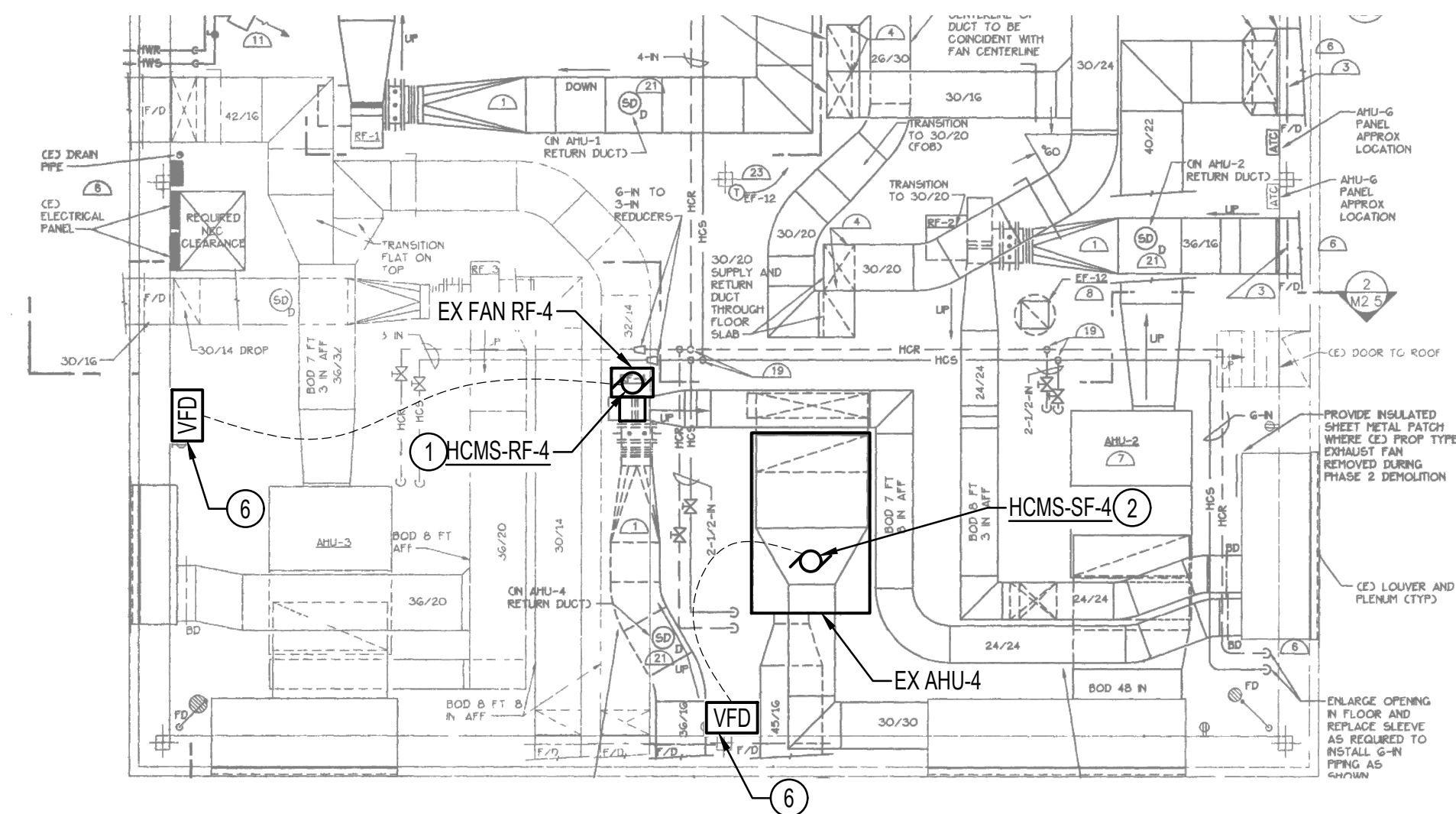
1 HARPERS CHOICE MS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - DEMOLITION  
M106 1/8" = 1'-0"



3 HARPERS CHOICE MS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK  
M106 1/8" = 1'-0"



2 HARPERS CHOICE MS - PARTIAL PENTHOUSE PLAN - MECHANICAL - DEMOLITION  
M106 1/8" = 1'-0"



4 HARPERS CHOICE MS - PARTIAL PENTHOUSE PLAN - MECHANICAL - NEW WORK  
M106 1/8" = 1'-0"

DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

- EXISTING SHOWN WITH LIGHT WEIGHT LINE, -----
- DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE, - - - - -
- NEW WORK SHOWN WITH HEAVY WEIGHT LINE, -----
- INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
- ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
- FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SPEAKERS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISSED, CERTAINTED FINE FISSED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).

SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

- PROVIDE NEW INVERTER DUTY FAN MOTOR FOR HCMs-RF-3. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
- PROVIDE NEW INVERTER DUTY FAN MOTOR FOR HCMs-SF-3. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
- REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN ATC PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
- PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
- PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-3. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
- VFD SHALL BE WALL MOUNTED.
- BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 1M202 FOR THE DESIGN AIRFLOW RATES.



**HENRY ADAMS**  
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BALTIMORE, MD 21204  
(410) 296-6500

PROJECT

**HOWARD COUNTY PUBLIC SCHOOLS**

**CAFETERIA HVAC UNIT CONVERSIONS**

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

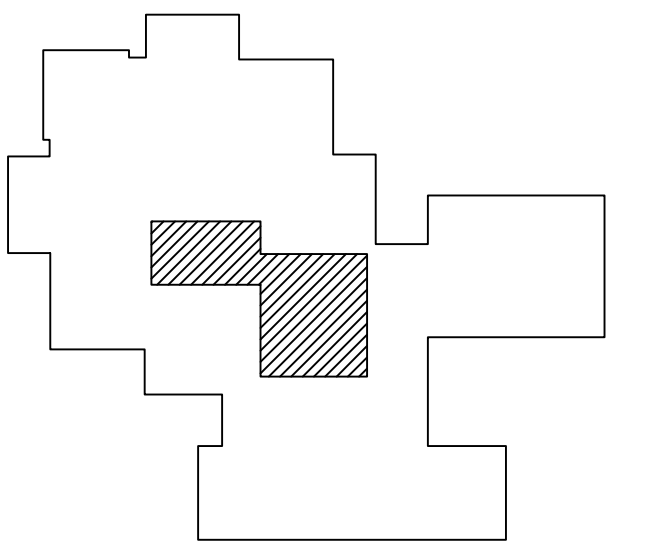
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

NO.	DESCRIPTION	DATE

KEY PLAN



**HARPERS CHOICE MS - MECHANICAL WORK**

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	NCV
CHECKED BY	BMB

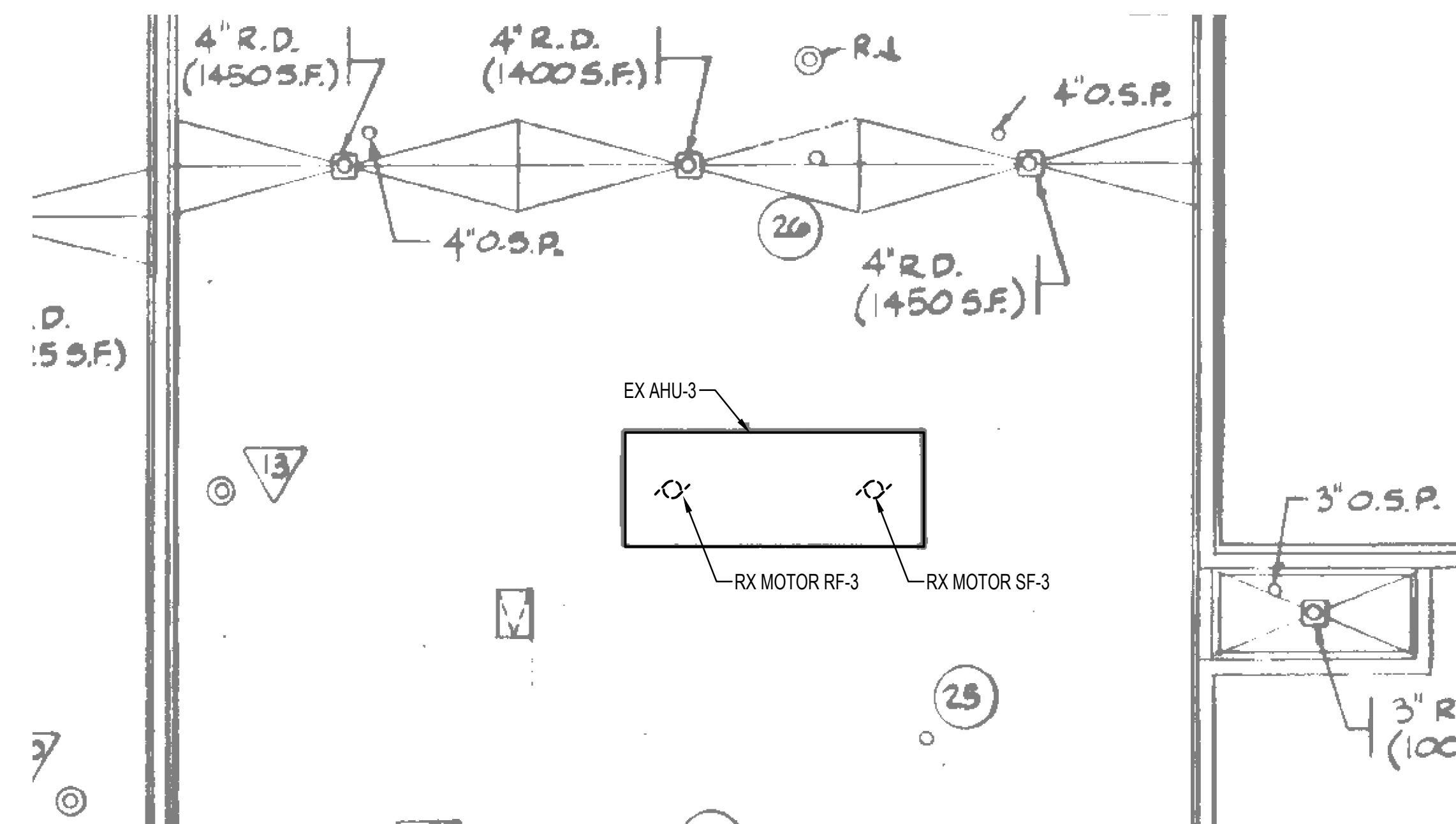
**M106**

1/8" = 1'-0" 0 4 8 16 24 FT

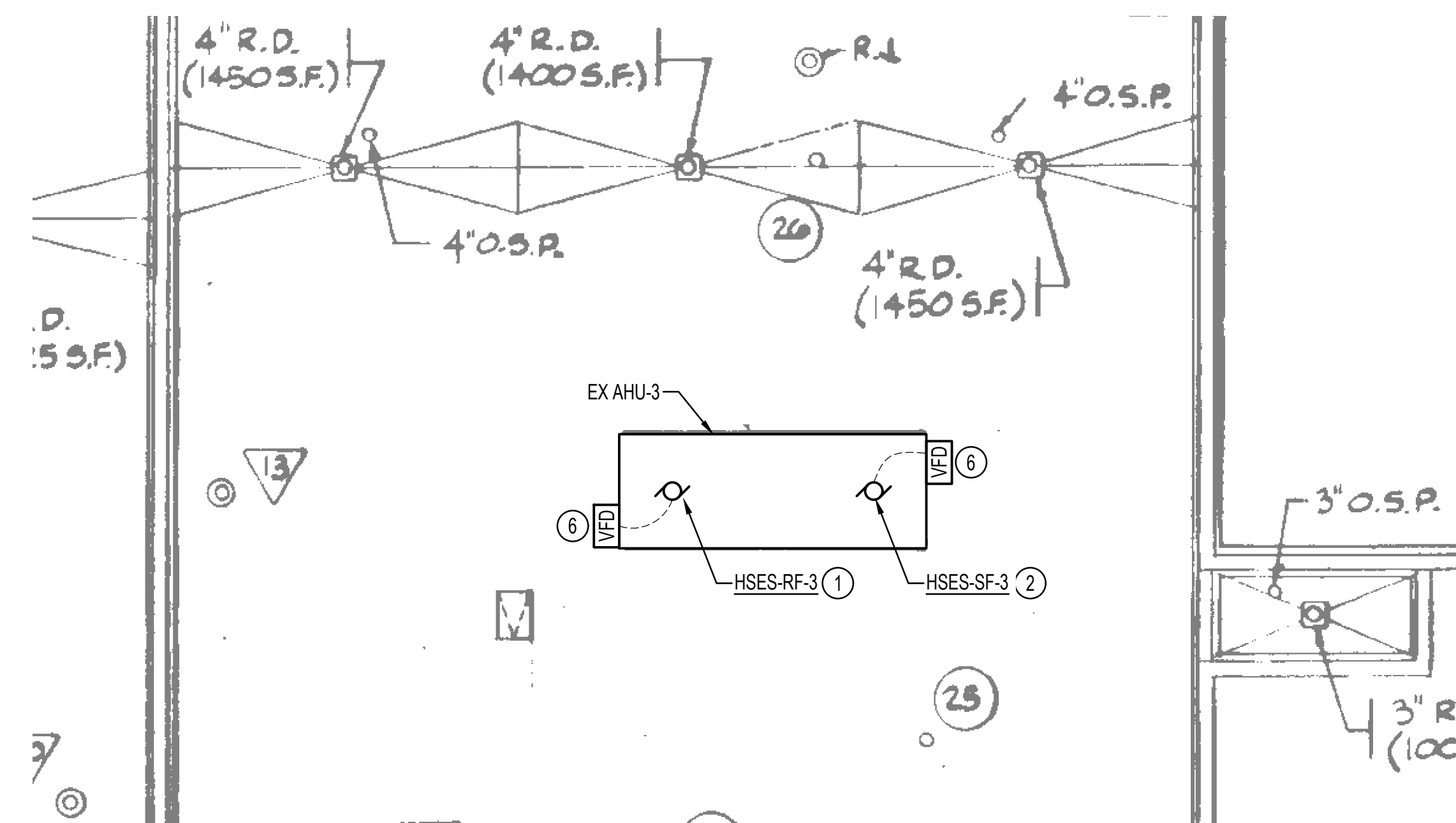


- DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

1. EXISTING SHOWN WITH LIGHT WEIGHT LINE, \_\_\_\_\_
2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE, -----
3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE, \_\_\_\_\_
4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. EXISTING CONDITIONS MAY VARY DAY TO DAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
5. ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
6. FOR WORK ABOVE SUSPECTED CEILINGS: CAREFULLY REMOVE CEILING TIES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SYSTEMS, FIRE ALARM NOTIFICATION DEVICES, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DORN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TIES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).



2 HOLLIFIELD STATION ES - PARTIAL ROOF PLAN - MECHANICAL - DEMOLITION  
M107 1/8" = 1'-0"



4 HOLLIFIELD STATION ES - PARTIAL ROOF PLAN - MECHANICAL - NEW WORK



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HOWARD COUNTY PUBLIC  
SCHOOLS

## CAFETERIA HVAC UNIT CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

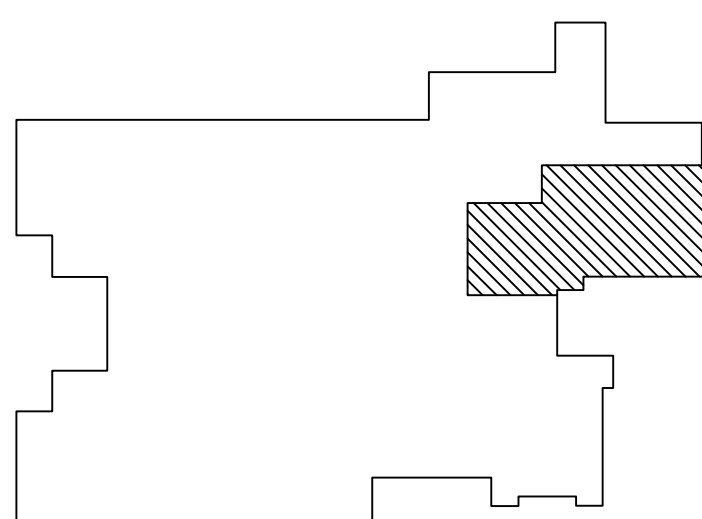
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

[illegible]

## KEY PLAN



HOLLIFIELD STATION ES - MECHANICAL  
WORK

PROJECT NUMBER	PQ-1002867
----------------	------------

DATE 05/25/202

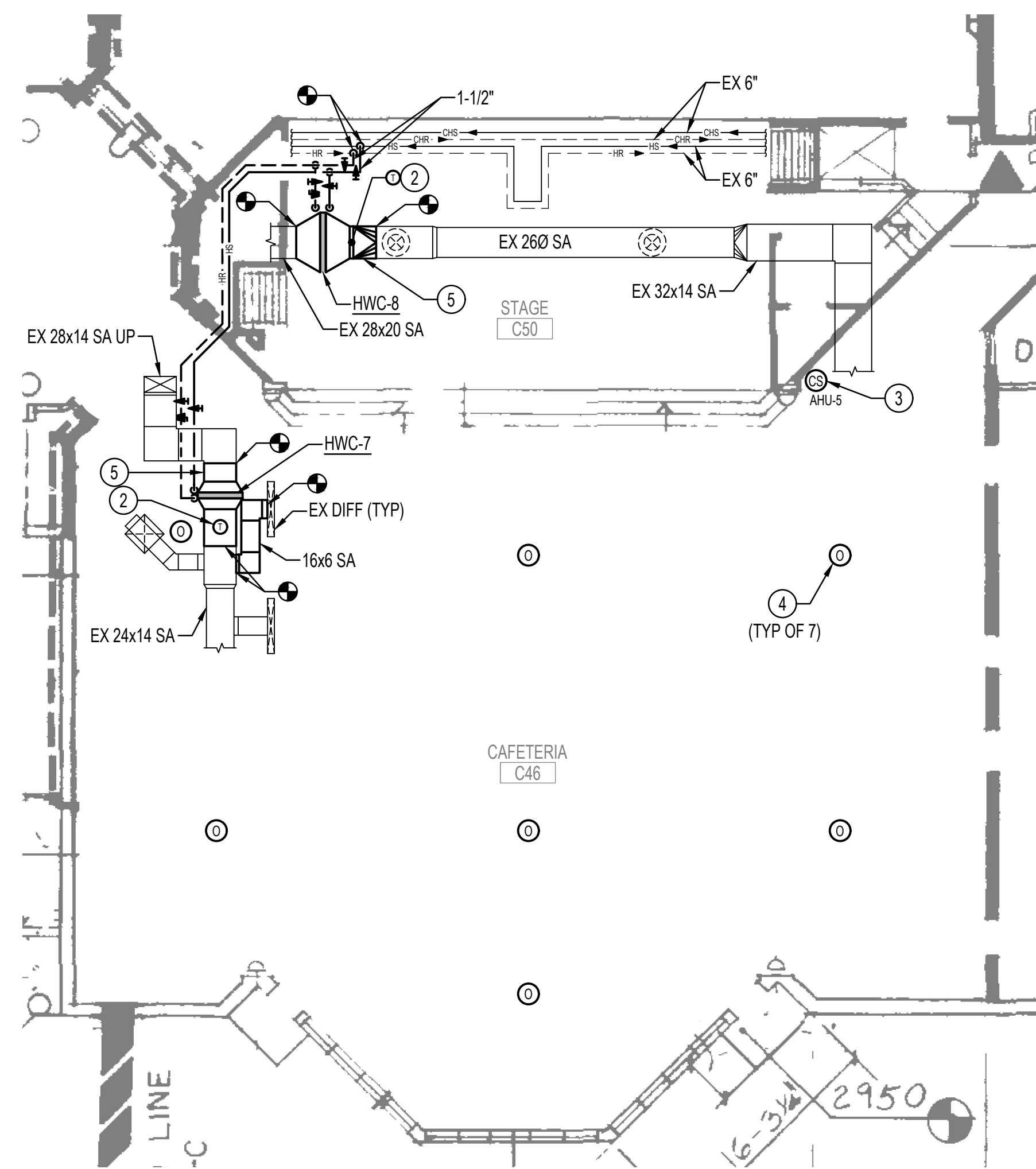
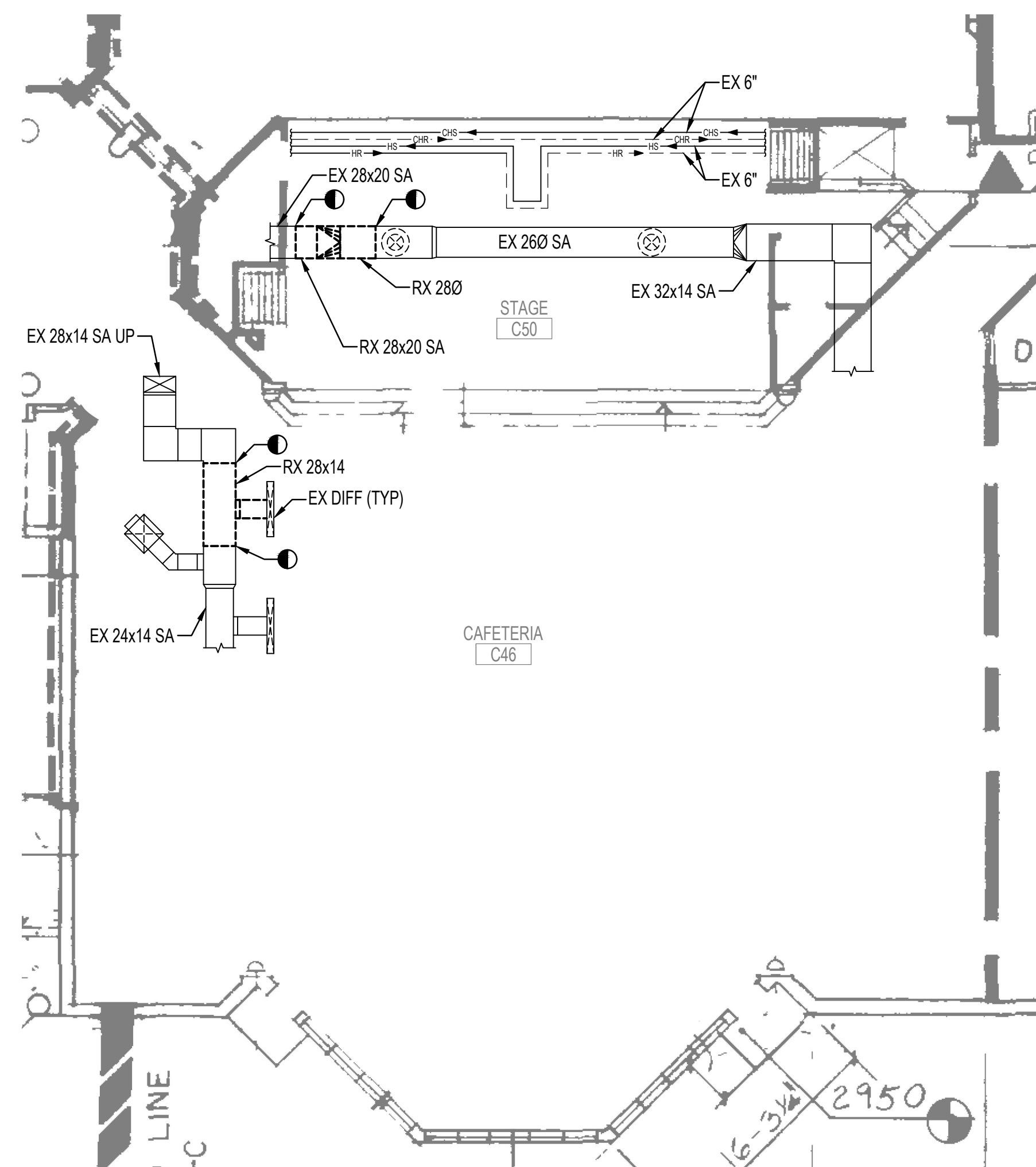
DRAWN BY \_\_\_\_\_ NC \_\_\_\_\_

CHECKED BY \_\_\_\_\_ RM \_\_\_\_\_

# M107





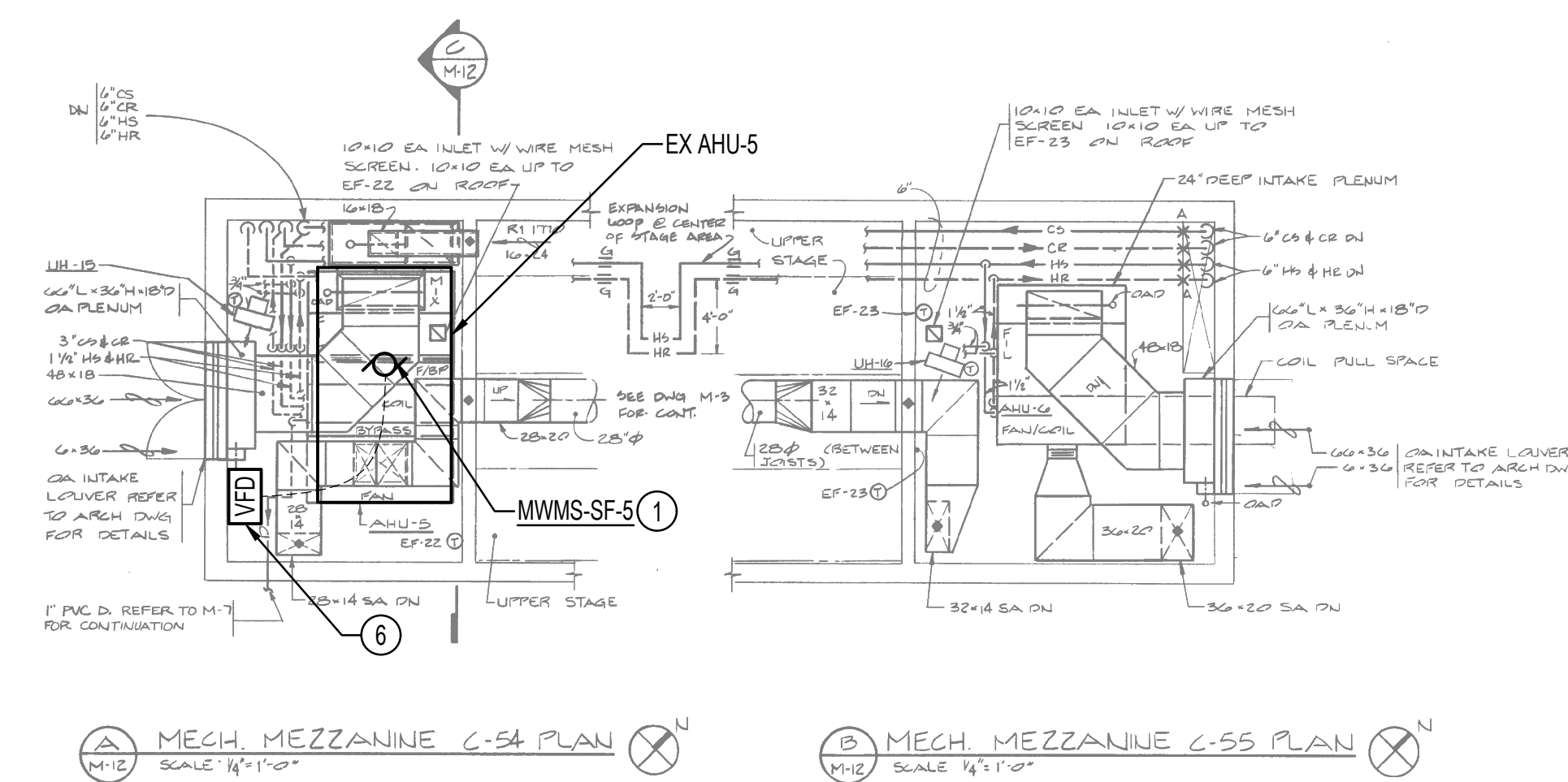
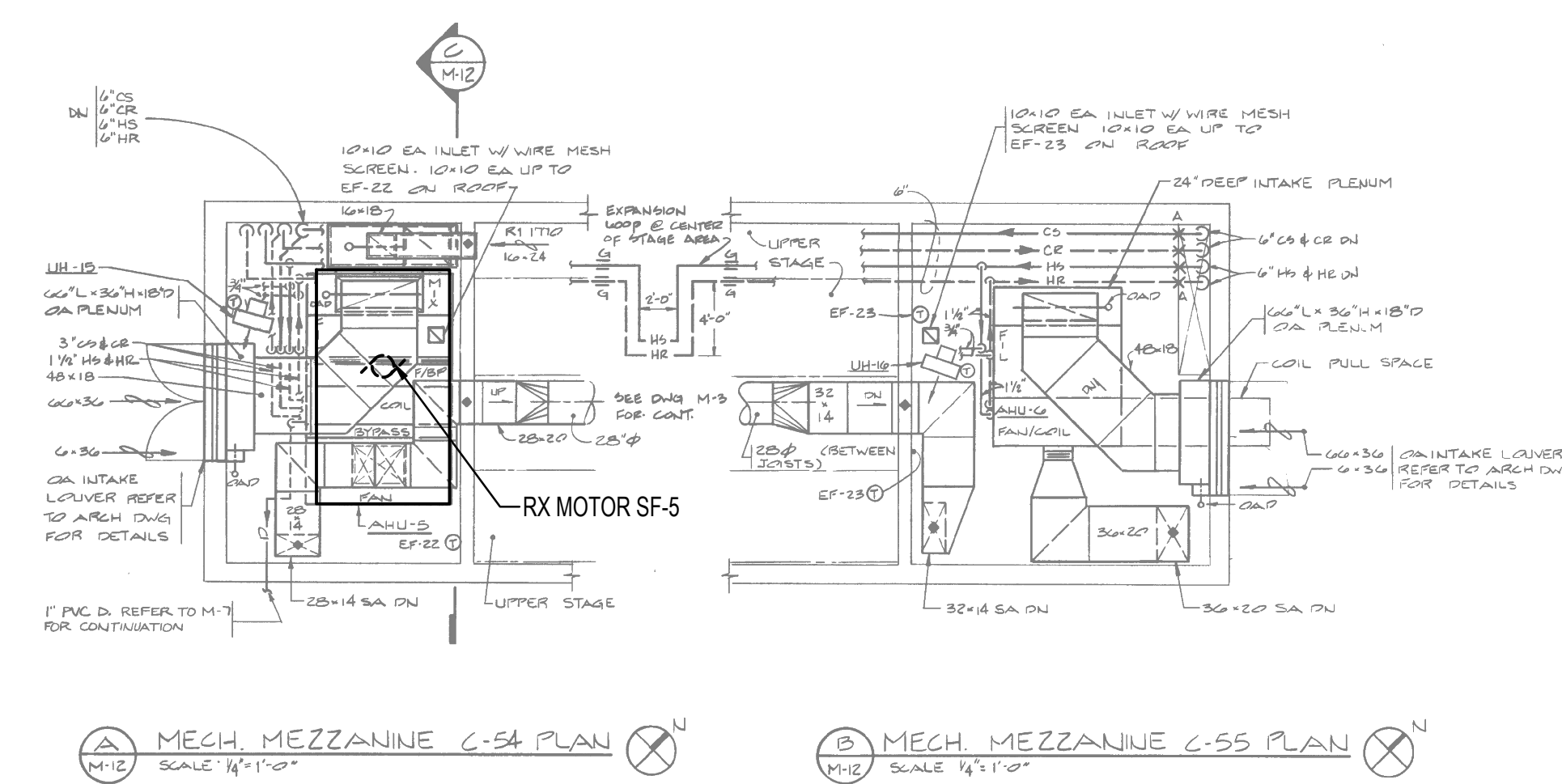


- SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

- ① PROVIDE NEW INVERTER DUTY FAN MOTOR FOR MMMS-SF-5. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
- ② PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
- ③ REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN A/C PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
- ④ PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-3. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
- ⑤ BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 3M202 FOR THE DESIGN AIRFLOW RATES.
- ⑥ VFD SHALL BE WALL MOUNTED.

- DRAWING NOTES:** (APPLICABLE TO THIS DRAWING ONLY)

1. EXISTING SHOWN WITH LIGHT WEIGHT LINE. \_\_\_\_\_
  2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE. - - - - -
  3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE. \_\_\_\_\_
  4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. UNDER NO CIRCUMSTANCES SHALL THIS DRAWING BE USED AS AN IMMEDIATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
  5. ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
- FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SYSTEMS, WIRE, AND ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CROQUIS METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).



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PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

## CAFETERIA HVAC UNIT CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

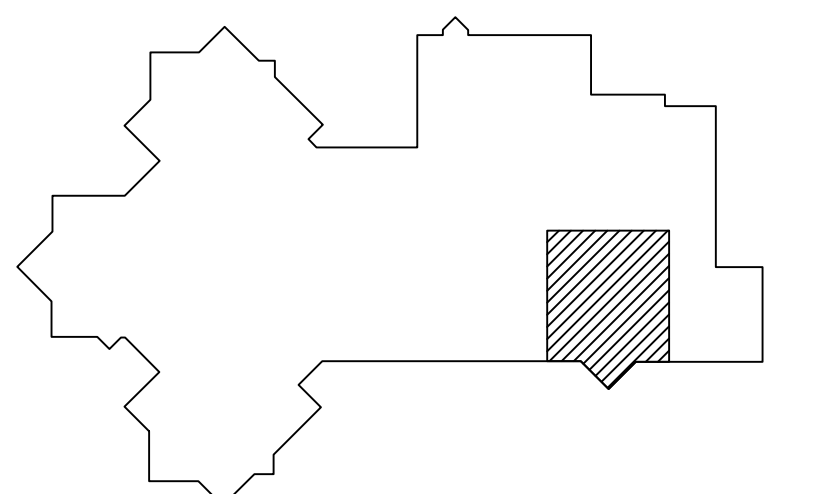
PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

[illegible]

## KEY PLAN

MAYFIELD WOODS MS - MECHANICAL  
WORK

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	NCV
CHECKED BY	BMB

M108

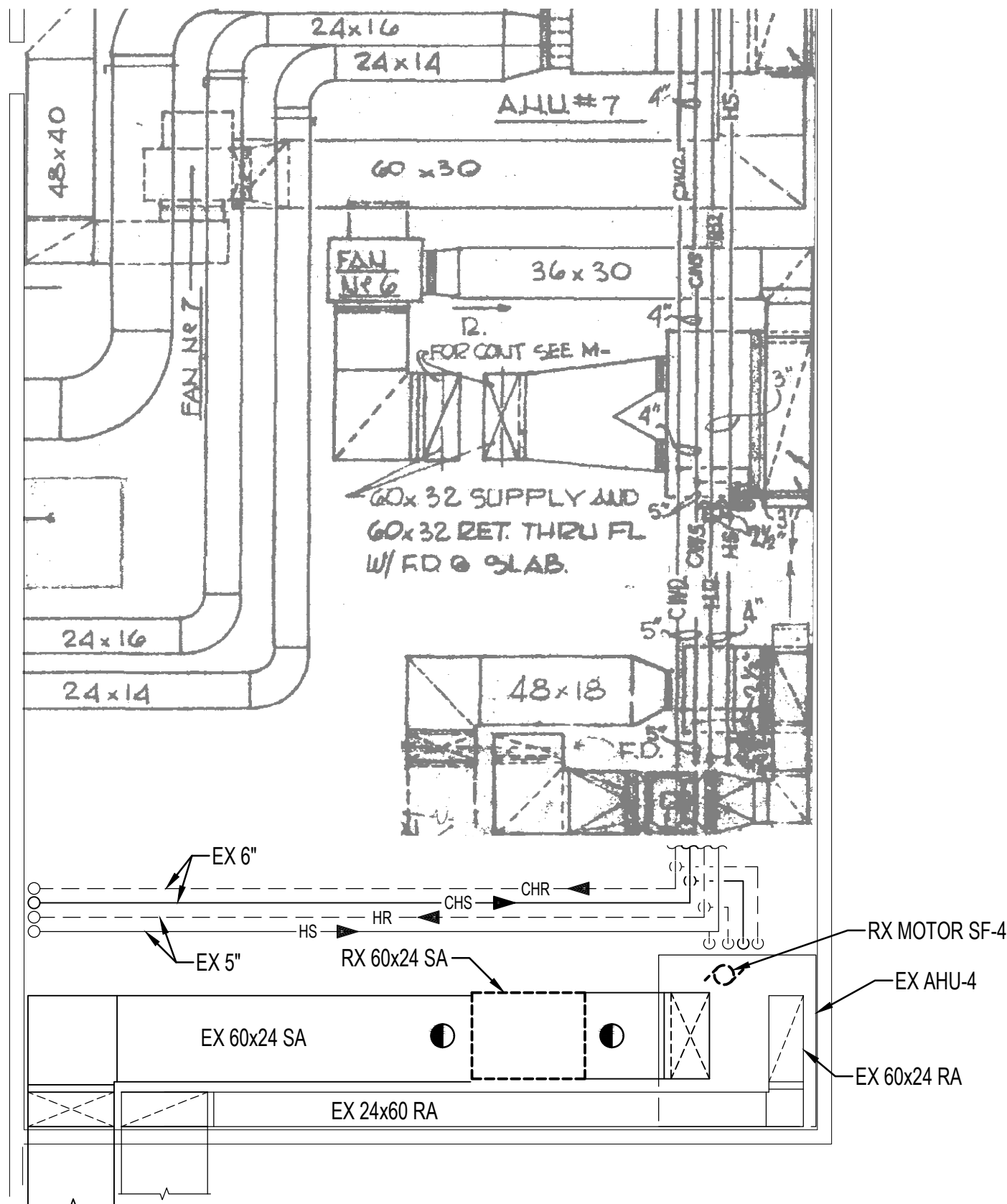


SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

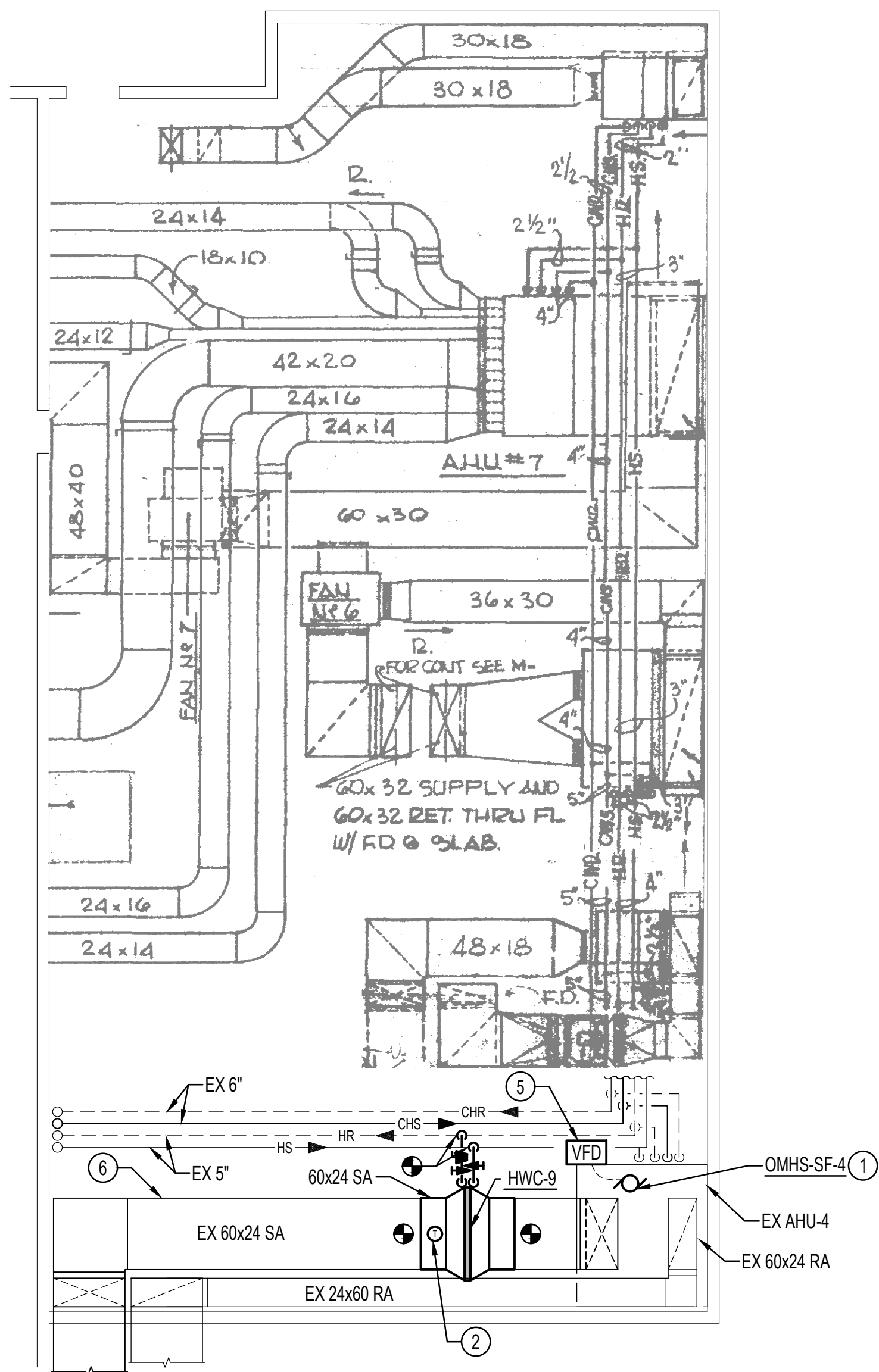
1. PROVIDE NEW INVERTER DUTY FAN MOTOR FOR OMHS-SF-4. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.
2. PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.
3. REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN ATC PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR.
4. PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-3. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.
5. VFD SHALL BE MOUNTED ON UNITSTRUT FRAMING. UNITSTRUT FRAMING SHALL BE SUPPORTED BY EXISTING STRUCTURE.
6. BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 4/M202 FOR THE DESIGN AIRFLOW RATES.

DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

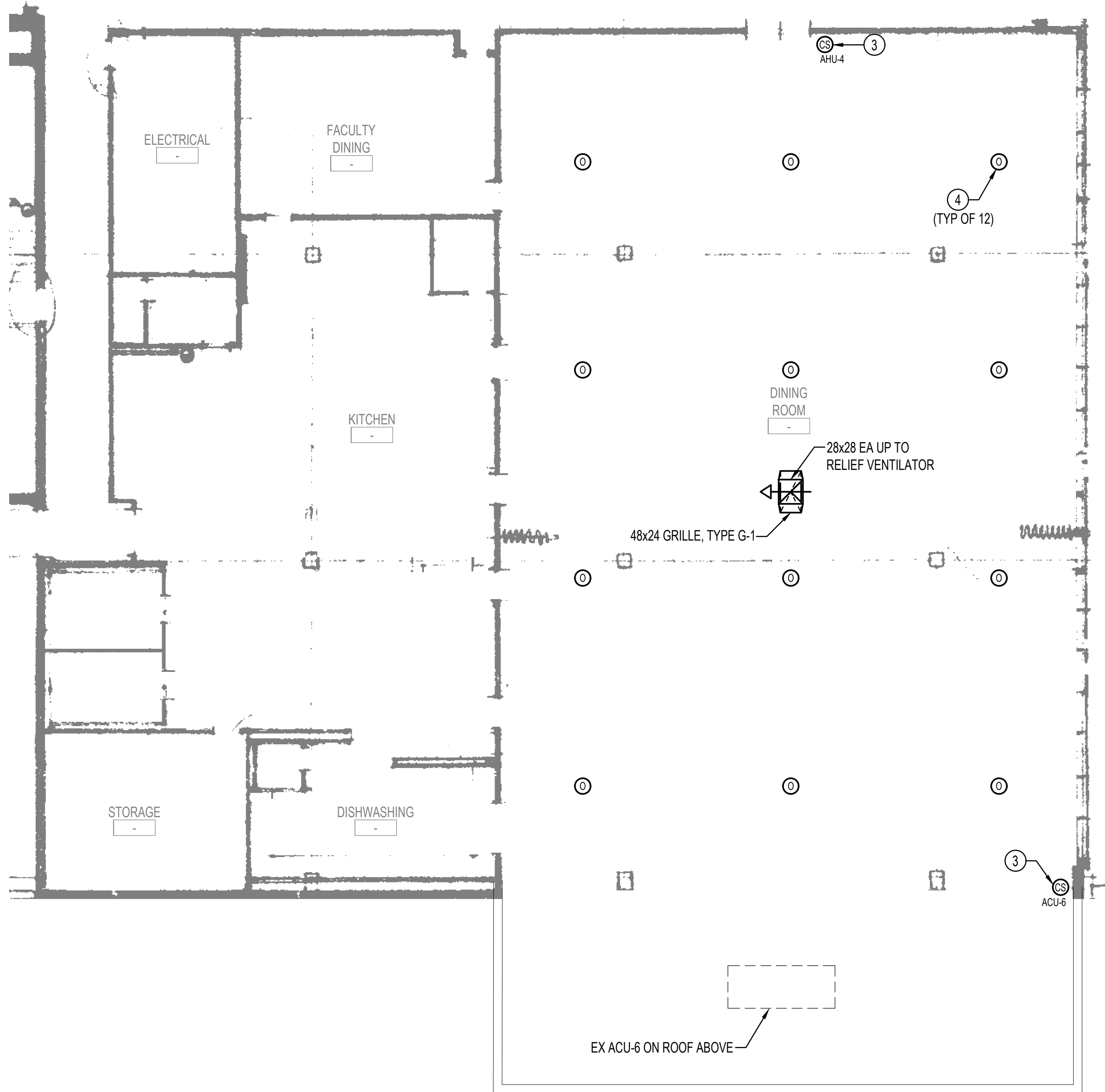
1. EXISTING SHOWN WITH LIGHT WEIGHT LINE, \_\_\_\_\_
2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE, - - - - -
3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE, \_\_\_\_\_
4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL OR DIMENSION. EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
5. ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
6. FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SPEAKERS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHICAGO METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISSURED, CERTANTEED FINE FISSURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).



2 OAKLAND MILLS HS - PENTHOUSE NO 1 FLOOR PLAN - MECHANICAL - DEMOLITION  
1/8" = 1'-0"



4 OAKLAND MILLS HS - PENTHOUSE NO 1 FLOOR PLAN - MECHANICAL - NEW WORK  
1/8" = 1'-0"



3 OAKLAND MILLS HS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK  
1/8" = 1'-0"



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PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

CAFETERIA HVAC UNIT  
CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

PROFESSIONAL CERTIFICATION: I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.

LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

NO.	DESCRIPTION	DATE

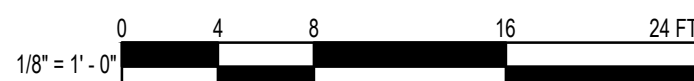
KEY PLAN



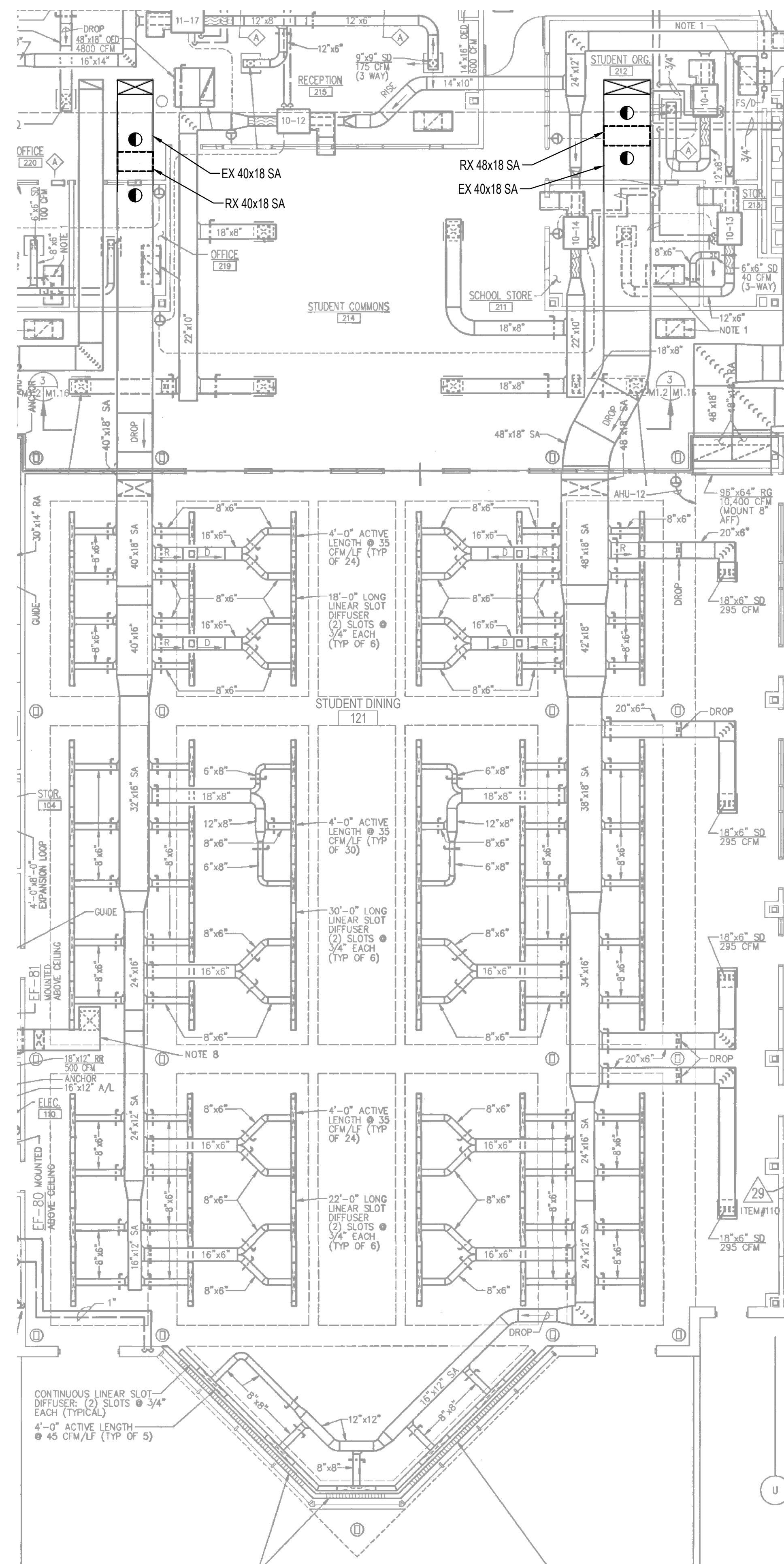
OAKLAND MILLS HS - MECHANICAL  
WORK

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	NCV
CHECKED BY	BMB

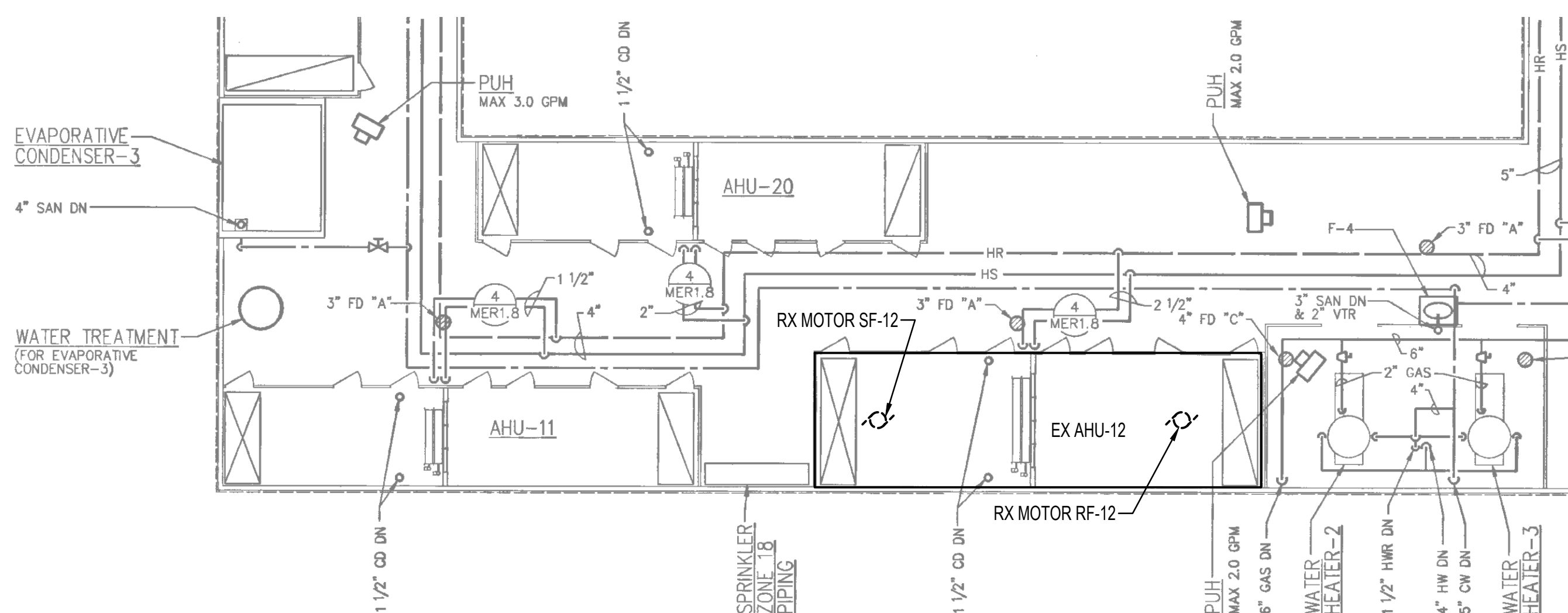
M109



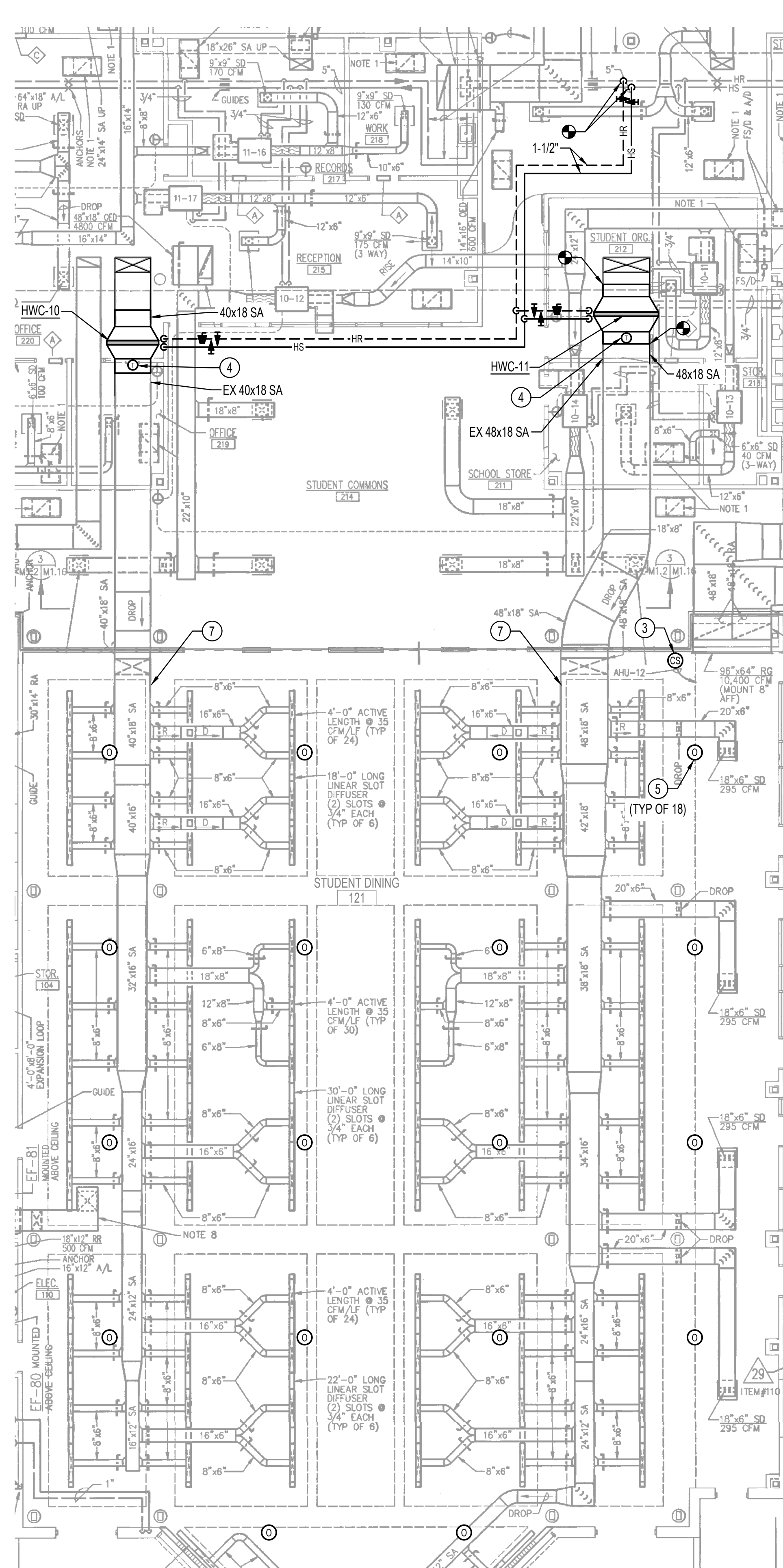




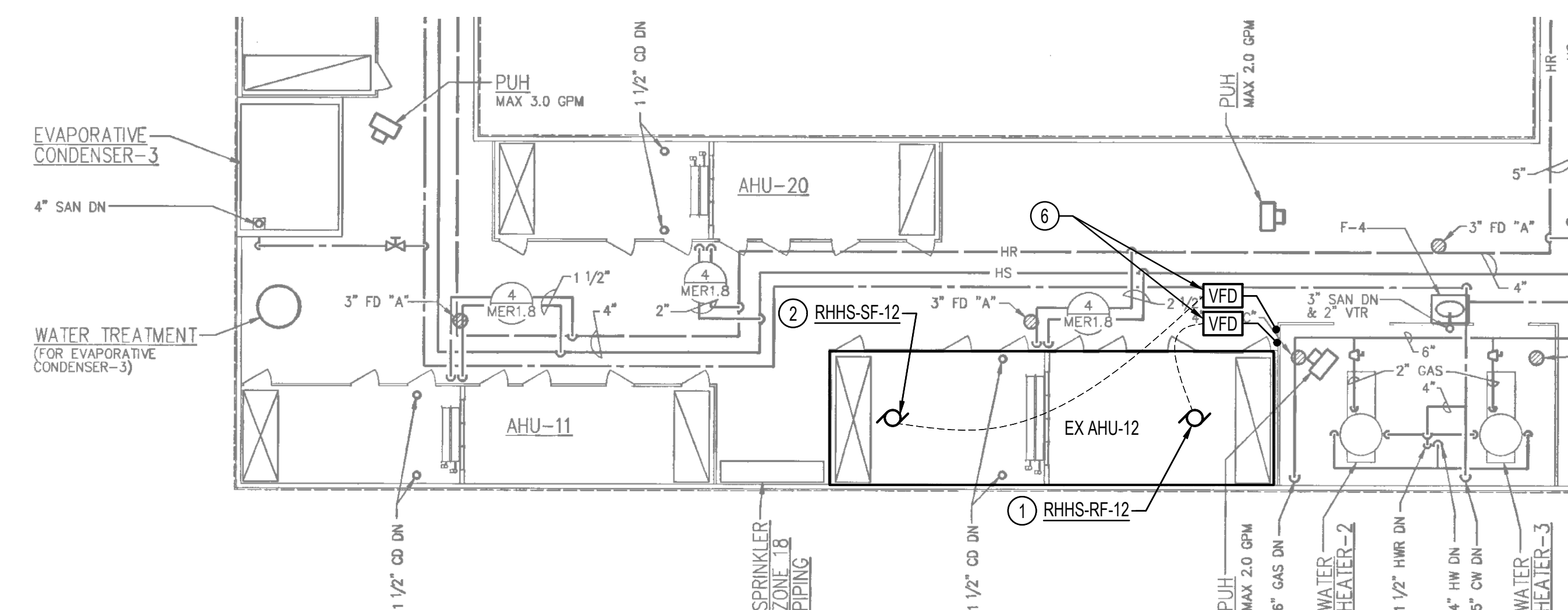
1 RIVER HILL HS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK  
M110 1/8" = 1'-0" N



3 RIVER HILL HS - PENTHOUSE NO. 2 PART PLAN - MECHANICAL - DEMOLITION



2 RIVER HILL HS - PARTIAL FIRST FLOOR PLAN - MECHANICAL - NEW WORK  
M110 1/8" = 1'-0" 



4 RIVER HILL HS - PENTHOUSE NO. 2 PART PLAN - MECHANICAL - NEW WORK  
M110 1/8" = 1'-0" 

DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

1. EXISTING SHOWN WITH LIGHT WEIGHT LINE. \_\_\_\_\_
2. DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE. - - - - -
3. NEW WORK SHOWN WITH HEAVY WEIGHT LINE. \_\_\_\_\_
4. INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING RECORDS OR GENERAL SURVEYING AND DOES NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL. ANY DISCREPANCY EXISTING CONDITIONS ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.
5. ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.
6. FOR WORK ABOVE SUSPECTED CEILING: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SYSTEMS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CHUGRO METALIC 200 SERIES), USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE CLASS FINE FISSURED, CERTAINTED FINE FISSURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).

SPECIAL NOTES: (APPLICABLE TO THIS DRAWING ONLY)

- |   |                                                                                                                                                                                                                                                                                  |
|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | PROVIDE NEW INVERTER DUTY FAN MOTOR FOR RHHS-RF-12. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.                                                                                                                                                                                  |
| 2 | PROVIDE NEW INVERTER DUTY FAN MOTOR FOR RHHS-SF-12. REFER TO SCHEDULE ON DRAWING M801 FOR SIZE.                                                                                                                                                                                  |
| 3 | REMOVE EXISTING TEMPERATURE SENSOR FOR THE AIR HANDLING UNIT. REMOVE ALL CONTROL WIRING OR PNEUMATIC TUBING BACK TO MAIN ATC PANEL. PROVIDE COMBINATION DDC SPACE TEMPERATURE, HUMIDITY & CO2 SENSOR FOR EACH AIR HANDLING UNIT IN SAME LOCATION AS EXISTING TEMPERATURE SENSOR. |
| 4 | PROVIDE DUCT-MOUNTED TEMPERATURE SENSOR. REFER TO AUTOMATIC CONTROLS DRAWINGS FOR ADDITIONAL INFORMATION.                                                                                                                                                                        |
| 5 | PROVIDE CEILING-MOUNTED SPACE OCCUPANCY SENSORS FOR AHU-12. COORDINATE SPACE OCCUPANCY SENSOR LOCATIONS WITH EXISTING CEILING DEVICES. CONTRACTOR SHALL ADJUST SENSOR QUANTITY AND LOCATIONS BASED ON SENSOR RANGE.                                                              |
| 6 | VFD SHALL BE WALL MOUNTED.                                                                                                                                                                                                                                                       |
| 7 | BALANCE THE AIRFLOW FOR ALL AIR INLETS AND OUTLETS TO THE DESIGN AIRFLOW RATES SHOWN ON THE ORIGINAL BUILDING DRAWINGS. REFER TO DRAWING 11M110 FOR THE DESIGN AIRFLOW RATES.                                                                                                    |



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PROJECT

HOWARD COUNTY PUBLIC  
SCHOOLS

## CAFETERIA HVAC UNIT CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

SEAL

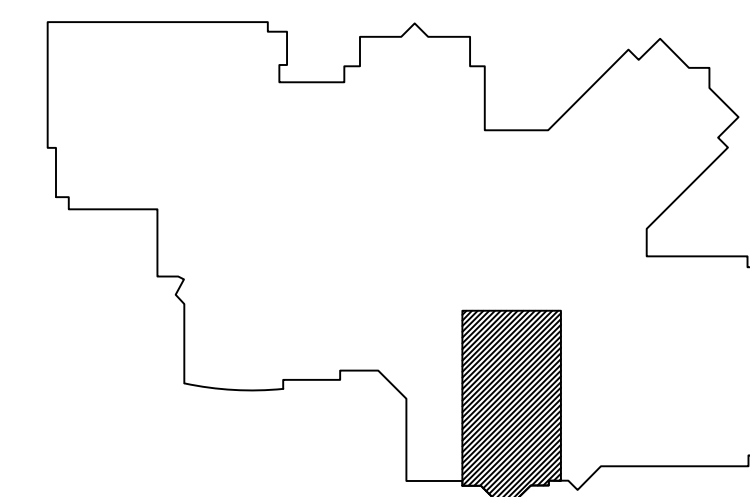
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LICENSE NO: 37247

EXPIRATION DATE: 01/09/2024

[illegible]

## KEY PLAN



RIVER HILL HS - MECHANICAL WORK

PROJECT NUMBER	PQ-1002867
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DATE 05/25/2022

DRAWN BY \_\_\_\_\_ NC

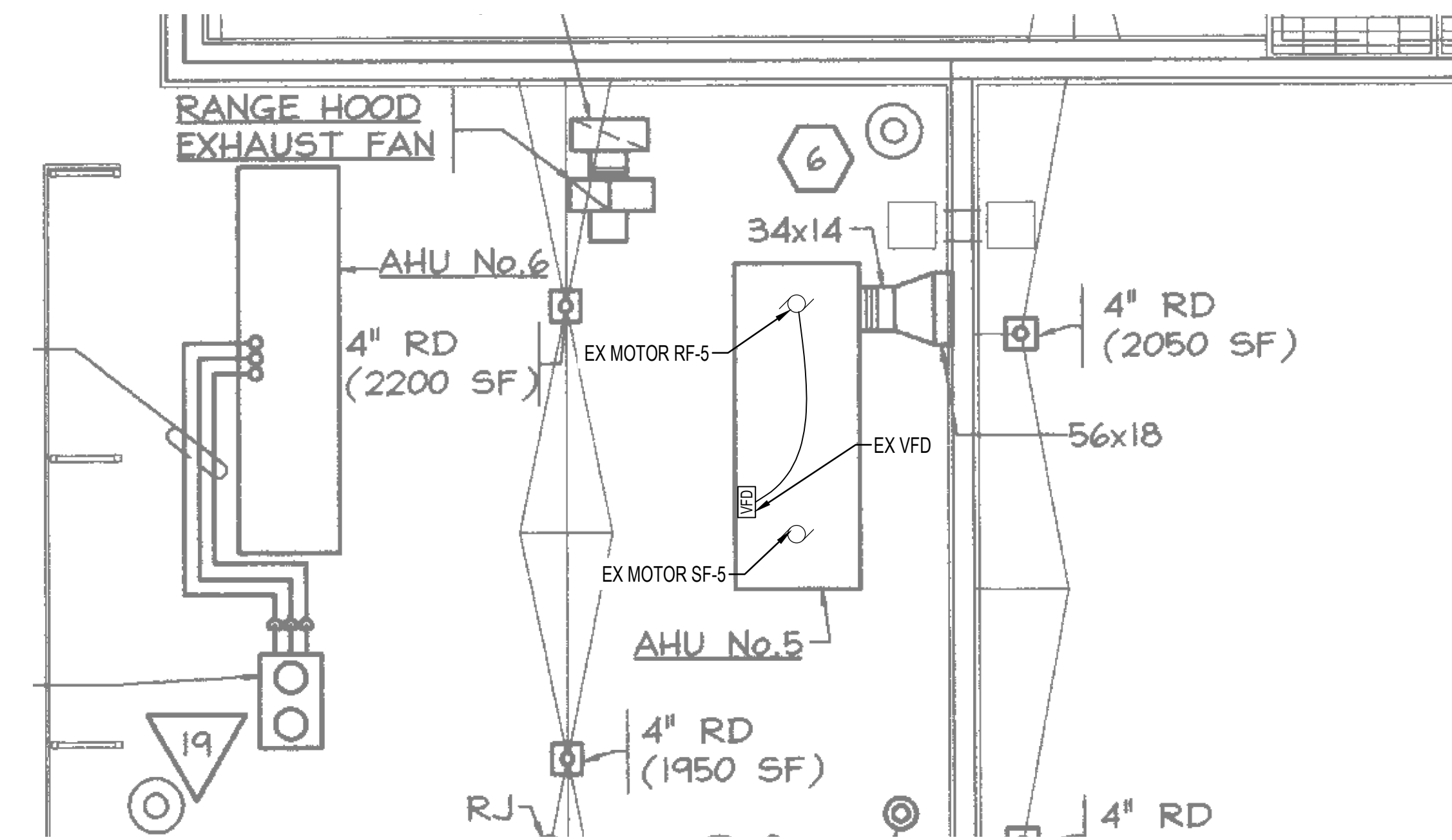
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M110

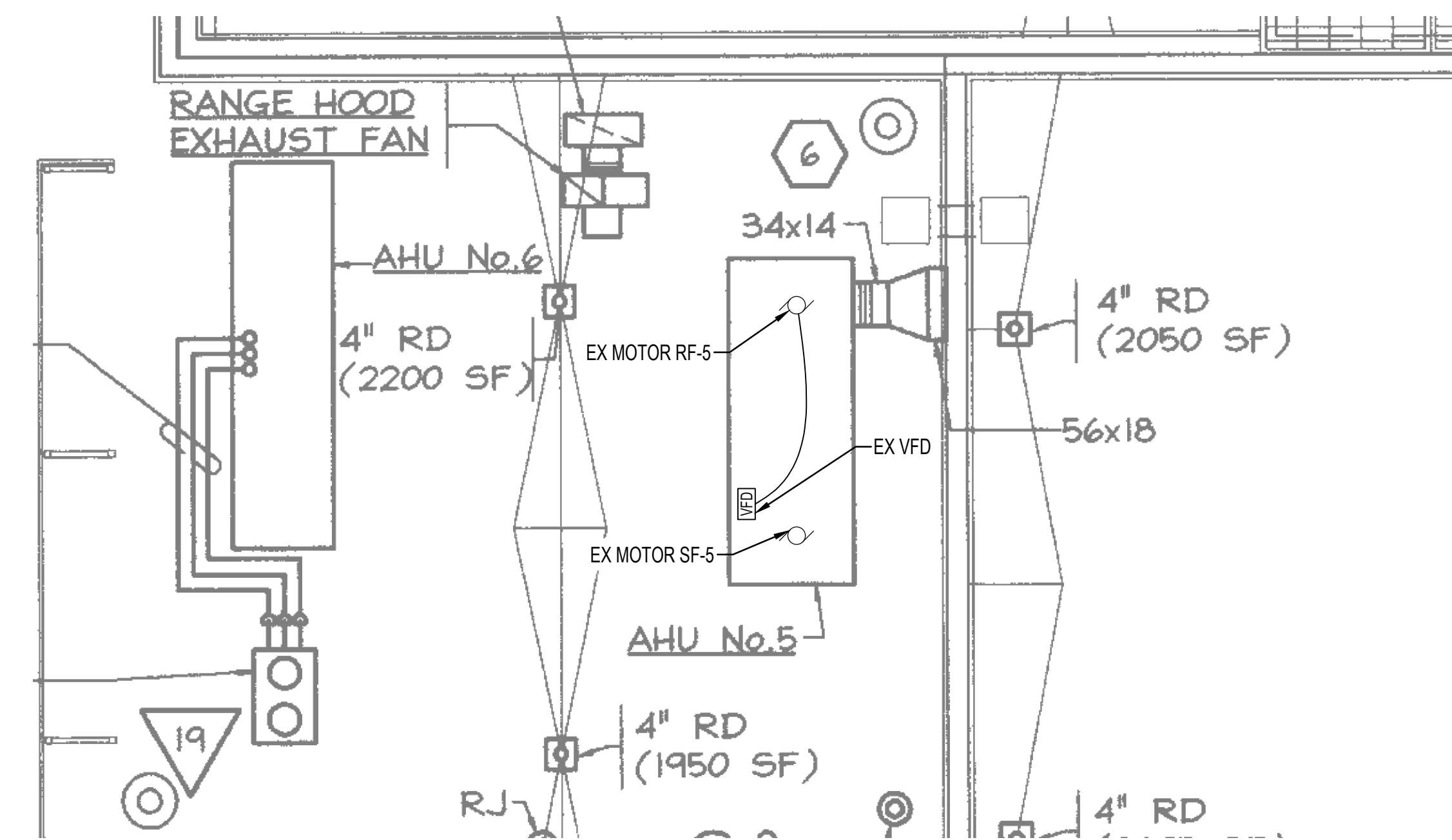


DRAWING NOTES: (APPLICABLE TO THIS DRAWING ONLY)

- |    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | EXISTING SHOWN WITH LIGHT WEIGHT LINE. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2. | DEMOLITION SHOWN WITH HEAVY WEIGHT, DASHED LINE. - - - - -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 3. | NEW WORK SHOWN WITH HEAVY WEIGHT LINE. _____                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 4. | <p>INFORMATION SHOWN ON THIS DRAWING PERTAINING TO EXISTING CONDITIONS HAS BEEN OBTAINED FROM AVAILABLE BUILDING DRAWINGS OR GENERAL FIELD OBSERVATIONS AND MAY NOT INDICATE ACTUAL EXISTING CONDITIONS IN DETAIL, OR DIMENSION. UNDER NO CIRCUMSTANCES SHALL THIS DRAWING BE USED AS AN IMMEDIATE WAY ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE ACTUAL EXISTING CONDITIONS PRIOR TO FABRICATION OR PERFORMANCE OF ANY WORK. SHOULD CONDITIONS BE DISCOVERED THAT PREVENT EXECUTION OF THE WORK AS INDICATED, OR THERE IS A QUESTION REGARDING SCOPE OF WORK OR LIMITS OF DISTURBANCE, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COR IN WRITING AND AWAIT WRITTEN DIRECTION BEFORE PROCEEDING WITH THE WORK.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 5. | <p>ALL ITEMS THAT REQUIRE ACCESS FOR OPERATING, CLEANING, SERVICING, MAINTENANCE, AND CALIBRATION, SHALL BE EASILY AND SAFELY ACCESSIBLE. EXAMPLES OF THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO: ALL TYPES OF VALVES, FILTERS, STRAINERS, TRANSMITTERS, AND CONTROL DEVICES. PRIOR TO COMMENCING INSTALLATION WORK, REFER CONFLICTS BETWEEN THIS REQUIREMENT AND CONTRACT DRAWINGS TO THE COR FOR RESOLUTION.</p> <p>FOR WORK ABOVE SUSPENDED CEILINGS: CAREFULLY REMOVE CEILING TILES AND CEILING GRID AS REQUIRED. TEMPORARILY RELOCATE AND PROTECT EXISTING LIGHTING FIXTURES AND OTHER DEVICES INSTALLED IN THE CEILING, SUCH AS PUBLIC ADDRESS SYSTEMS, WIRELESS ACCESS POINTS, ETC. RELOCATE EXISTING ELECTRICAL POWER WIRING, CONDUITS, AND SPRINKLER PIPING AS REQUIRED TO ACCOMMODATE THE WORK. UPON COMPLETION OF WORK ABOVE CEILING, PROVIDE A NEW CEILING GRID (EQUAL TO CROQUIS METALLIC 200 SERIES, USG DOWN BRAND DX, OR ARMSTRONG PRELUDE XL SERIES) AND NEW CEILING TILES (EQUAL TO ARMSTRONG SCHOOL ZONE FINE FISURED, CERTAINTED FINE FISURED HIGH NRC, OR UNITED STATES GYPSUM RADAR CLIMATE PLUS HIGH NRC LAY-IN PANELS WITH HIGH MOISTURE AND HIGH HEAT RESISTANCE).</p> |



2 VETERANS ES - PARTIAL ROOF PLAN - MECHANICAL - DEMOLITION  
M111 1/8" = 1'-0" N



4 VETERANS ES - PARTIAL ROOF PLAN - MECHANICAL - NEW WORK  
M111 1/8" = 1'-0" 





HENRY ADAMS Consulting Engineers

MECHANICAL ELECTRICAL & PLUMBING ENGINEERS

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(410) 296-6500

PROJECT

HOWARD COUNTY PUBLIC SCHOOLS

CAFETERIA HVAC UNIT CONVERSIONS

CONSTRUCTION DOCUMENTS  
05/25/2023

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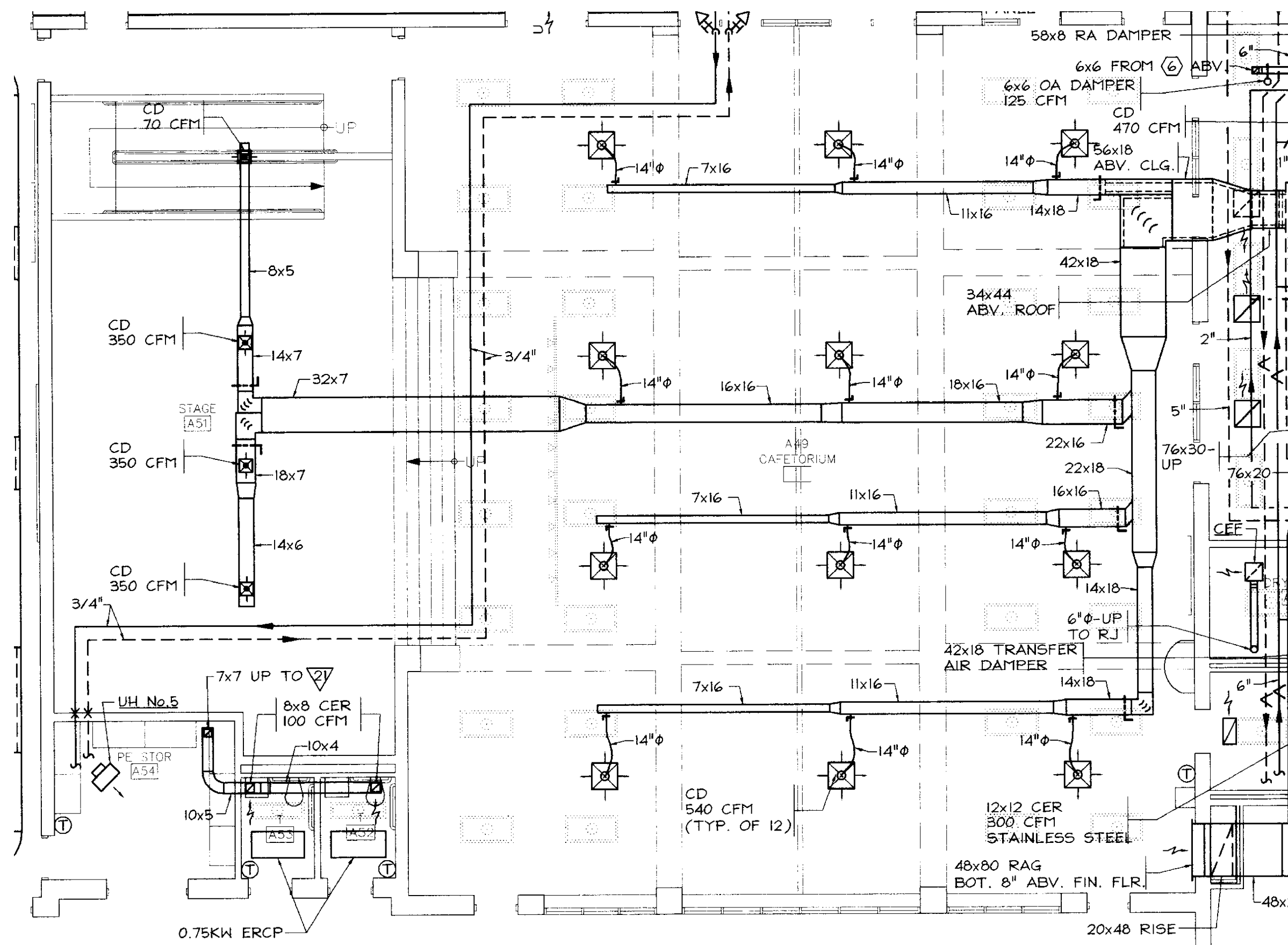
NO.	DESCRIPTION	DATE

KEY PLAN

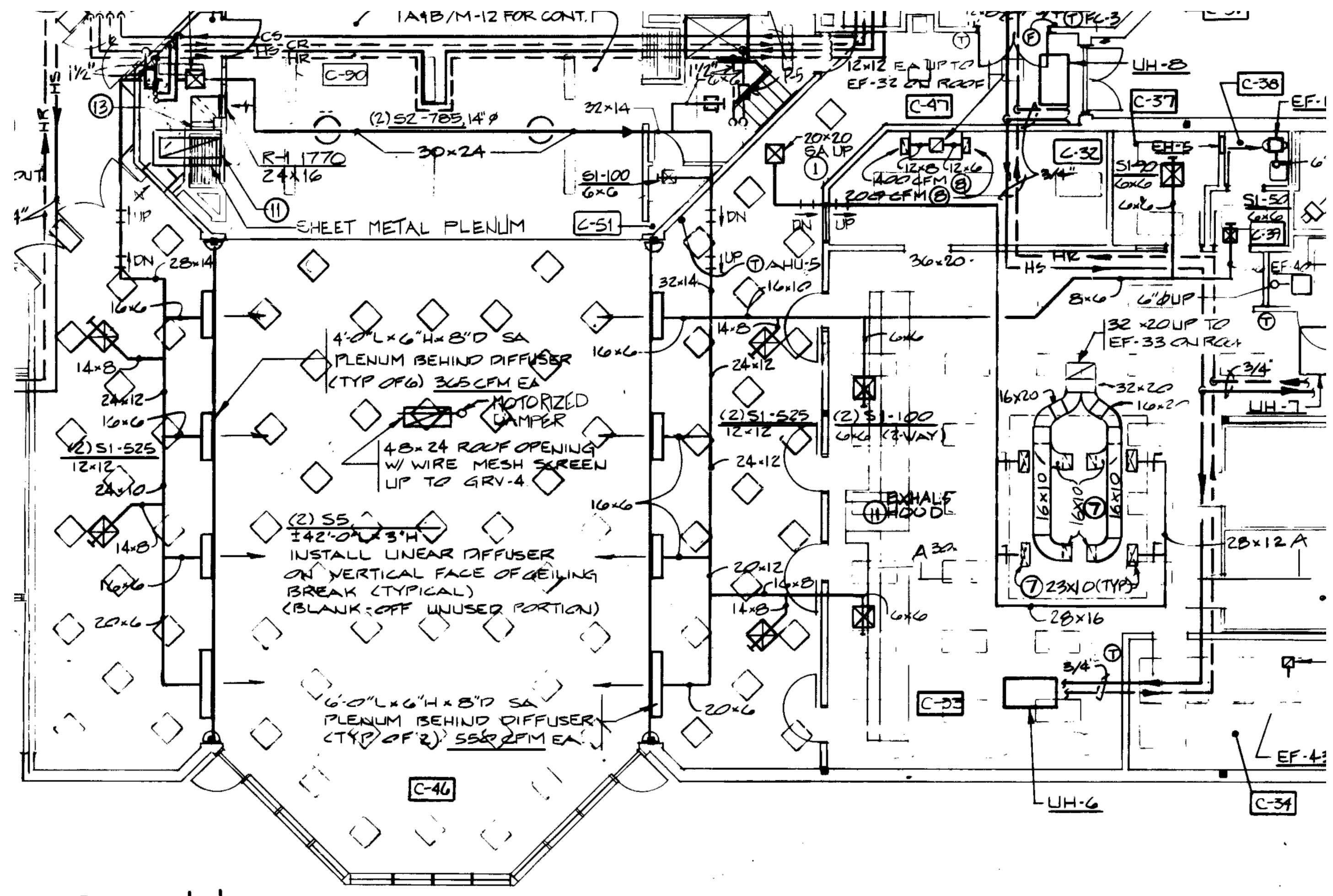
EXISTING AIRFLOW PLANS

PROJECT NUMBER	PO-10028674
DATE	05/25/2023
DRAWN BY	BMB
CHECKED BY	SRH

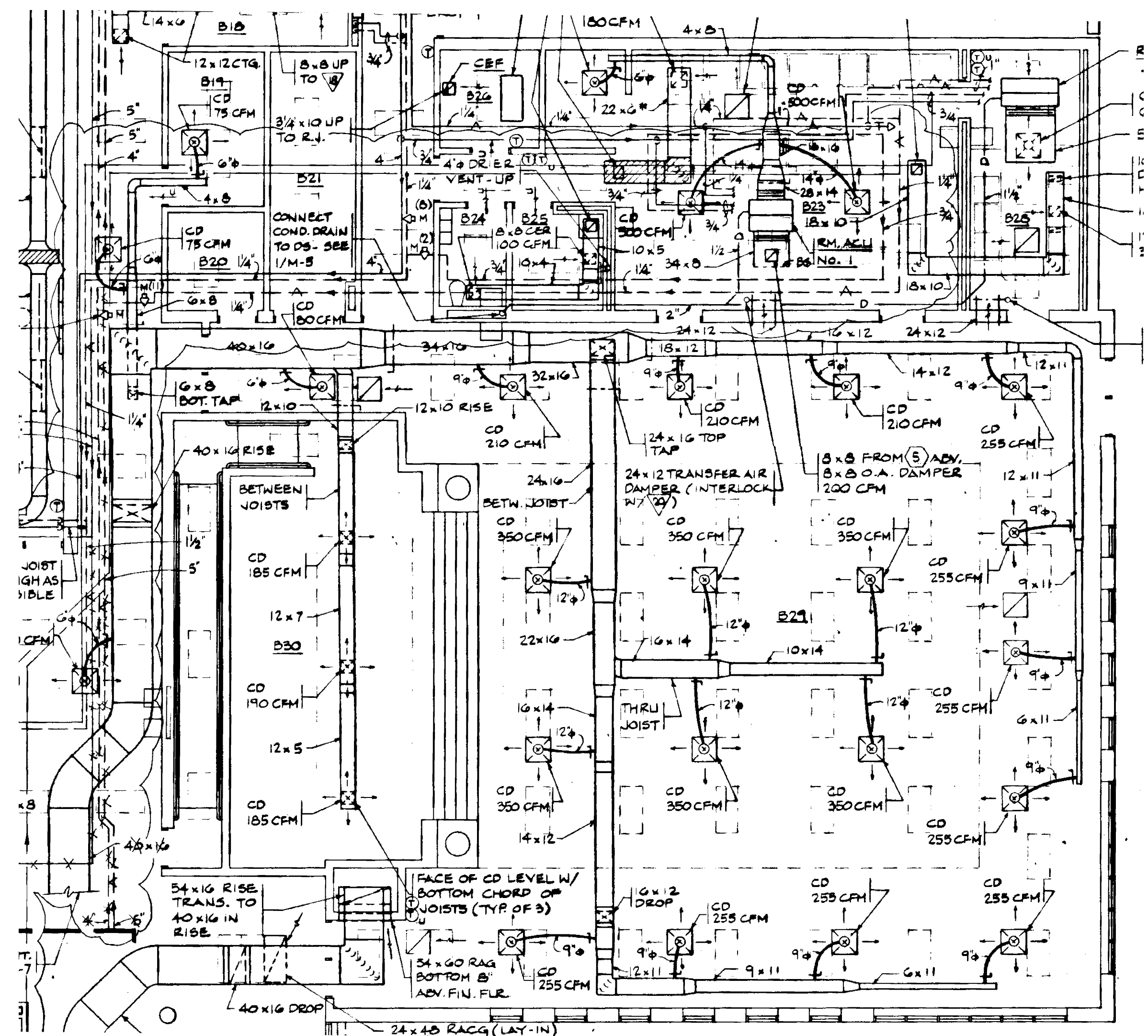
M201



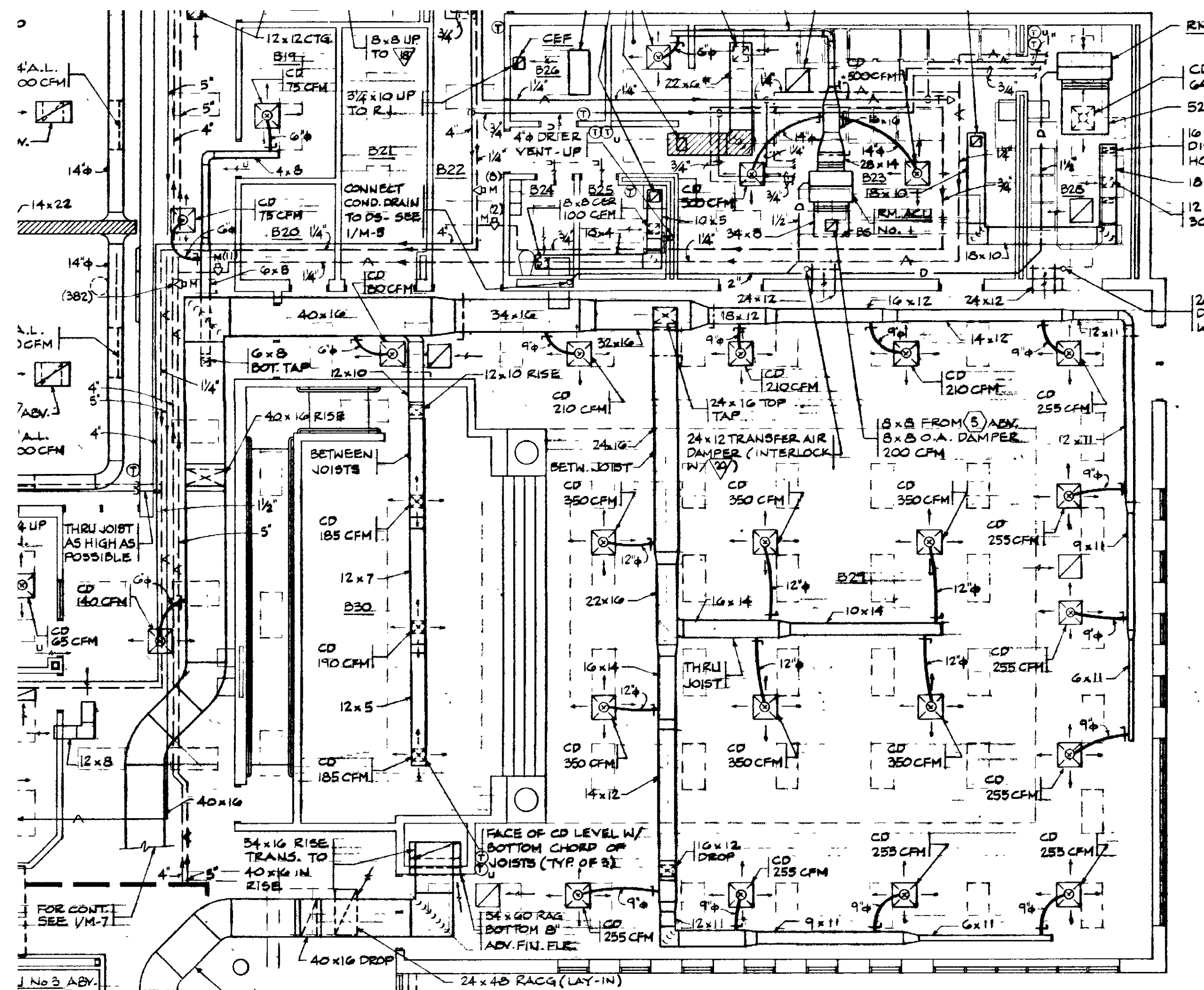
1 DAYTON OAKS ES - ORIGINAL DESIGN AIRFLOWS  
M201 1/8" = 1'-0"



2 ELKRIDGE LANDING MS - ORIGINAL DESIGN AIRFLOWS  
M201 1/8" = 1'-0"



3 FULTON ES - ORIGINAL DESIGN AIRFLOWS  
M201 1/8" = 1'-0"



4 GORMAN CROSSING ES - ORIGINAL DESIGN AIRFLOWS  
M201 1/8" = 1'-0"



HENRY ADAMS  
Consulting Engineers

MECHANICAL ELECTRICAL & PLUMBING ENGINEERS

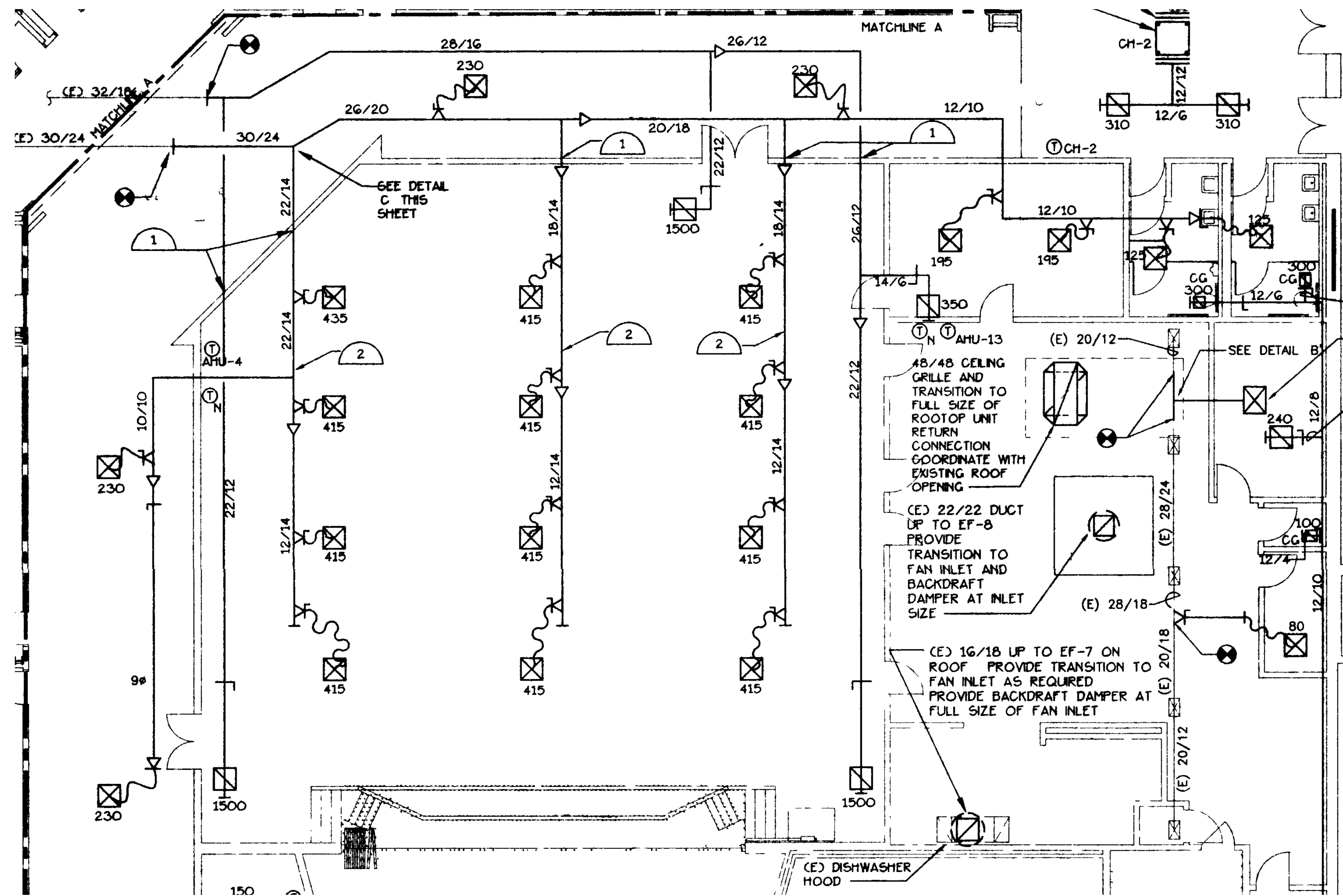
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PROJECT

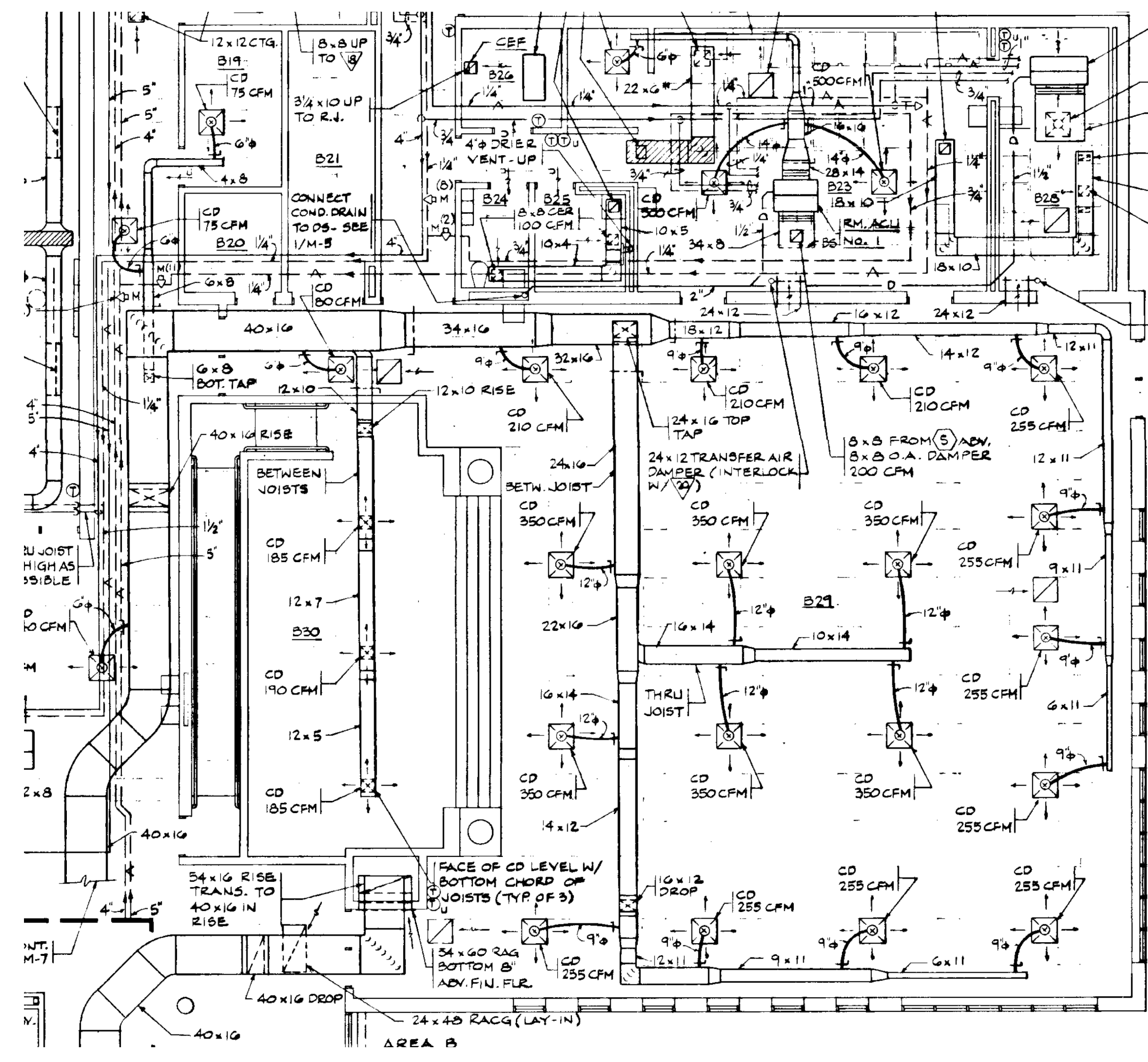
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CONVERSIONS

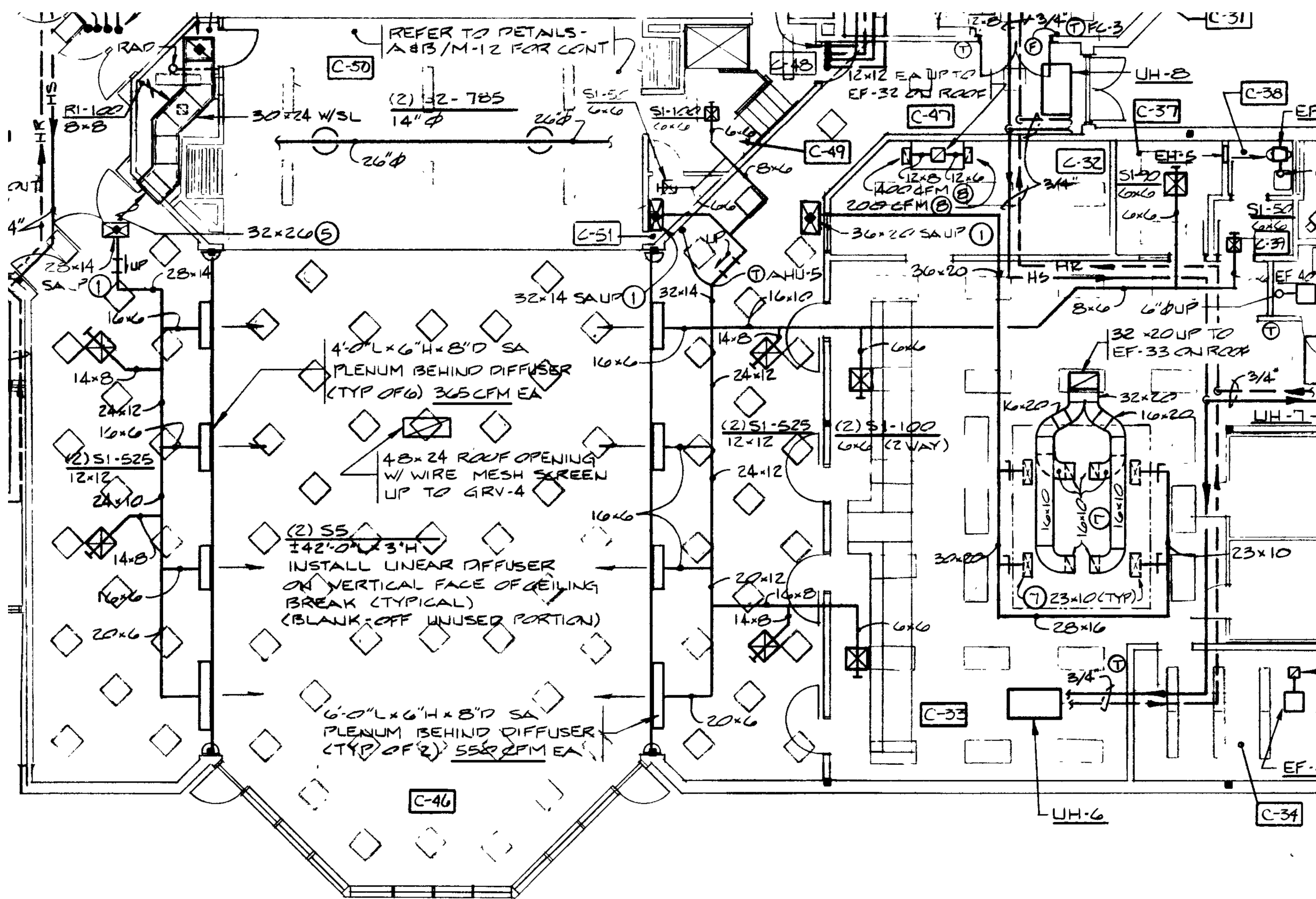
CONSTRUCTION DOCUMENTS  
05/25/2023



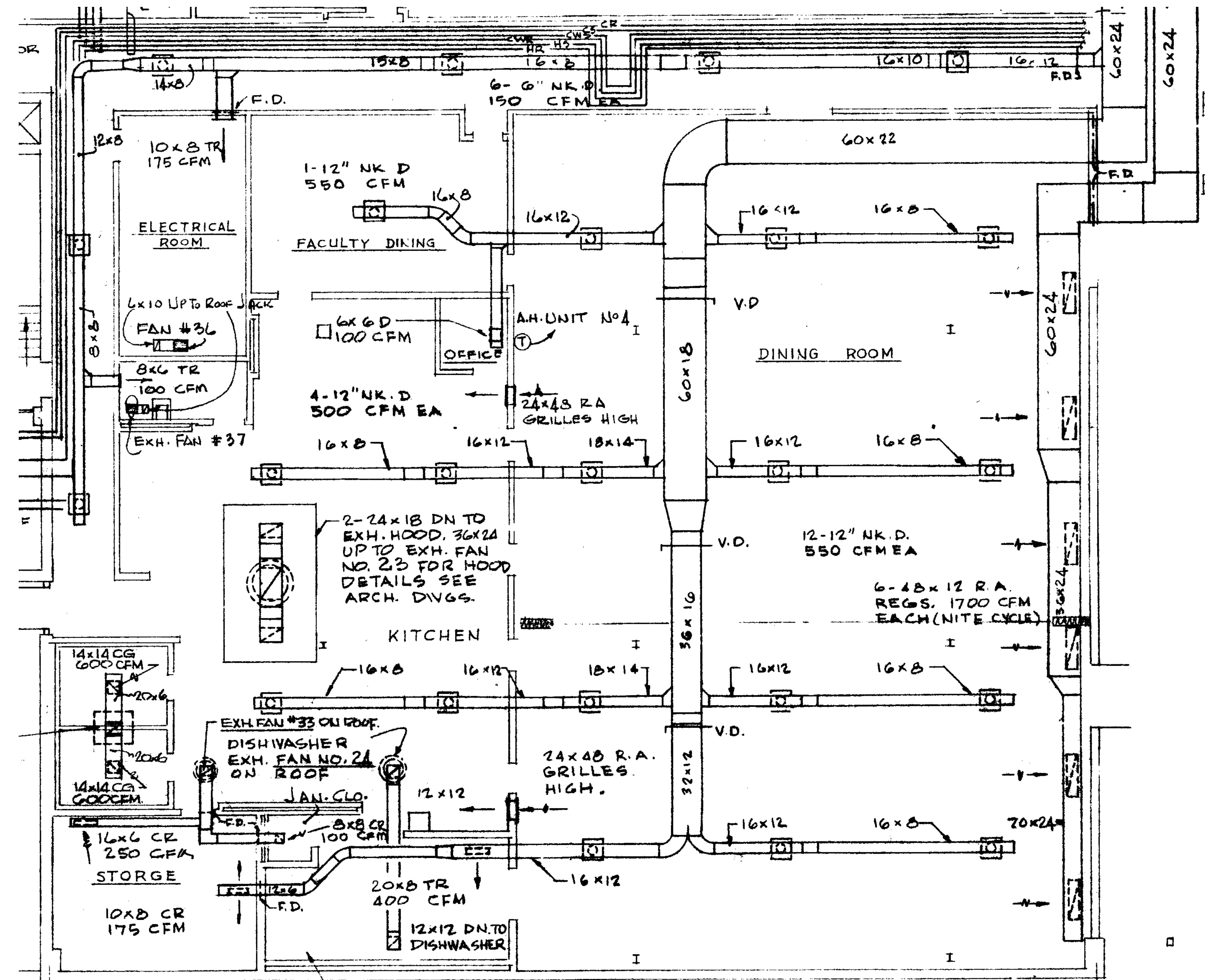
1 HARPERS CHOICE MS - ORIGINAL DESIGN AIRFLOWS  
M202 / 1/8" = 1'-0"



2 HOLLIFIELD STATION ES - ORIGINAL DESIGN AIRFLOWS  
M202 / 1/8" = 1'-0"



3 MAYFIELD WOODS MS - ORIGINAL DESIGN AIRFLOWS  
M202 / 1/8" = 1'-0"



4 OAKLAND MILLS HS - ORIGINAL DESIGN AIRFLOWS  
M202 / 1/8" = 1'-0"

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EXPIRATION DATE: 01/09/2024

NO.	DESCRIPTION	DATE

KEY PLAN

EXISTING AIRFLOW PLANS

PROJECT NUMBER PO-10028674  
DATE 05/25/2023  
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M202





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## CAFETERIA HVAC UNIT CONVERSIONS

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[illegible]

## KEY PLAN

## EXISTING AIRFLOW PLANS

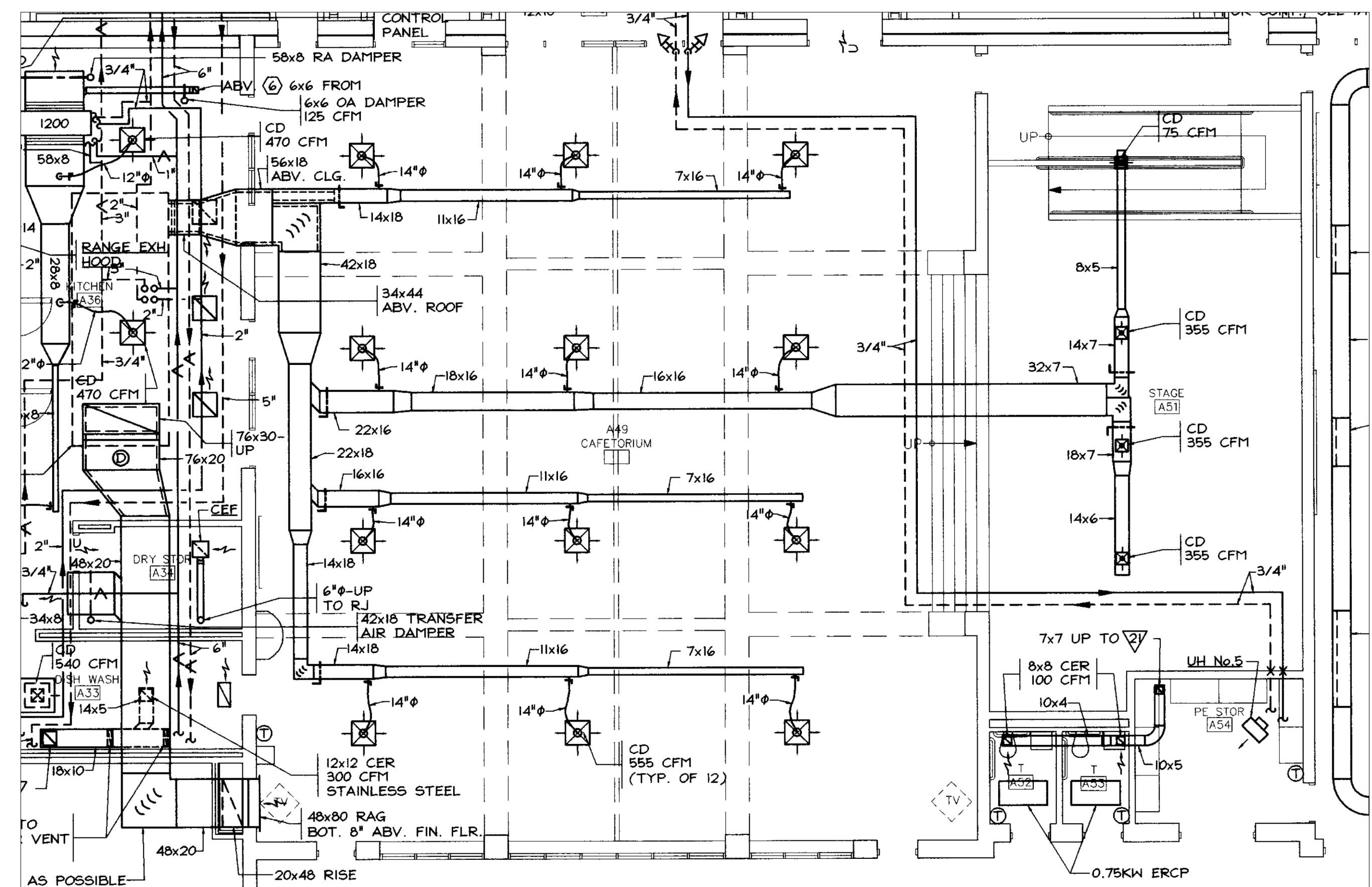
PROJECT NUMBER	PO-10028674
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DATE 05/25/2023

RAWN BY BMB

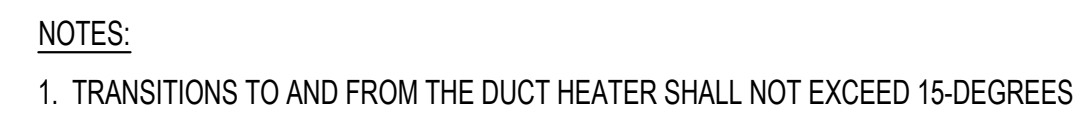
HECKED BY \_\_\_\_\_ SRH

# M203



1 VETERANS ES - ORIGINAL DESIGN AIRFLOWS  
M203 1/8" = 1'-0"





A diagram showing a round duct with a conical air flow pattern. An arrow labeled "AIR FLOW" points into the duct from the left. The duct is labeled "ROUND DUCT". The air flow is shown as a cone originating from the duct's entrance, with a maximum angle of  $15^\circ$  indicated by a dimension line and the text "15° MAX".

- NOTES:**
1. FOR AIR FLOW IN OPPOSITE DIRECTION, TRANSITION COLLAR SHALL OVERLAP EXTERIOR OR ROUND DUCT.

The drawing consists of two main parts: a plan view on the left and a section view on the right.

**Plan View (Left):** Shows a rectangular deck opening. The opening is defined by a square frame with diagonal bracing. Key dimensions and labels include:
 

- EXISTING JOIST:** Indicated at the top and bottom edges of the deck.
- EXISTING DECK SURFACE TO REMAIN:** Indicated on the left side.
- FIELD CUT AS REQUIRED TO INSTALL NEW FRAMING:** Indicated on the right side.
- NO LIMITS:** Dimension for the vertical extent of the opening.
- 6" MAX. TYP.:** Dimension for the diagonal bracing.
- 10" MIN. / 3'-0" MAX.:** Dimension for the square frame.
- EXISTING SPACING (APPROXIMATELY 3'-0") (VERIFY IN FIELD):** Dimension for the joist spacing.
- L3X3X3/8:** Label for the existing joists.
- NOTE 2:** Points to the diagonal bracing.
- SECTION A:** Indicated by a circle with the letter 'A' at the bottom center of the opening.

**Section View (Right):** Shows a cross-section of the deck opening. Key dimensions and labels include:
 

- EXISTING DECK, FIELD CUT AS REQUIRED TO INSTALL NEW FRAMING:** Indicated at the top.
- 1/4":** Dimension for the deck thickness.
- L4 TO JOIST:** Label for the support angle.
- INFLILL DECK (AND INSULATION WITH LIKE MATERIALS AFTER NEW FRAMING IS INSTALLED):** Indicated on the right side.
- L4X3X3/8 FRAME SUPPORT ANGLE:** Label for the support angle.
- 3'-0" (VERIFY IN FIELD):** Dimension for the height of the opening.
- REINFORCE EXISTING JOISTS AT POINT LOADS BETWEEN PANEL POINTS:** Indicated at the bottom.
- SECTION A:** Indicated by a circle with the letter 'A' at the bottom center of the opening.

**NOTES:**

- SHORE EXISTING JOISTS AS REQUIRED PRIOR TO ANY FIELD MODIFICATIONS.
- FIELD CUT DECKING AS REQUIRED TO INSTALL NEW FRAMING AND INFLILL WITH LIKE MATERIALS. PROVIDE STANDARD LIGHT GAGE DECK ACCESSORY POUR STOPS AT EDGES FOR EACH OPENING AS REQUIRED.
- COORDINATE SIZE AND LOCATION OF OPENING WITH MECHANICAL.

- NOTES:**
1. SHORE EXISTING JOISTS AS REQUIRED PRIOR TO ANY FIELD MODIFICATIONS FIELD CUT DECKING AS REQUIRED TO INSTALL NEW FRAMING AND INFILL WITH LIKE MATERIALS. PROVIDE STANDARD LIGHT GAGE DECK ACCESSORY POUR STOPS AT EDGES FOR EACH OPENING AS REQUIRED.
  3. COORDINATE SIZE AND LOCATION OF OPENING WITH MECHANICAL.
  4. PROVIDE 24-INCH HIGH INSULATED CURBS AS REQUIRED.
  5. ALL ROOFING WORK SHALL BE PERFORMED IN ACCORDANCE WITH EXISTING MATERIALS AND ROOF WARRANTY.

EXISTING JOIST

EXISTING DECK SPAN DIRECTION

FIELD CUT AS REQUIRED TO INSTALL NEW FRAMING

NO LIMITS

6" MAX. TYP.

10" MIN. / 3'-0" MAX.

NOTE 2

L3X3X3/8

EXISTING SPACING (APPROXIMATELY 4'-0") (VERIFY IN FIELD)

L3X3X3/8

EXISTING JOIST

SECTION A

EXISTING DECK, FIELD CUT AS REQUIRED TO INSTALL NEW FRAMING

1/4"

L4 TO JOIST

1/4"

INFill DECK (AND INSULATION) WITH LIKE MATERIALS AFTER NEW FRAMING IS INSTALLED

1'-5" (VERIFY IN FIELD)

L4X3X3/8 FRAME SUPPORT ANGLE

REINFORCE EXISTING JOISTS AT POINT LOADS BETWEEN PANEL POINTS

SECTION A

TYPICAL FRAME SUPPORT ANGLE: L4X3X3/8 X 6" TO BEAR ON TOP CHORD OF EXISTING JOIST

NOTES:

1. SHORE EXISTING JOISTS AS REQUIRED PRIOR TO ANY FIELD MODIFICATIONS.
2. FIELD CUT DECKING AS REQUIRED TO INSTALL NEW FRAMING AND INFILL WITH LIKE MATERIALS. PROVIDE STANDARD LIGHT GAGE DECK ACCESSORY POUR STOPS AT EDGES FOR EACH OPENING AS REQUIRED.
3. COORDINATE SIZE AND LOCATION OF OPENING WITH MECHANICAL.
4. PROVIDE 24-INCH HIGH INSULATED CURBS AS REQUIRED.
5. ALL ROOFING WORK SHALL BE PERFORMED IN ACCORDANCE WITH EXISTING MATERIALS AND ROOF WARRANTY.

- NOTES:**
1. SHORE EXISTING JOISTS AS REQUIRED PRIOR TO ANY FIELD MODIFICATIONS
  2. FIELD CUT DECKING AS REQUIRED TO INSTALL NEW FRAMING AND INFILL WITH LIKE MATERIALS. PROVIDE STANDARD LIGHT GAGE DECK ACCESSORY POUR STOPS AT EDGES FOR EACH OPENING AS REQUIRED.
  3. COORDINATE SIZE AND LOCATION OF OPENING WITH MECHANICAL.
  4. PROVIDE 24-INCH HIGH INSULATED CURBS AS REQUIRED.
  5. ALL ROOFING WORK SHALL BE PERFORMED IN ACCORDANCE WITH EXISTING MATERIALS AND ROOF WARRANTY.

[illegible]

- NOTES:**
1. MAINTAIN VALVES (A) AND (B) TO UNIT CLOSED AND BYPASS VALVE (C) OPEN UNTIL PIPING SYSTEM HAS BEEN CLEANED AND FLUSHED AS SPECIFIED AFTER FINAL FLUSHING CLOSE BYPASS VALVE (C) AND OPEN VALVES (A) AND (B) TO UNIT.
  2. INSTALL CONTROL VALVE IN VERTICAL POSITION WITH ACTUATOR ON TOP.
  3. AFTER FINAL FLUSHING REMOVE VALVE (C) HANDLE.
  4. TRANSITIONS TO AND FROM THE REHEAT COIL SHALL NOT EXCEED 15-DEGREES.

The diagram illustrates the correct and incorrect methods for connecting a round duct to a rectangular duct. It is divided into two main sections: the top section shows incorrect methods, and the bottom section shows the correct method.

**Top Section (Incorrect Methods):**

- Left Diagram:** Shows a round duct with radius  $R=D$  connected to a rectangular duct using a 45-degree tap fitting with a flange. A note indicates: "DO NOT USE BACKWARD BENDING MITRE OR RADIUS IMMEDIATELY AFTER TAP".
- Right Diagram:** Shows a round duct connected to a rectangular duct using a mitred 45-degree tap fitting with a flange.

**Bottom Section (Correct Method):**

- Shows a round duct connected to a rectangular duct using a conical tee fitting with a flange.

Arrows indicate the direction of air flow through the ducts.

- |                                                                                                                                      |                                                                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <p><u>NOTES:</u></p> <p>1. DO NOT USE 45 DEG TAP FITTINGS EXCEPT WHERE TIGHT CONDITION PREVENTS USE OF OTHER FITTINGS INDICATED.</p> | <p><u>SPECIAL NOTES:</u></p> <p>① CUT HOLE IN RECTANGULAR DUCT LARGE ENOUGH SO THAT ROUGH METAL EDGE DOES NOT PROJECT INTO AIR STREAM.</p> |
|--------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|

Technical drawing of a 90-degree elbow. The drawing shows a side view of the elbow with a 15° MAX angle. The radius is labeled R=D (6" MINIMUM). The diameter is labeled D. The drawing includes a callout (1) pointing to the elbow. The drawing is labeled AIR FLOW with an arrow indicating the direction of flow.

- NOTES:
1. SEE SMACNA MANUAL FOR METHODS OF SECURING TAP-OFF CONNECTION TO MAIN.
  2. SAME FOR RETURN AND EXHAUST DUCTS EXCEPT AIR FLOW IS REVERSED.
- SPECIAL NOTES:
- ① 45 DEG TAP PERMITTED FOR DUCTWORK RATED 2" W.G. OR LESS

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[illegible]

## KEY PLAN

## MECHANICAL DETAILS

PROJECT NUMBER	PO-10028674
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DRAWN BY	BMB
CHECKED BY	SRH

# M501