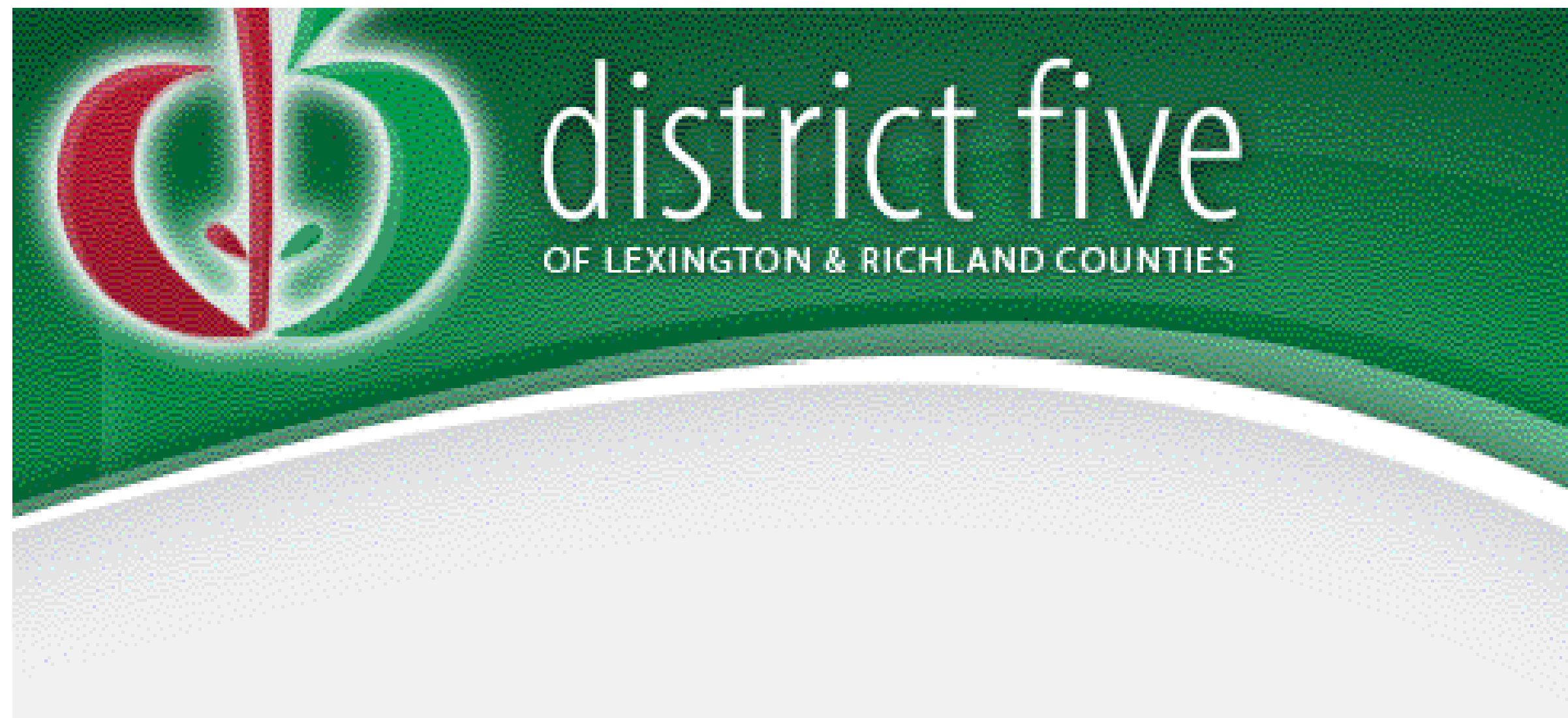


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Site Location Map

Lake Murray Elementary School Replace HVAC, Phase III

1531 Three Dog Road
Chapin, South Carolina 29036

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E102 LIGHTING PLAN - PART "F" - NEW WORK
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E201 MECHANICAL CIRCUIT PLAN - PART "E" - NEW WORK
E202 MECHANICAL CIRCUIT PLAN - PART "F" - NEW WORK

Code Compliance
International Existing Building Code: 2015 Edition
International Building Code: 2015 Edition
International Mechanical Code: 2015 Edition
International Energy Conservation Code: 2009 Edition
National Electric Code: 2014 Edition
 New Construction Renovation (Existing Building) Upfit Addition
Occupancy Classification: Education Group E

Seismic Design and Wind Speed Criteria
Site Class - D
Seismic Design Category - D
Basic Wind Speed - 90 MPH

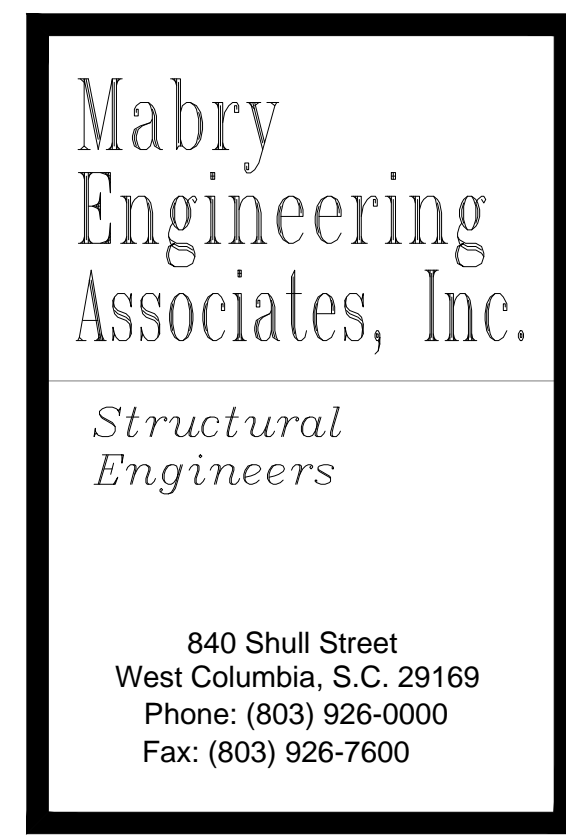


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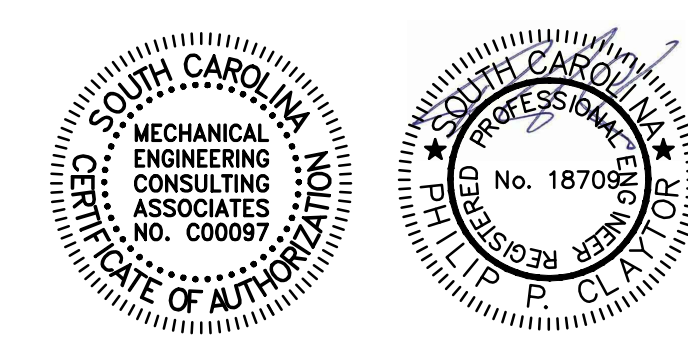


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Fax (803)799-5494
gwa@gwainc.net
<http://www.gwainc.net>

HVAC Engineer of Record: Philip P. Claytor, P.E.
South Carolina Registration: 18709



Solicitation # **2018-028**

MECA Project Number: 114211.02

Bid Documents Dated: February 12, 2018

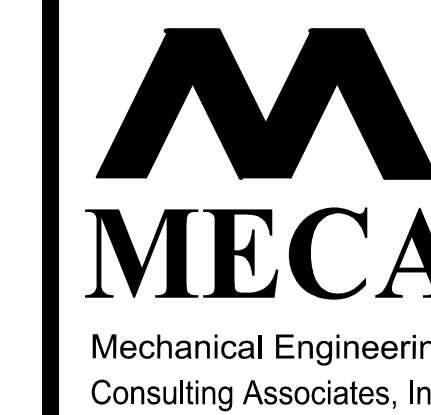
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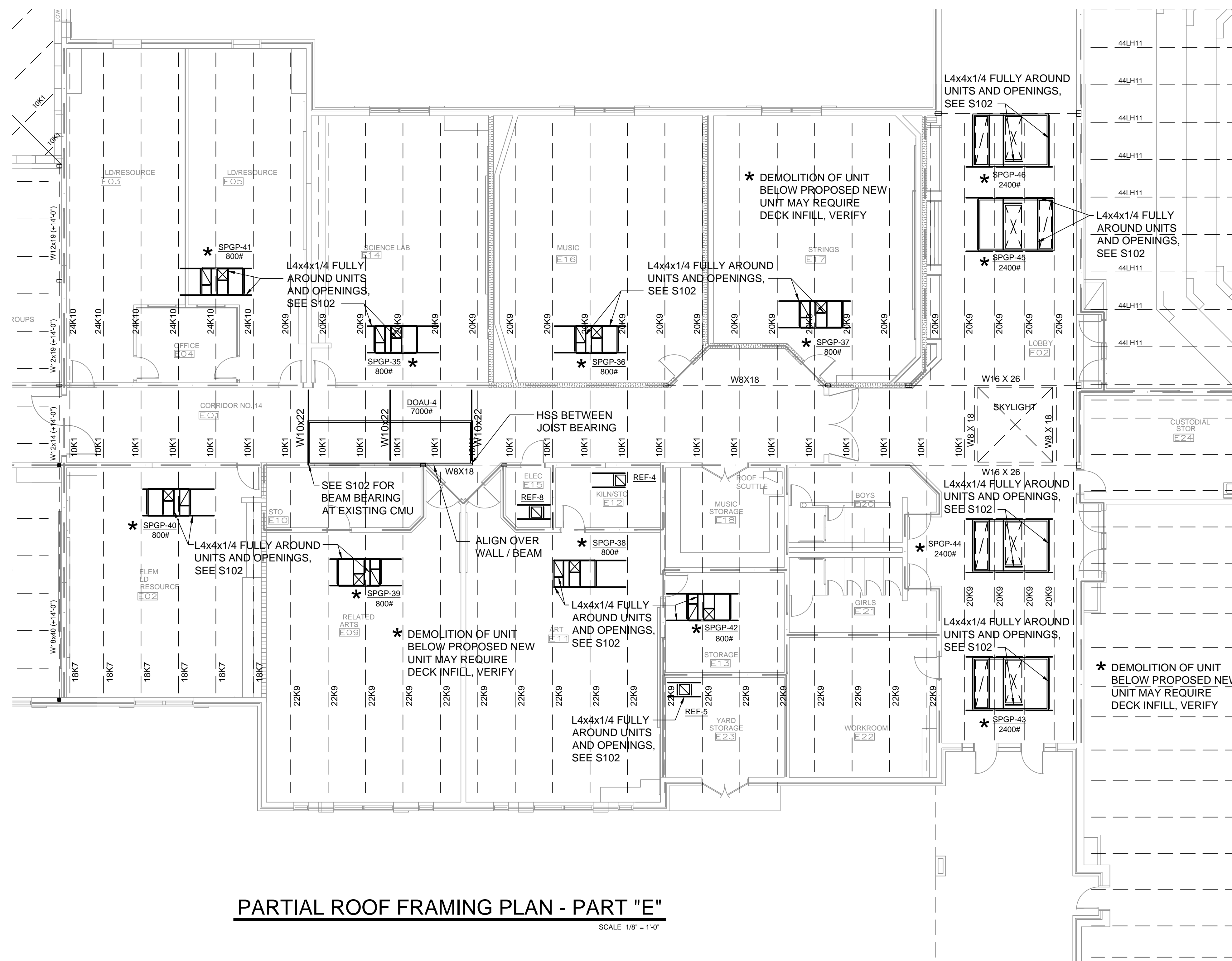
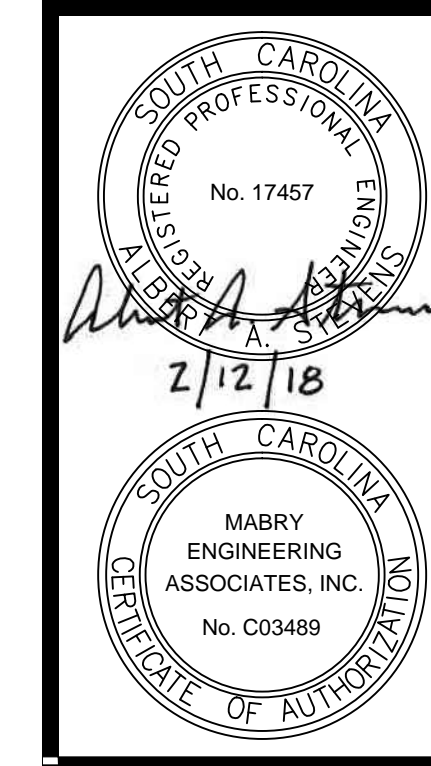
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Designed : 08/15/2017
Plot Date : 02/12/2018
Drawn : AAS
Approved By : AAS



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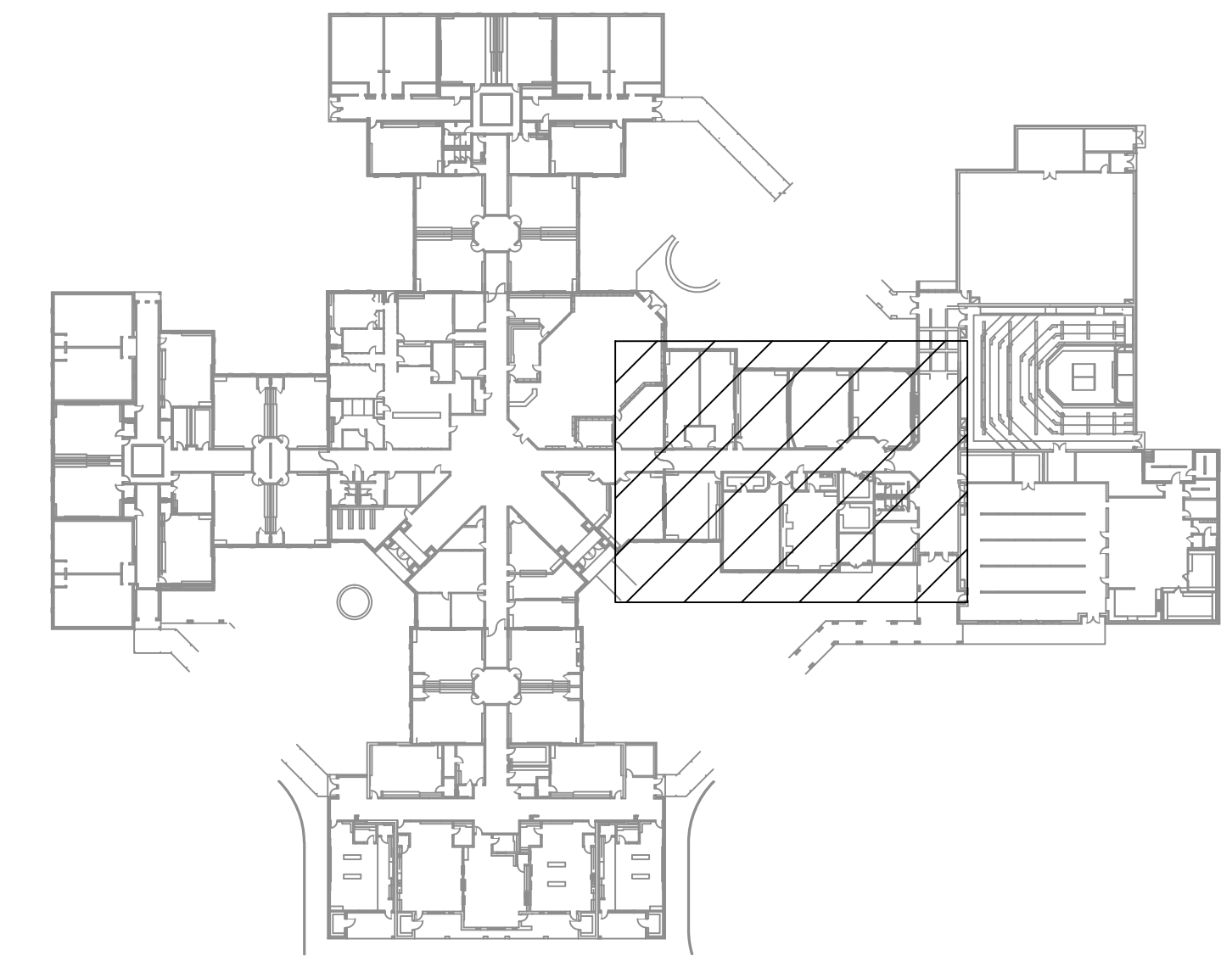
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PARTIAL ROOF FRAMING PLAN - PART "E"

SCALE 1/8" = 1'-0"

- GENERAL NOTES:**
- VERIFY ALL ELEVATIONS AND DIMENSIONS WITH EXISTING CONDITIONS.
 - SEE MECHANICAL DRAWINGS FOR MISCELLANEOUS DETAILS NOT SHOWN ON STRUCTURAL DRAWINGS.
 - CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND ELEVATIONS BEFORE ANY FABRICATION HAS STARTED.
 - PROVIDE AND INSTALL ALL TEMPORARY BRACING AS REQUIRED FOR SAFETY/STABILITY OF THE STRUCTURE UNTIL STRUCTURE IS COMPLETE.
 - BUILDING CONTRACTOR SHALL COORDINATE DIMENSIONS AND LOCATIONS OF ANGLE FRAMES AND STRUCTURAL SUPPORT FOR MECHANICAL EQUIPMENT AND HOLES IN ROOF.
 - CONTRACTOR SHALL VISIT SITE TO BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING CONDITIONS AND SHALL FIELD VERIFY ALL EXISTING DIMENSIONS, FRAMING CONDITIONS, AND CONNECTIONS BEFORE BEGINNING CONSTRUCTION OR ANY FABRICATION.
 - WHERE DETAIL IS SHOWN ON STRUCTURAL DRAWINGS FOR ONE CONDITION, IT SHALL APPLY TO ALL SIMILAR OR LIKE CONDITIONS, UNLESS NOTED OR SHOWN OTHERWISE ON PLANS.
 - STRUCTURAL STEEL:
 - STEEL SHALL CONFORM TO THE FOLLOWING ASTM SPECIFICATIONS, UNLESS NOTED OTHERWISE ON PLANS:
 - STRUCTURAL STEEL BEAMS ----- A-992(Fy=50ksi)
 - STRUCTURAL STEEL PIPE ----- A-53(Fy=35ksi)
 - STRUCTURAL STEEL TUBE ----- A-500(Fy=46ksi)
 - MISCELLANEOUS STEEL ----- A-36(Fy=36ksi)
 - BOLTED CONNECTIONS:
 - ALL CONNECTIONS (UNLESS NOTED OTHERWISE) SHALL BE MADE WITH 3/4" DIAMETER A-325X BOLTS.
 - THE SHOP DRAWINGS SHALL CLEARLY INDICATE THE TYPE OF BOLTS USED IN EACH CONNECTION AND THE ALLOWABLE VALUES USED FOR THE VARIOUS BOLT TYPES.
 - THE FOLLOWING MINIMUM STANDARDS APPLY:
 - MINIMUM PLATE THICKNESS = 3/8"
 - MINIMUM BOLT DIAMETER = 3/4"
 - MINIMUM WELD = 3/16" THICK THROAT
 - MINIMUM DESIGN LOAD ON ANY CONNECTION = 15kips
 - WELDED CONNECTIONS:
 - ALL SHOP AND FIELD WELDING SHALL CONFORM TO AWS STRUCTURAL WELDING CODE-STEEL, ANS/AWS - D1.1
 - SPLICING OF STRUCTURAL STEEL WAS NOT DETAILED AND IS PROHIBITED WITHOUT PRIOR WRITTEN APPROVED OF THE ENGINEER.
 - PROVIDE #4"x14" ANGLE FRAME, SPANNING BETWEEN JOISTS, BULB TEES OR OTHER STRUCTURE, FOR EQUIPMENT AND/OR OPENINGS IN ROOF CAUSED BY EQUIPMENT NOT SHOWN ON STRUCTURAL DRAWINGS.
 - GROUT VOID BETWEEN NEW BEAMS AND EXISTING STRUCTURE SOLID TO ENSURE ADEQUATE BEARING.
 - EXISTING ROOFING SHALL BE REMOVED AT NEW EQUIPMENT TO ALLOW PLACEMENT OF THE NEW ROOFTOP CURB ON THE EXISTING METAL DECK.
 - REVIEW OF SUBMITTAL AND/OR SHOP DRAWINGS BY THE STRUCTURAL ENGINEER OF RECORD DOES NOT RELIEVE THE CONTRACTOR OF THE SOLE RESPONSIBILITY TO REVIEW AND CHECK SHOP DRAWINGS BEFORE SUBMITTAL TO THE STRUCTURAL ENGINEER OF RECORD. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR ERRORS AND OMISSIONS ASSOCIATED WITH THE PREPARATION OF SHOP DRAWINGS AS THEY PERTAIN TO MEMBER SIZES, DETAILS, AND DIMENSIONS SPECIFIED IN THE CONTRACT DOCUMENTS. CONTRACTOR ALSO SHALL BE RESPONSIBLE FOR MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES OF CONSTRUCTION. SEE SPECIFIC PROVISIONS IN THE CONTRACT DOCUMENTS DEALING WITH THE APPROPRIATE DESIGN RESPONSIBILITIES OF CONTRACTORS, SUBCONTRACTORS, AND SUPPLIERS.



KEY PLAN
NO SCALE

**LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III**

Sheet Title
PARTIAL PLAN PART "E" AND NOTES

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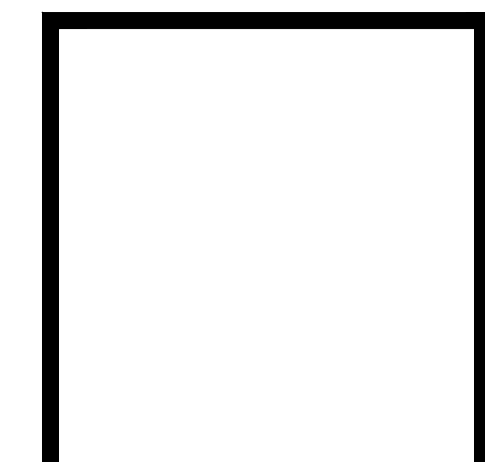
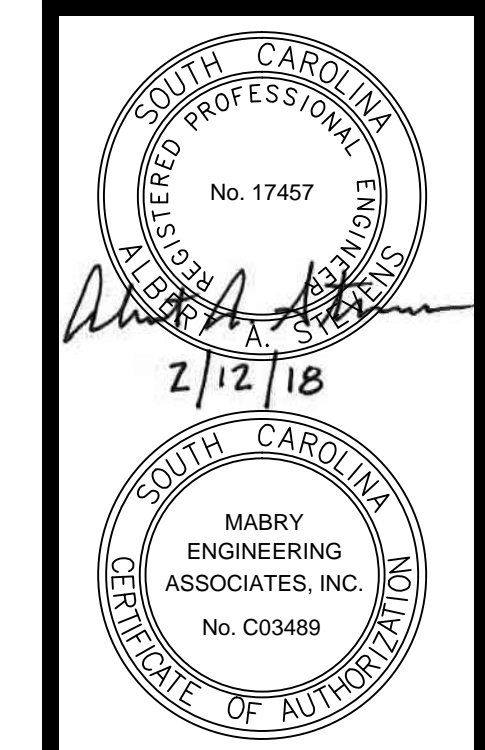
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Drawn : AAS
Approved By : AAS

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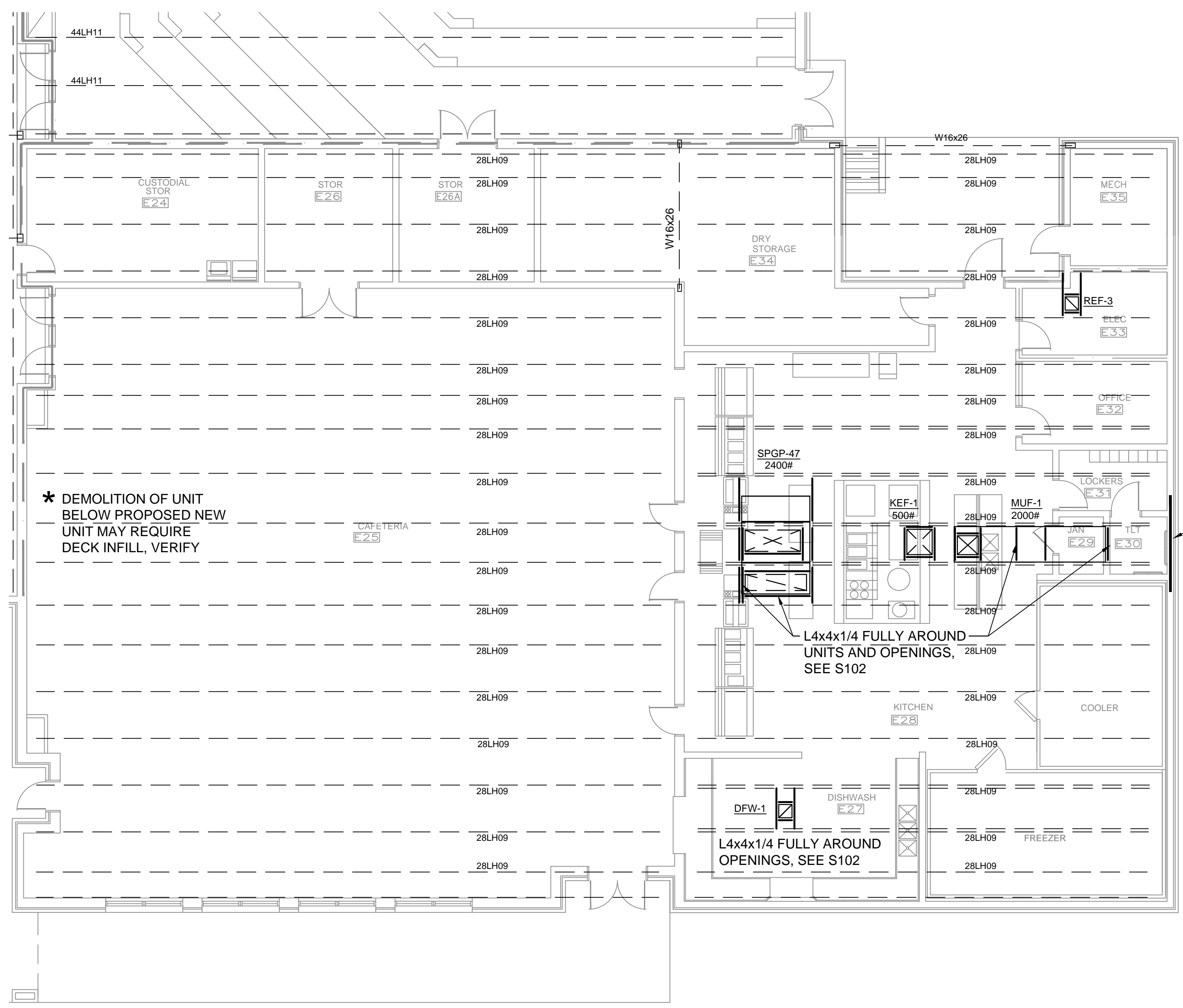
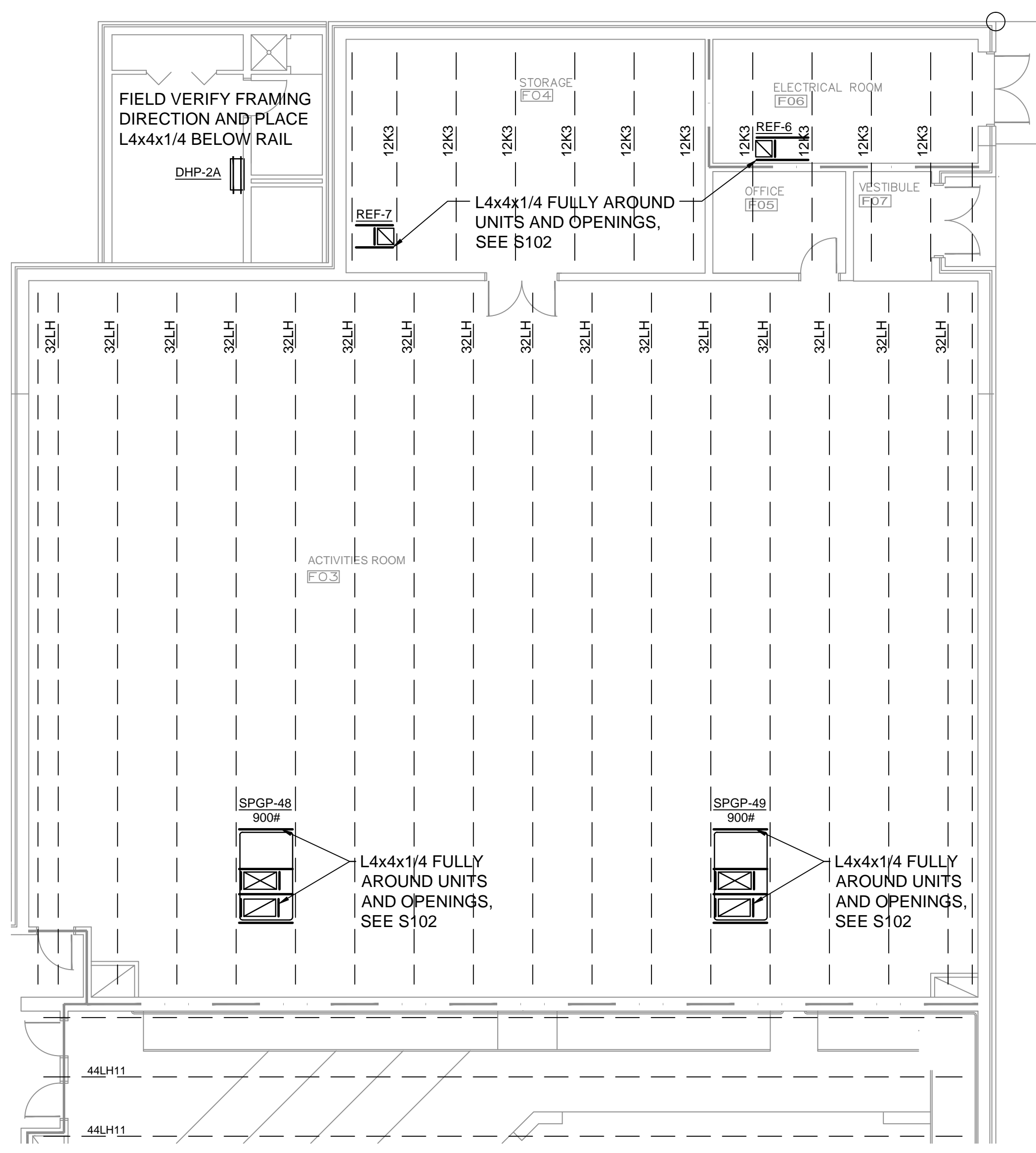
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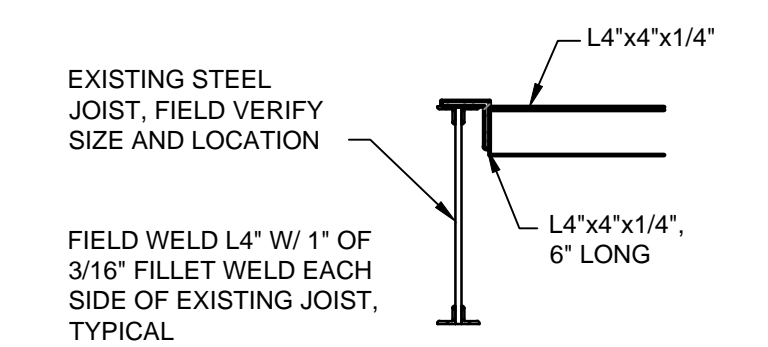
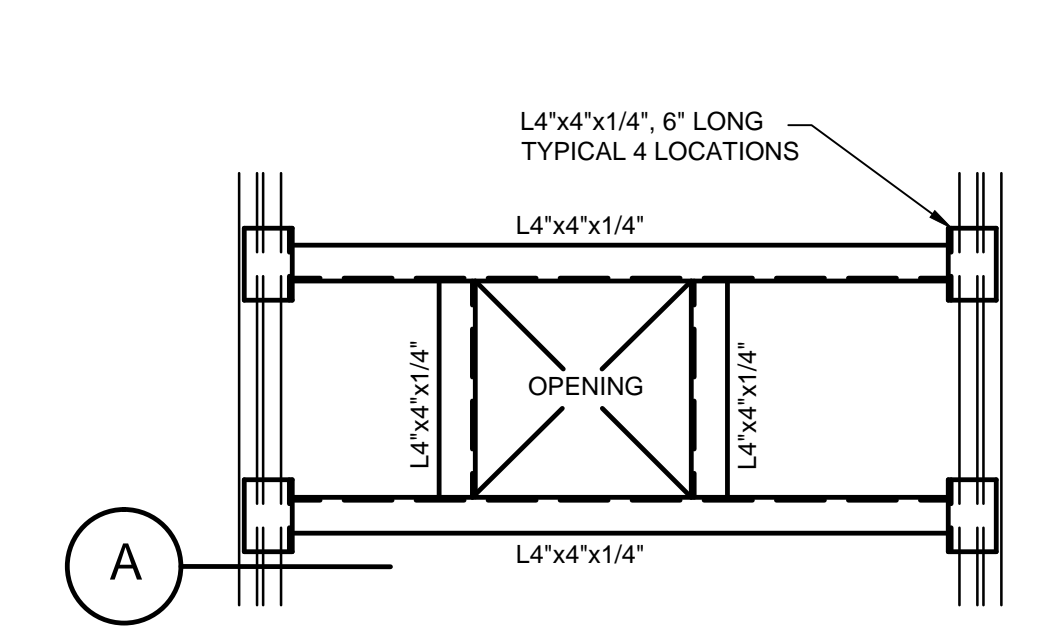


LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III
PARTIAL PLAN PART "F" AND DETAILS

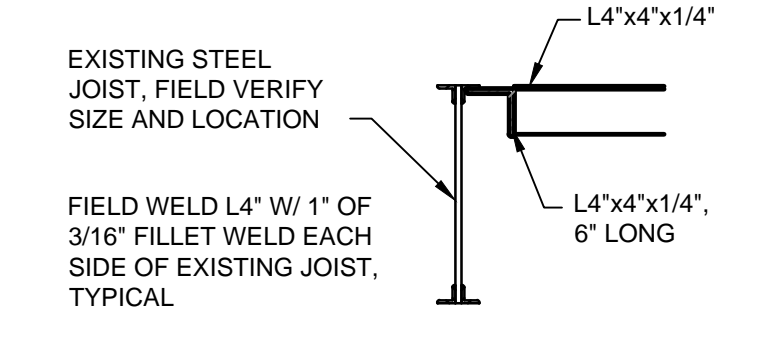
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of
Project No. **114211.02**



PARTIAL ROOF FRAMING PLAN - PART "F"
SCALE: 1/8"=1'-0"

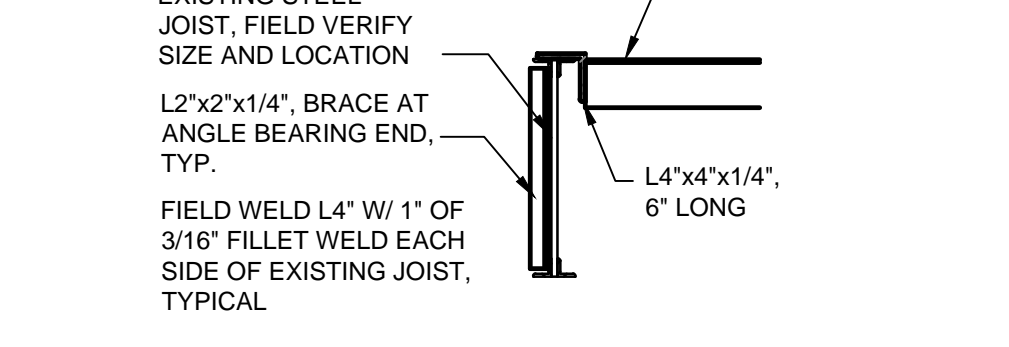
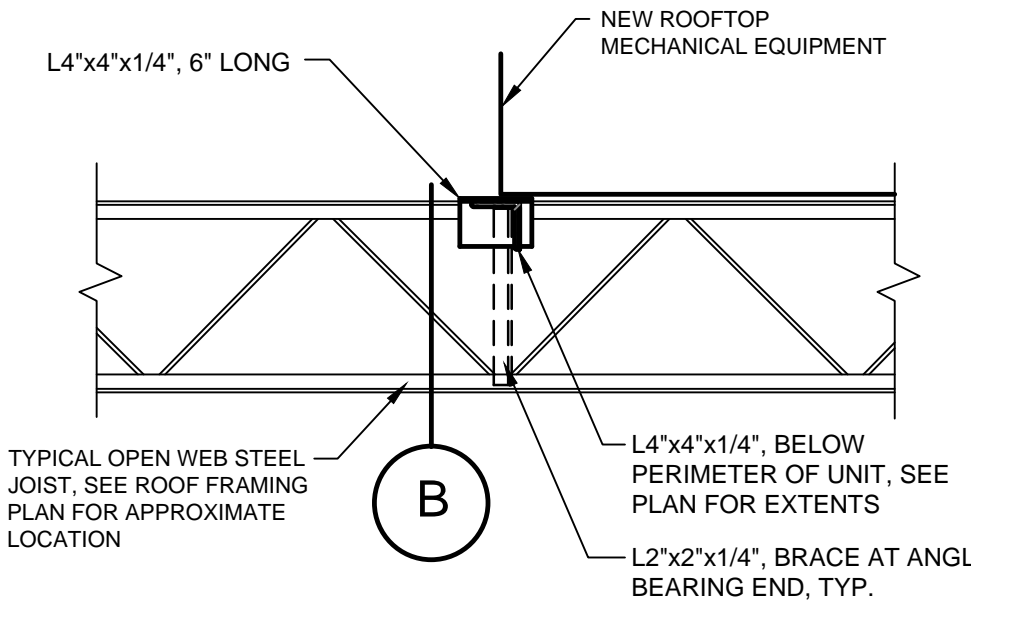


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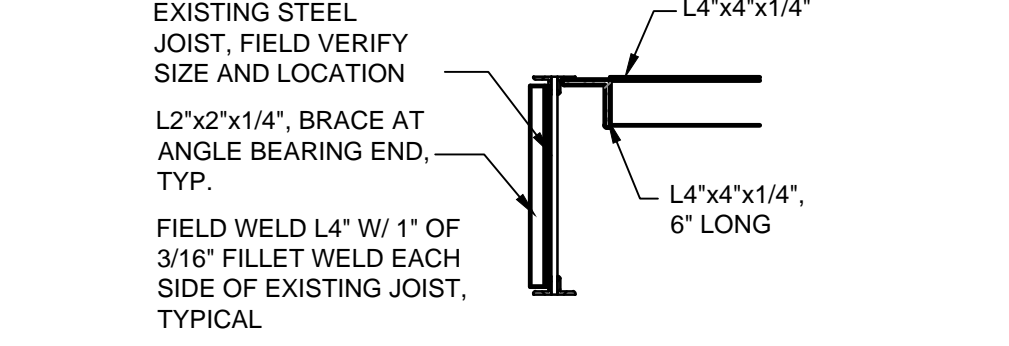


SECTION "A" - OPTION 2
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1 TYPICAL ROOF PENETRATION AND UNIT PERIMETER DETAIL
NOT TO SCALE

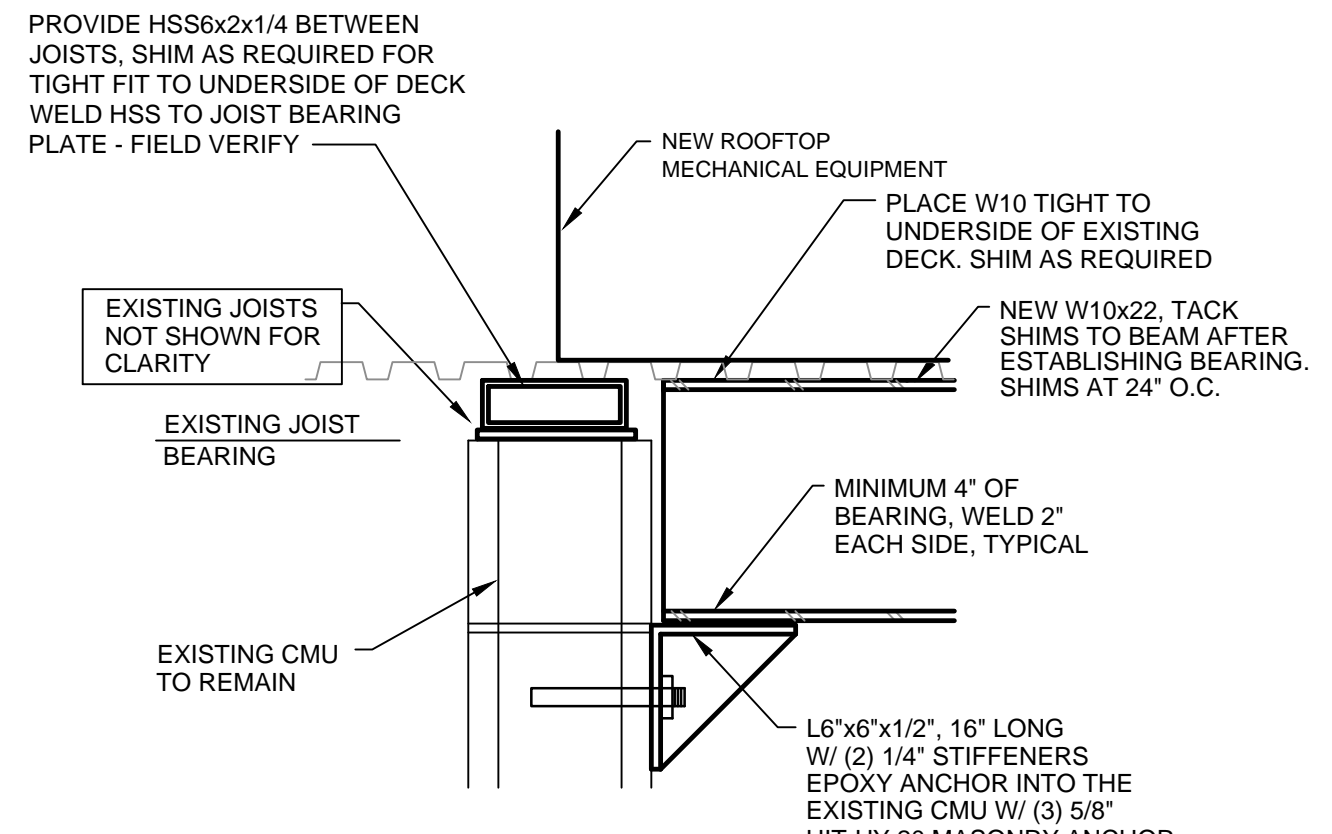


SECTION "B" - OPTION 1
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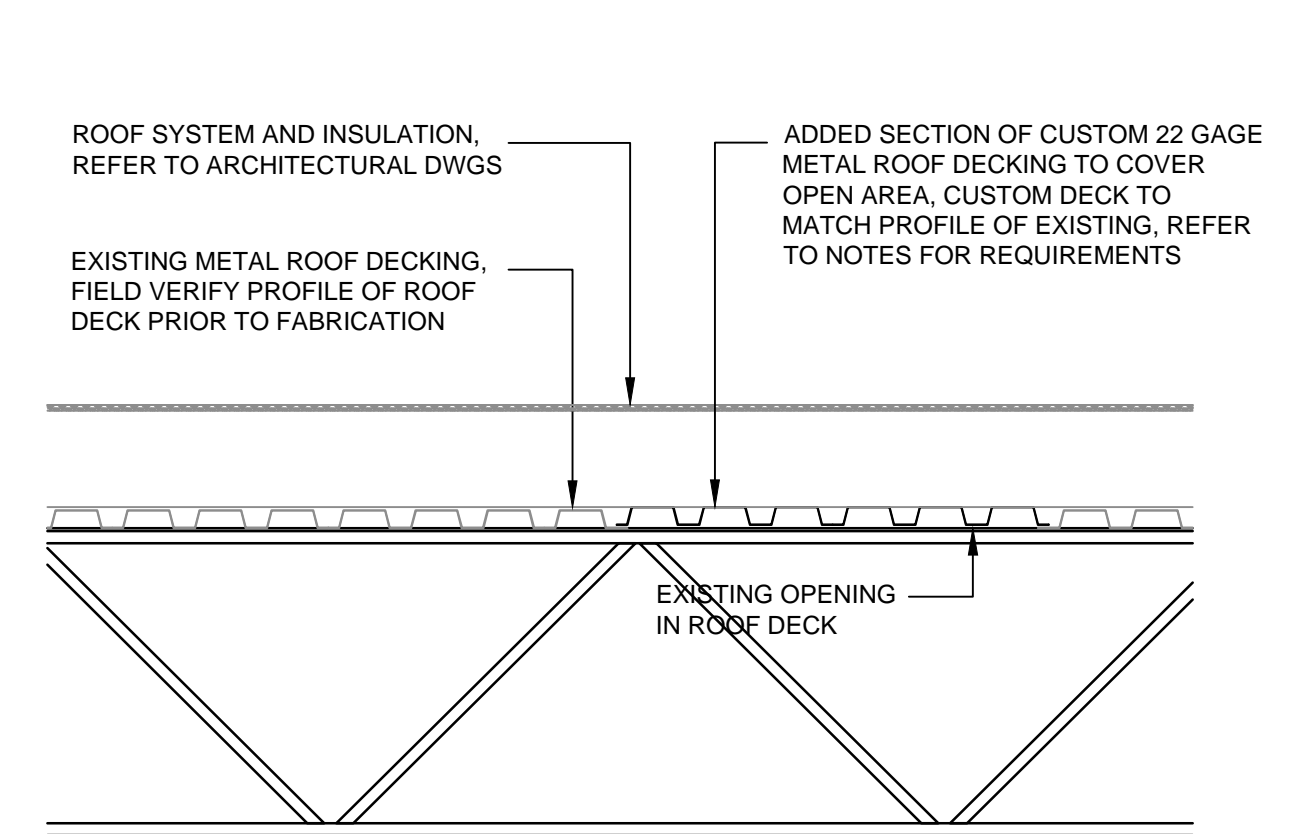


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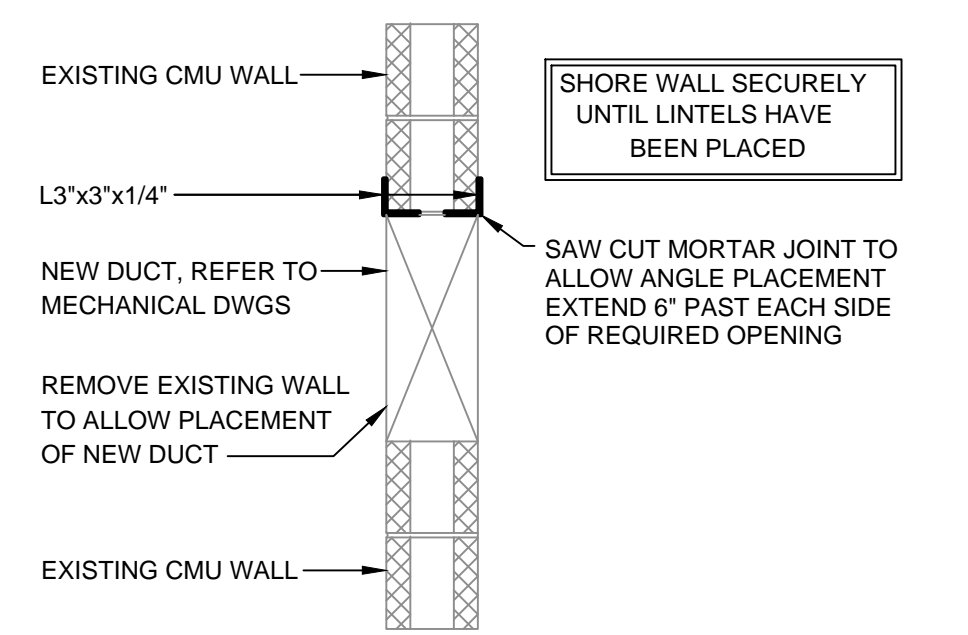
2 TYPICAL ROOF TOP EQUIPMENT FRAMING DETAIL
NOT TO SCALE
REQUIRED AT DOAU 1-3, SPGP-21 AND SPGP-22



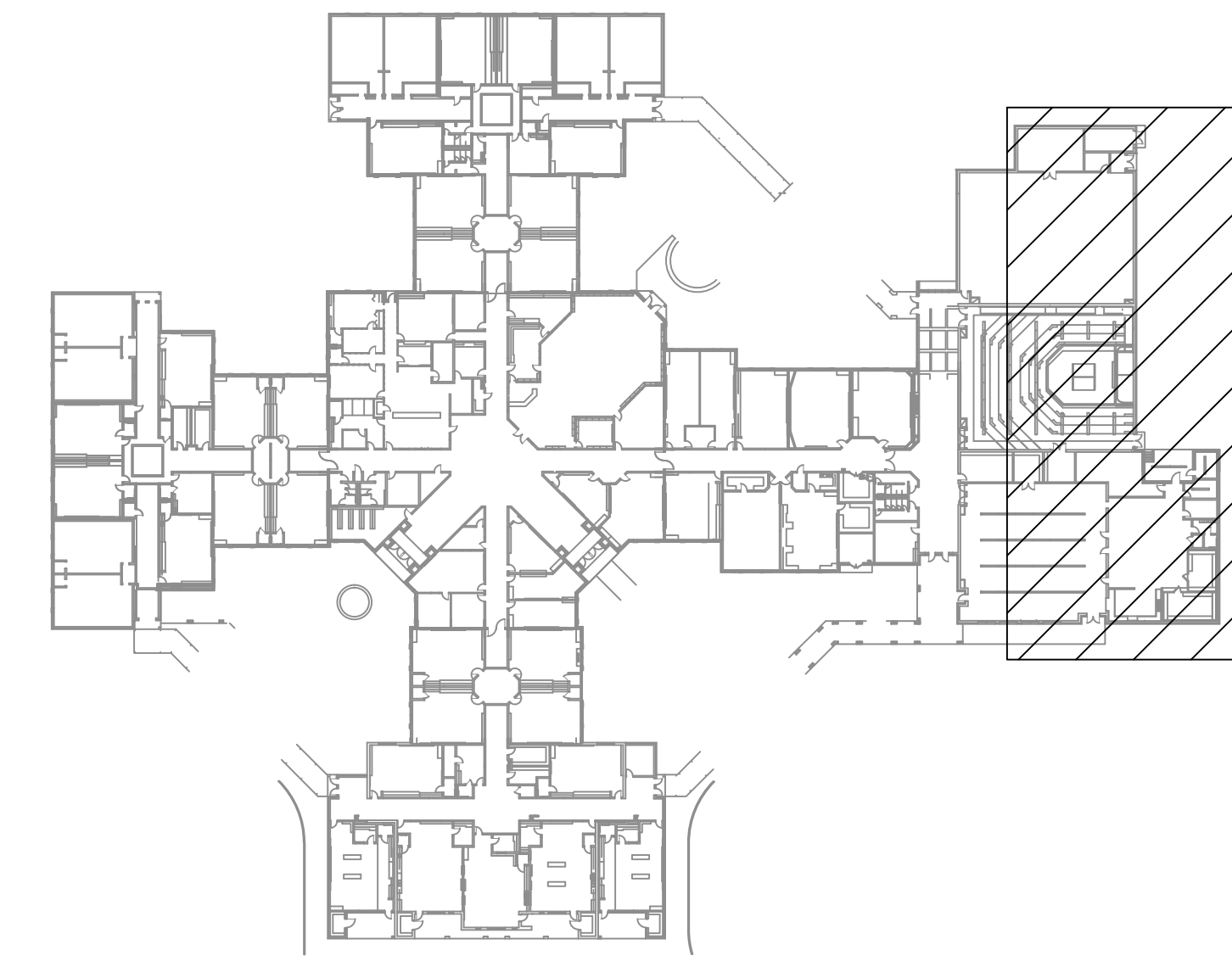
3 SECTION AT NEW BEAMS FOR UNIT ANCHORED TO EXISTING CMU
SCALE: 1 1/2"=1'-0"
REQUIRED AT DOAU 1-3



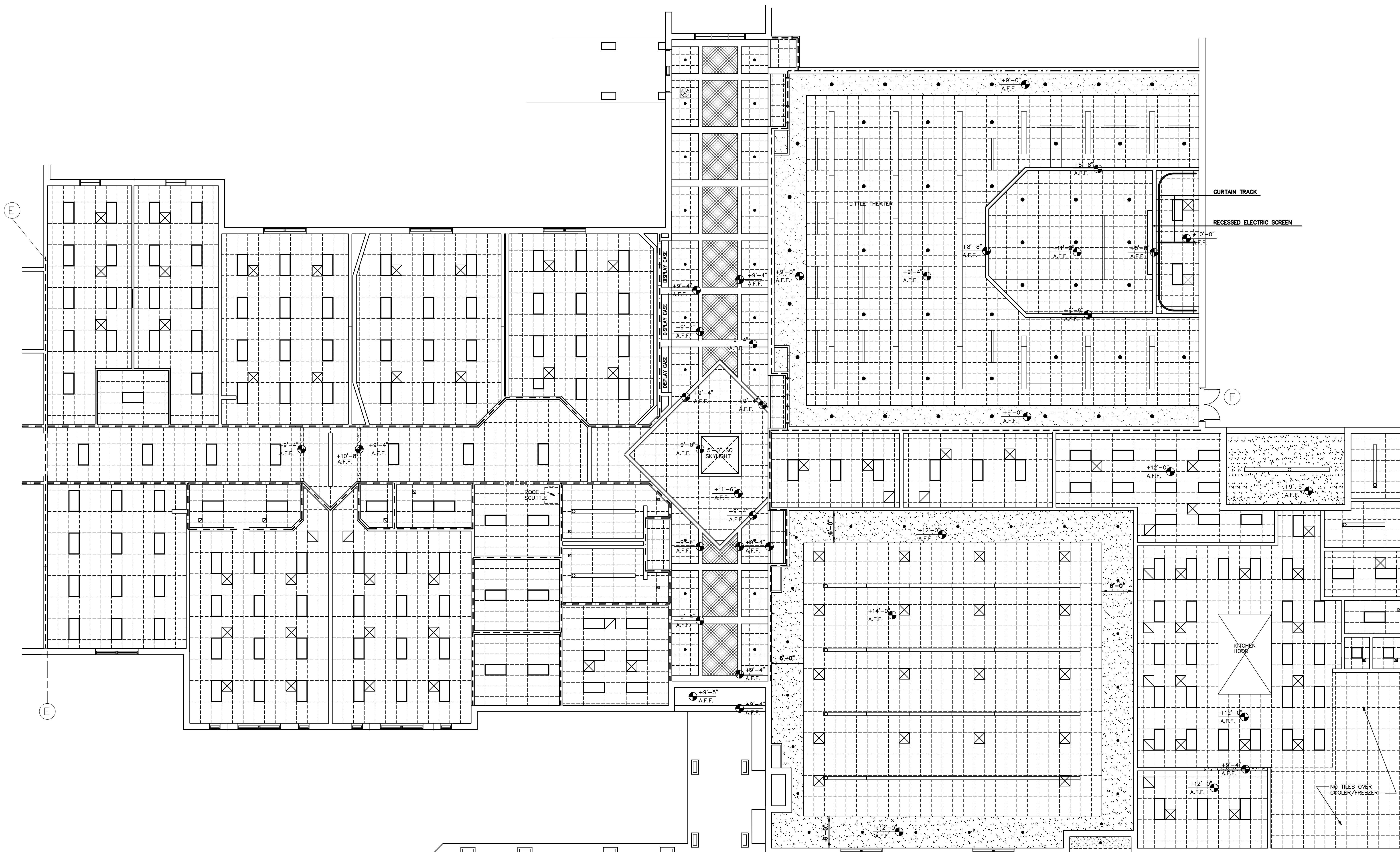
4 DECK INFILL DETAIL AT OPENINGS
SCALE: 3/4"=1'-0"



TYPICAL DUCT OPENING IN EXISTING WALL
SCALE: 3/4"=1'-0"

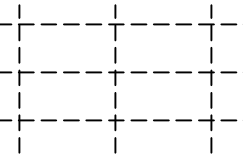
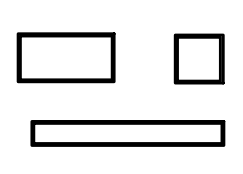

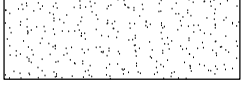



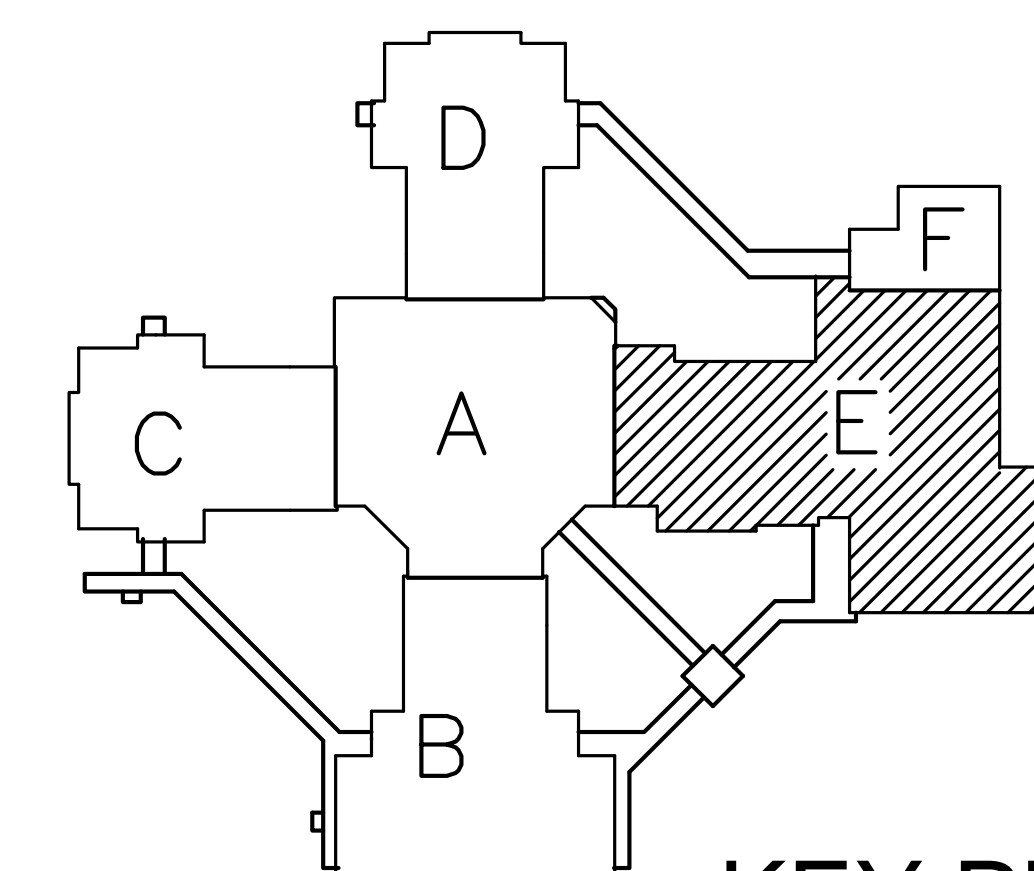
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NO SCALE



DEMOLITION CEILING PLAN - PART "E"
SCALE 1/8" = 1'-0"

CEILING PLAN LEGEND

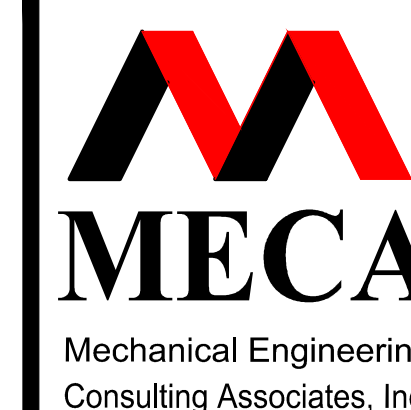
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-  LIGHT FIXTURES - RECESSED, SUSPENDED OR SURFACE MTD. SEE ELEC DRAWINGS
-  MECHANICAL GRILLES - SEE MECH DRAWINGS
-  GYPSUM BOARD CEILING
-  LIGHT LENS TO REMAIN



KEY PLAN
NO SCALE

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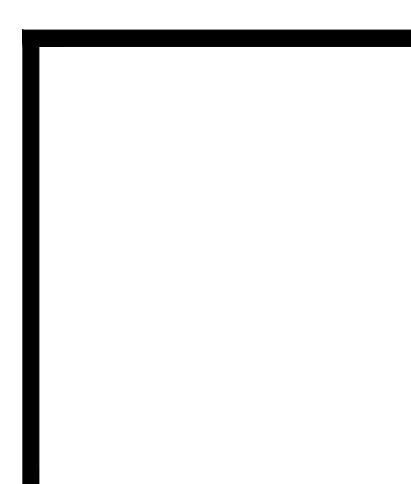
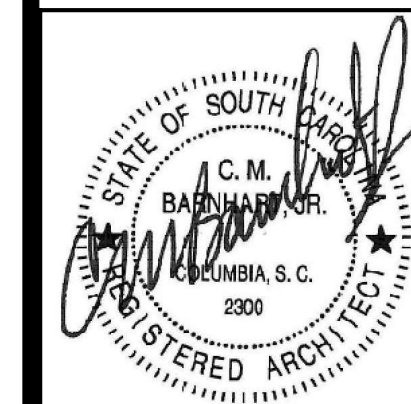
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LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III
Sheet Title
DEMOLITION PLAN - PART E

Sheet No.
AD4.01
Project No.
114211.02

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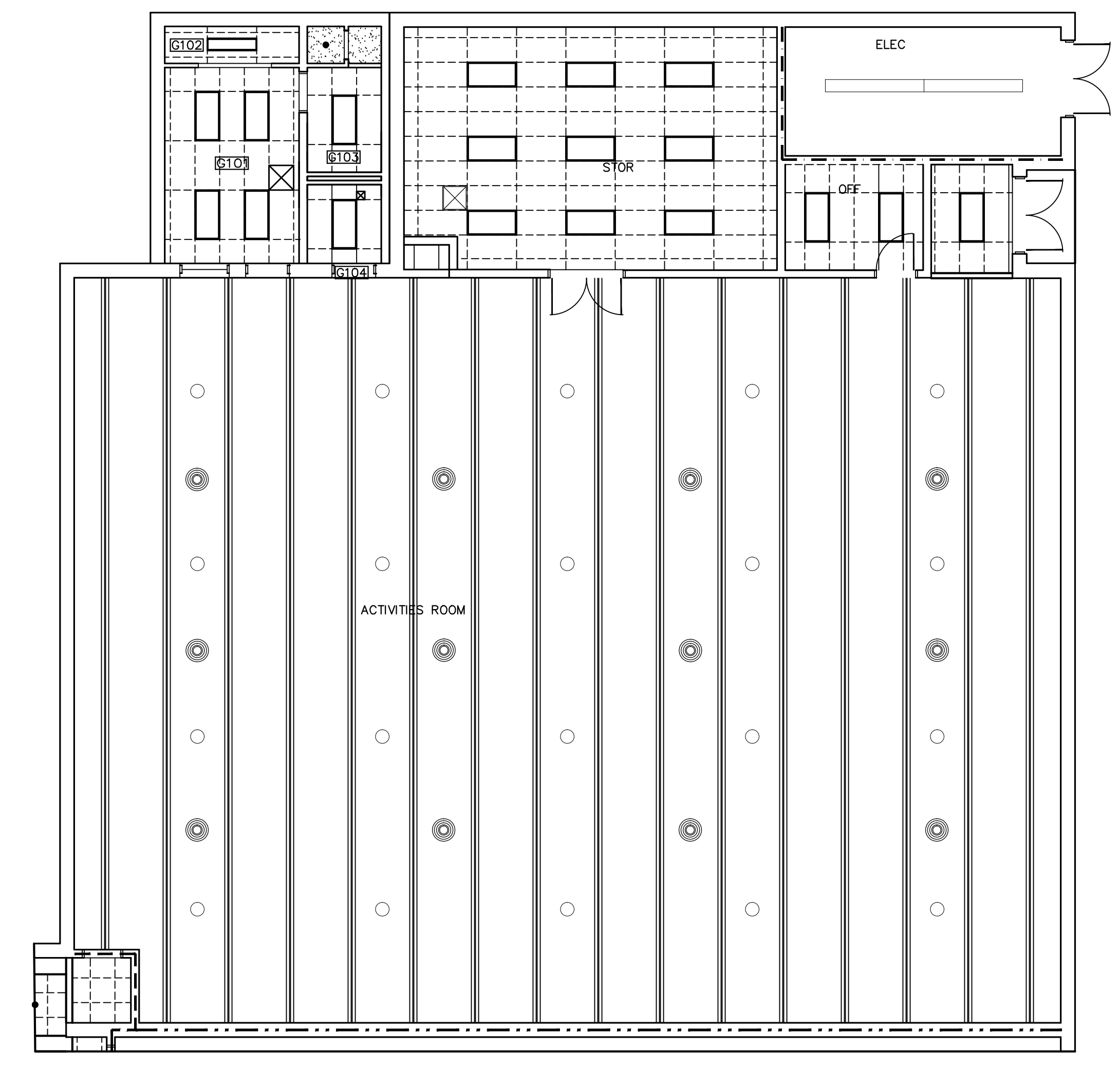
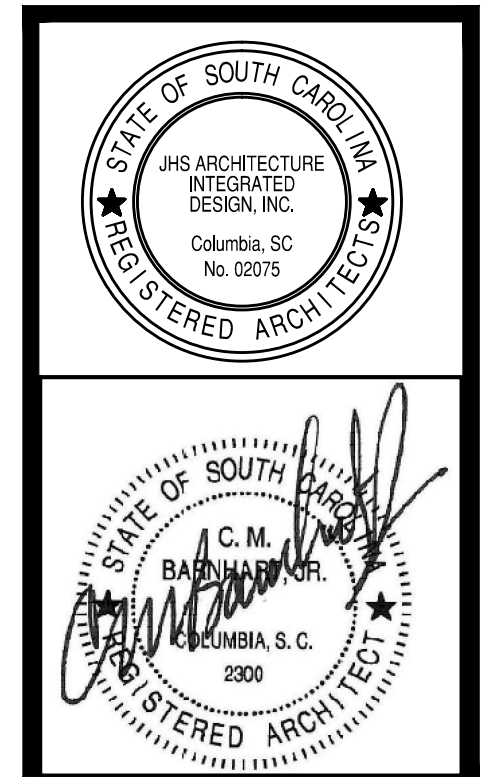
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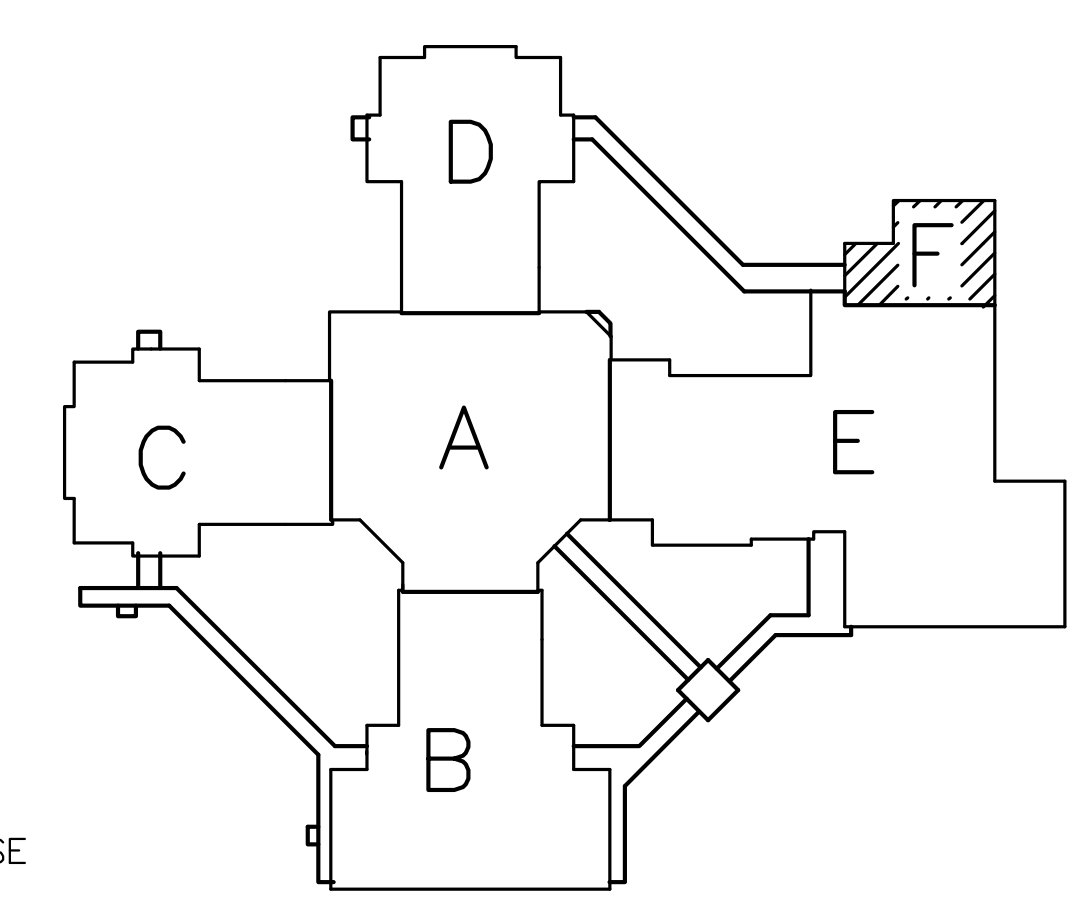


- - - - - 1 HOUR RATED WALL
- - - - - 4 HOUR RATED WALL
- - - - - 2 HOUR RATED WALL

DEMOLITION FLOOR PLAN - PART "F"
 SCALE 1/8" = 1'-0"

CEILING PLAN LEGEND

- ACOUSTICAL TILE & GRID SPACING TO BE 2' X 2' OR 2' X 4' TO BE REMOVED
 - LIGHT FIXTURES - RECESSED, SUSPENDED OR SURFACE MTD. SEE ELEC DRAWINGS
 - MECHANICAL GRILLES - SEE MECH DRAWINGS
 - GYPSUM BOARD CEILING
 - LIGHT LENS BY ELEC CONTR SEE DETAIL
- ALL CEILING HEIGHTS TO BE 9'-6" A.F.F. UNLESS NOTED OTHERWISE



LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 DEMOLITION PLAN - PART F

Sheet No. AD4.02
 of
 Project No. 114211.02

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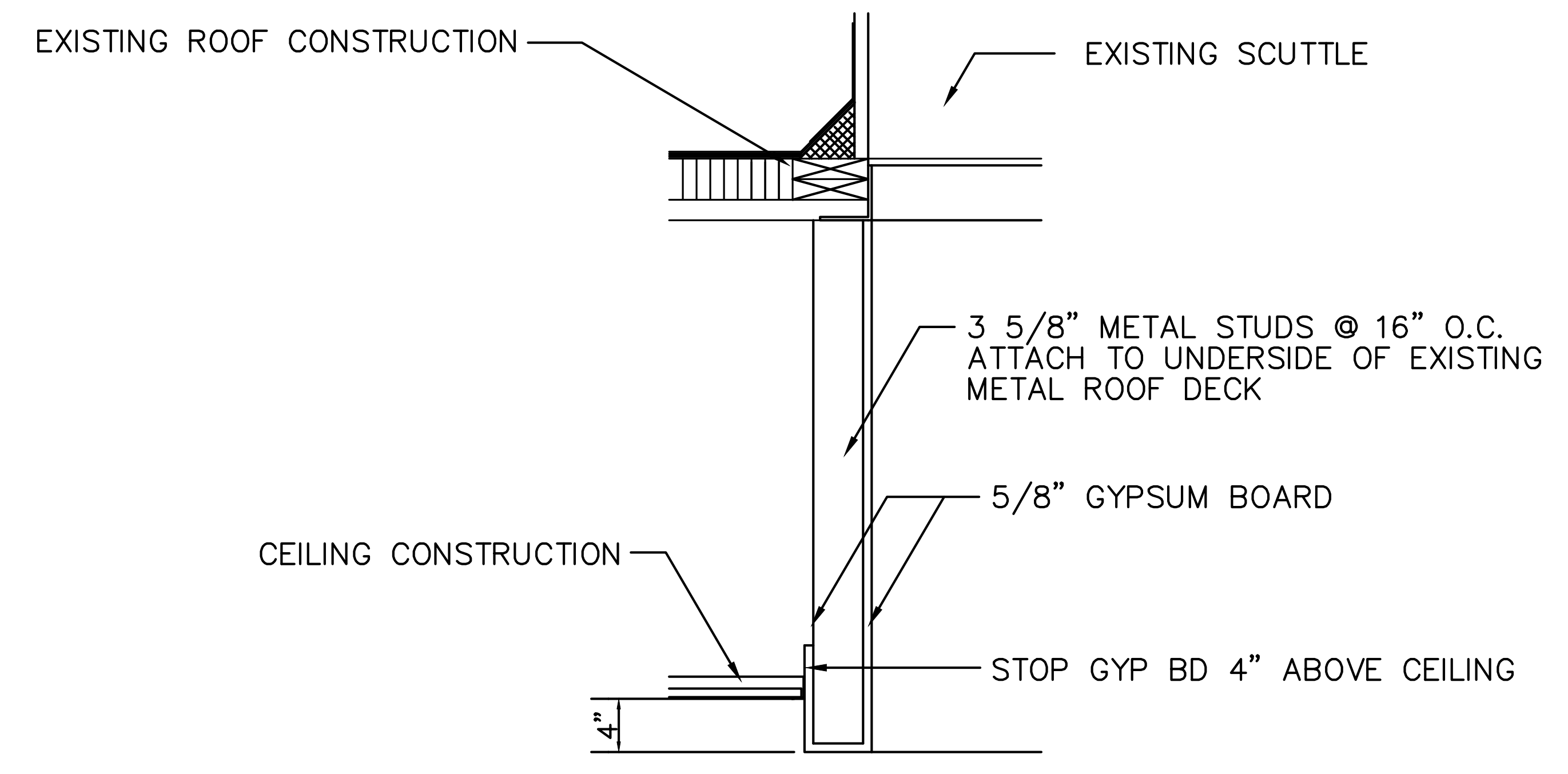
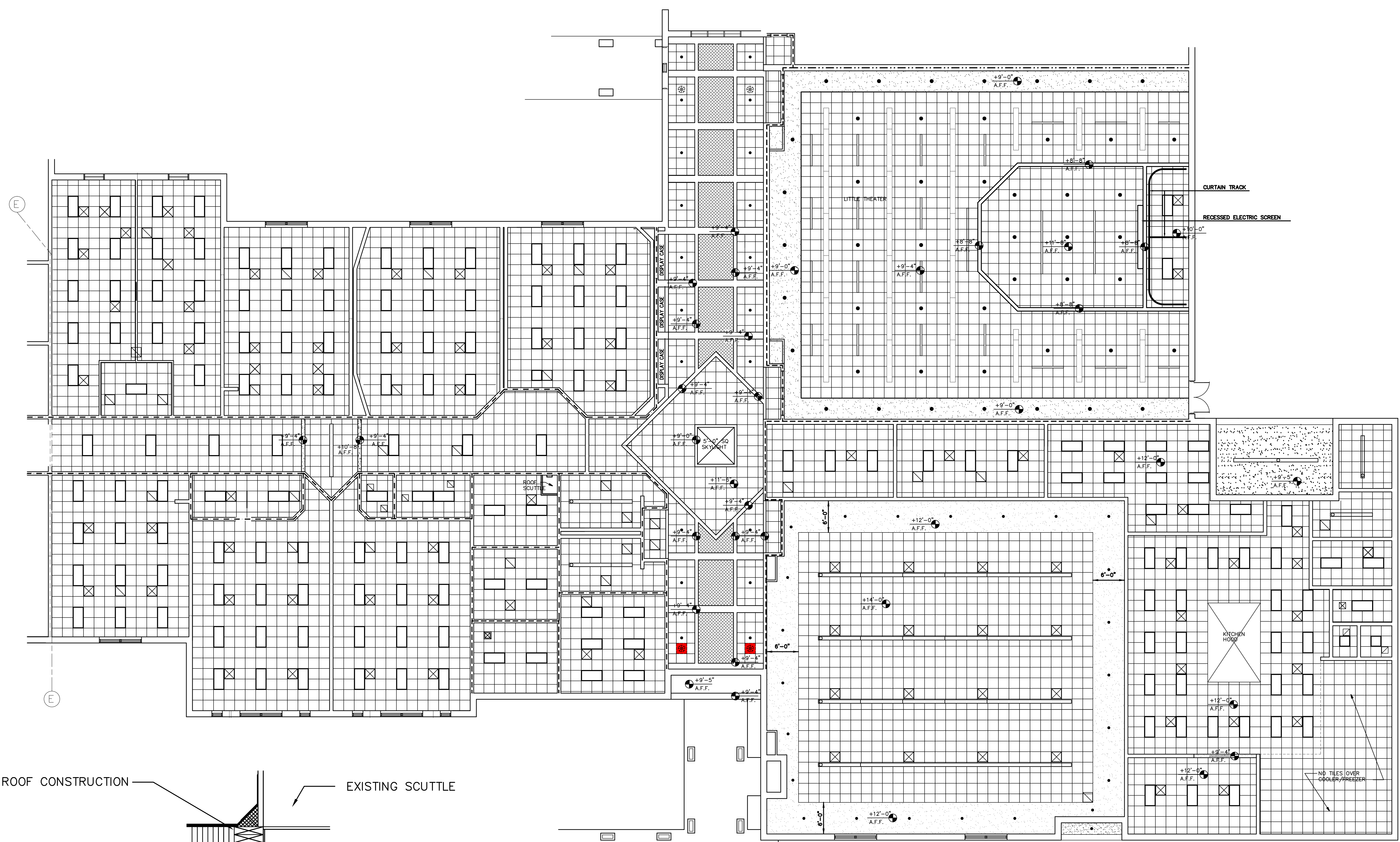
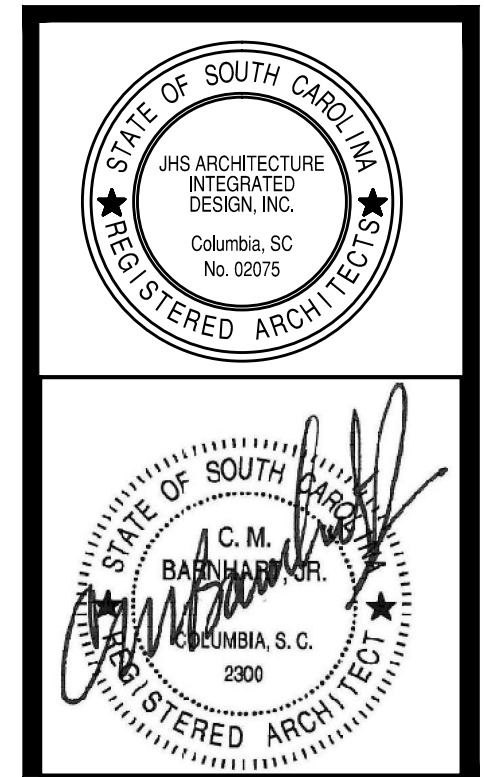
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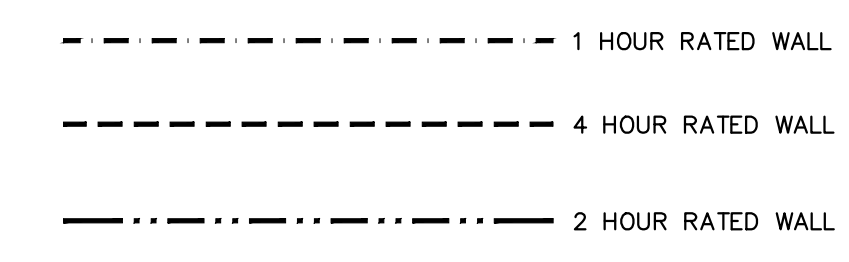
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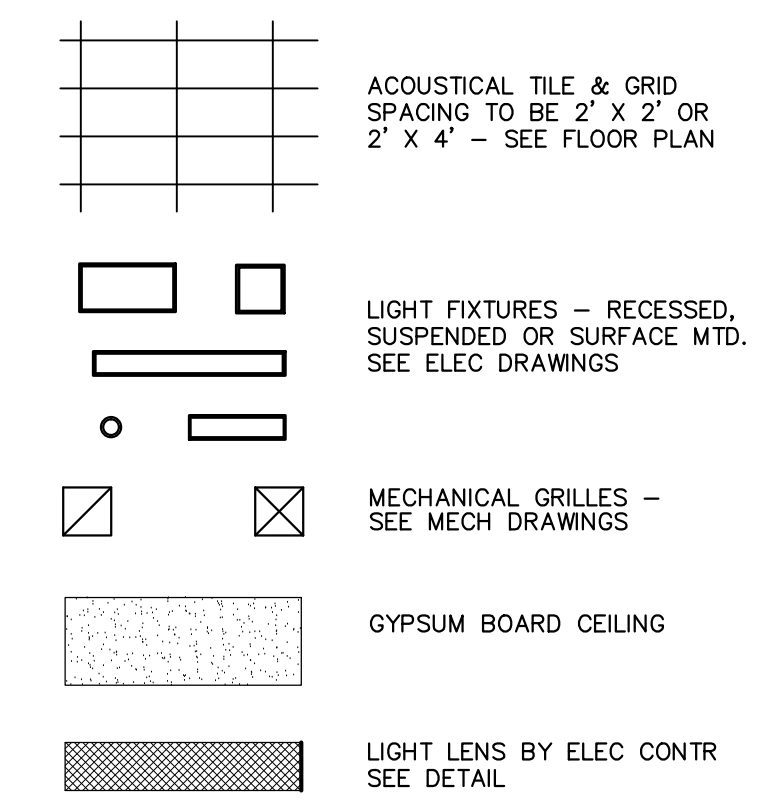


ROOF SCUTTLE DETAIL

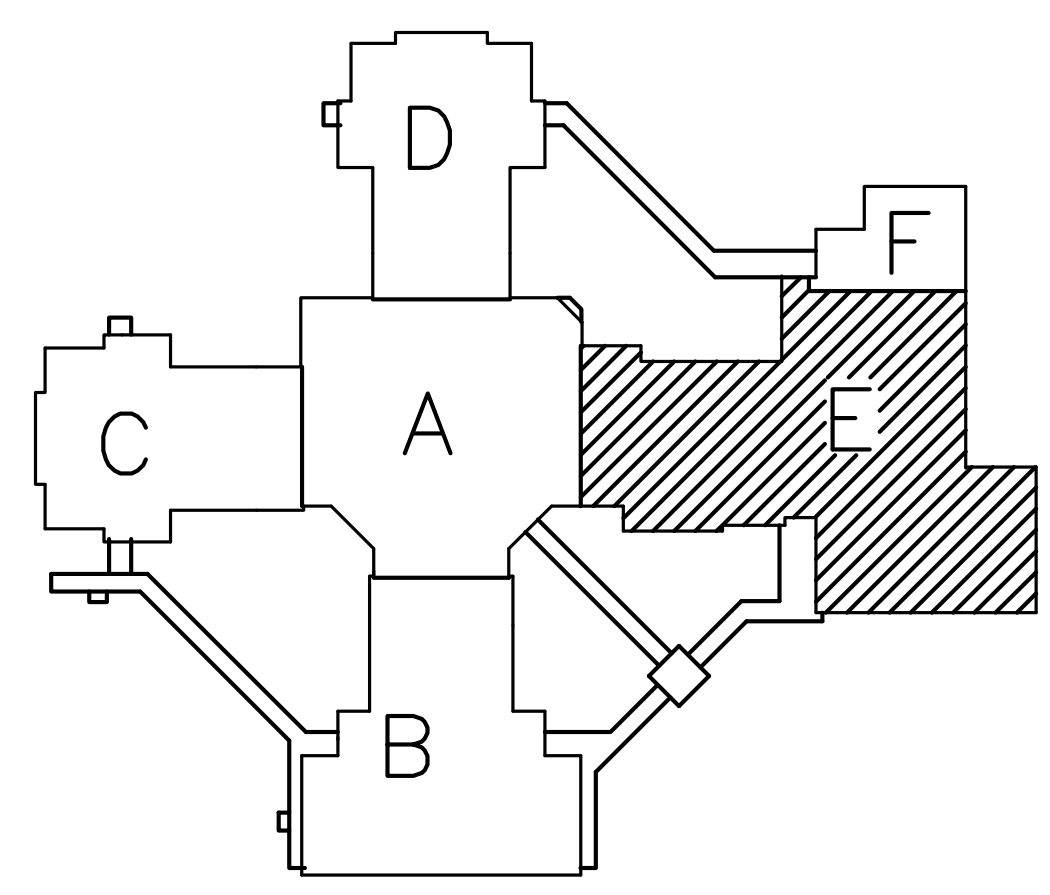


REFLECTED CEILING PLAN - PART "E"
 SCALE 1/8" = 1'-0"

CEILING PLAN LEGEND



ALL CEILING HEIGHTS TO BE 9'-6" A.F.F. UNLESS NOTED OTHERWISE



KEY PLAN N.T.S.

LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 RENOVATION PLAN - PART E

Sheet No. AR4.01
 Project No. 114211.02

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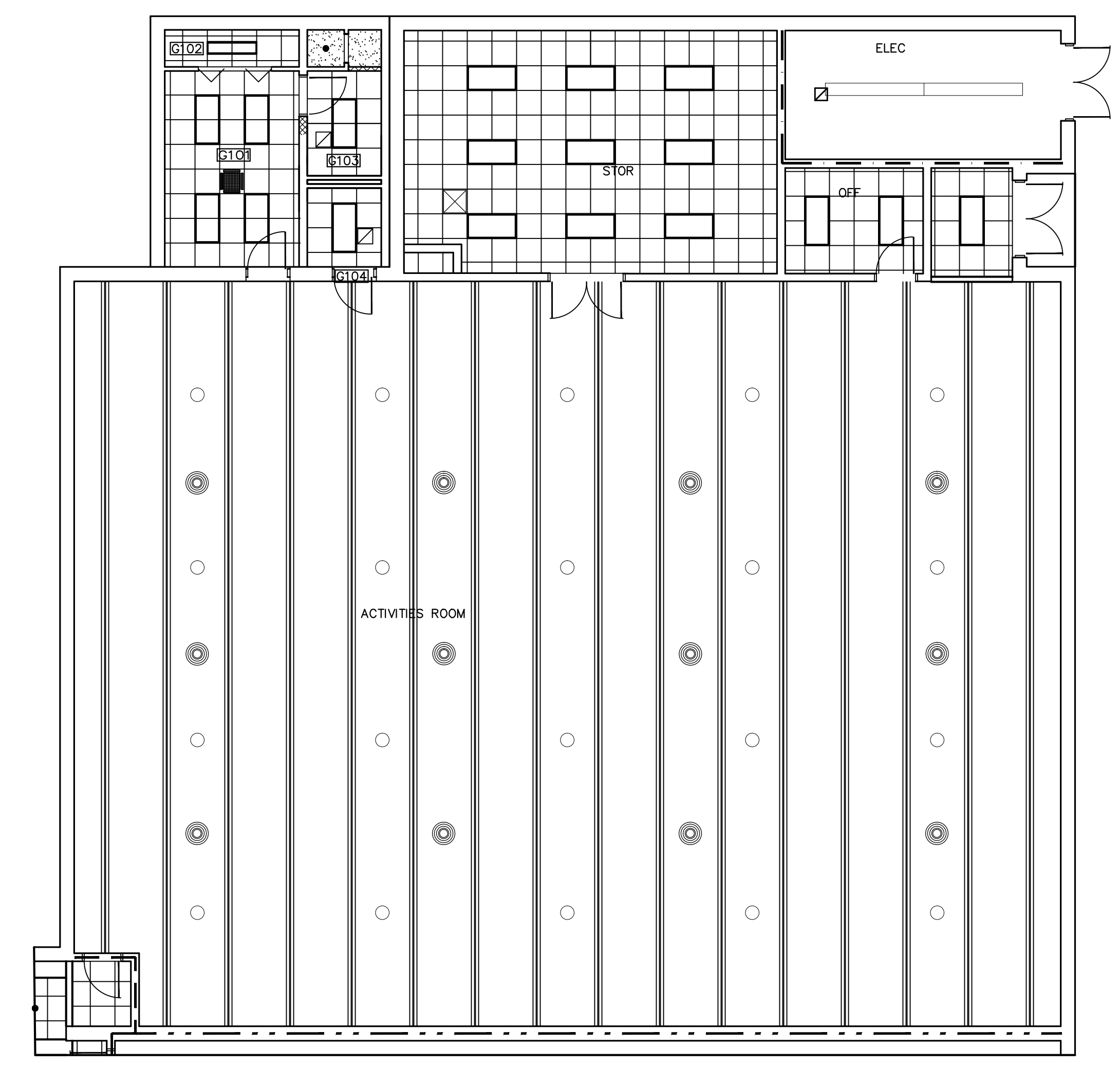
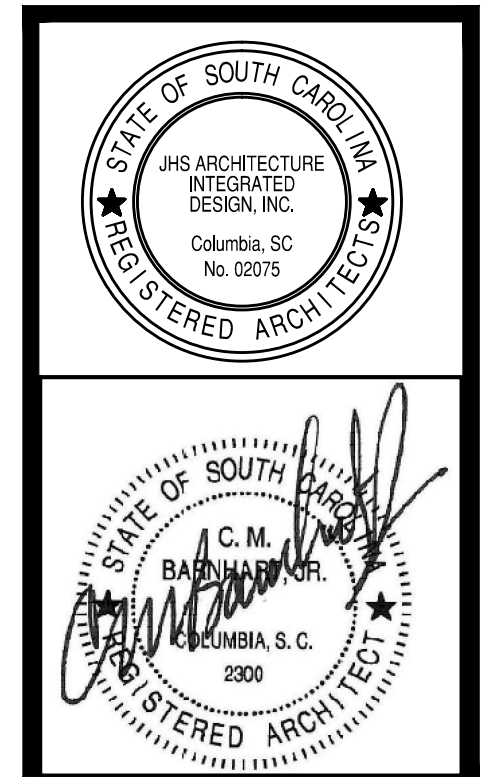
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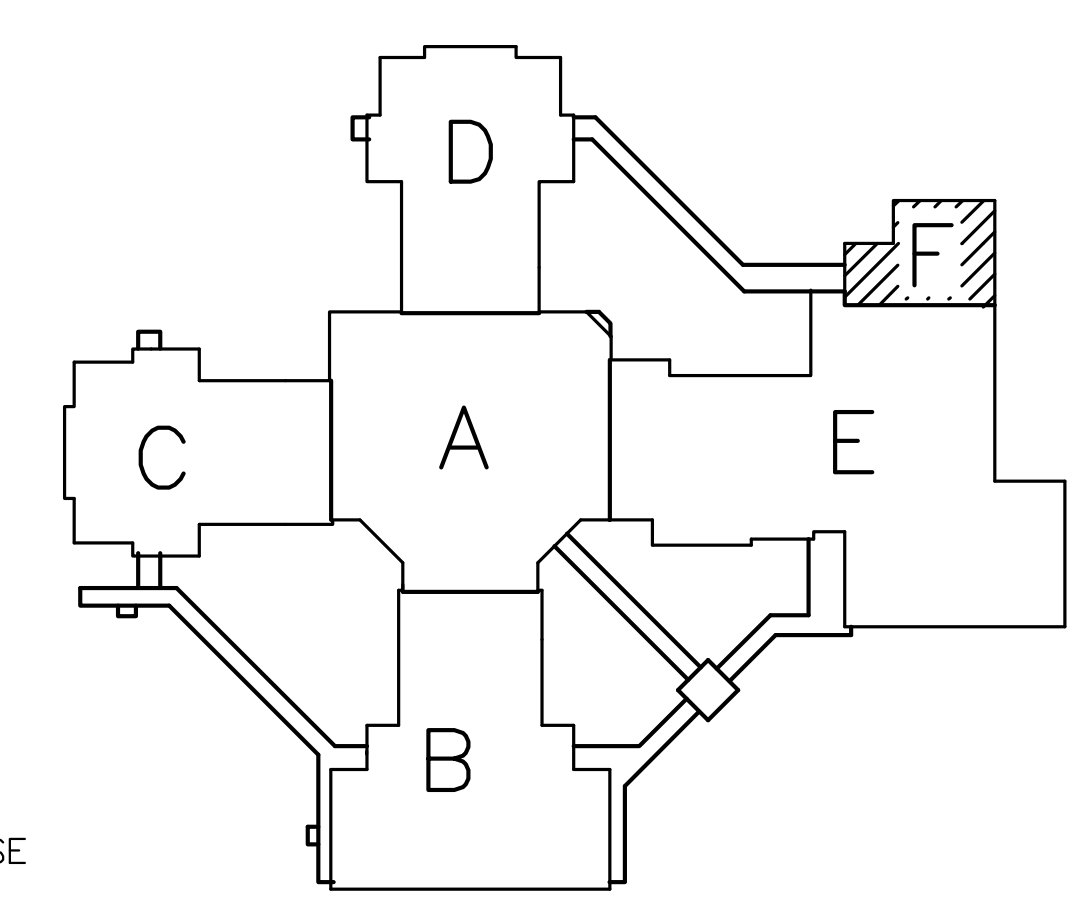


- 1 HOUR RATED WALL
- 4 HOUR RATED WALL
- - - - - 2 HOUR RATED WALL

REFLECTED CEILING PLAN - PART "F"
 SCALE 1/8" = 1'-0"

CEILING PLAN LEGEND

- ACOUSTICAL TILE & GRID SPACING TO BE 2' X 2' OR 2' X 4' - SEE FLOOR PLAN
 - LIGHT FIXTURES - RECESSED, SUSPENDED OR SURFACE MTD. SEE ELEC DRAWINGS
 - MECHANICAL GRILLES - SEE MECH DRAWINGS
 - GYPSUM BOARD CEILING
 - LIGHT LENS BY ELEC CONTR SEE DETAIL
- ALL CEILING HEIGHTS TO BE 9'-6" A.F.F. UNLESS NOTED OTHERWISE



KEY PLAN N.T.S.

LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 RENOVATION PLAN - PART F

Sheet No. AR4.02
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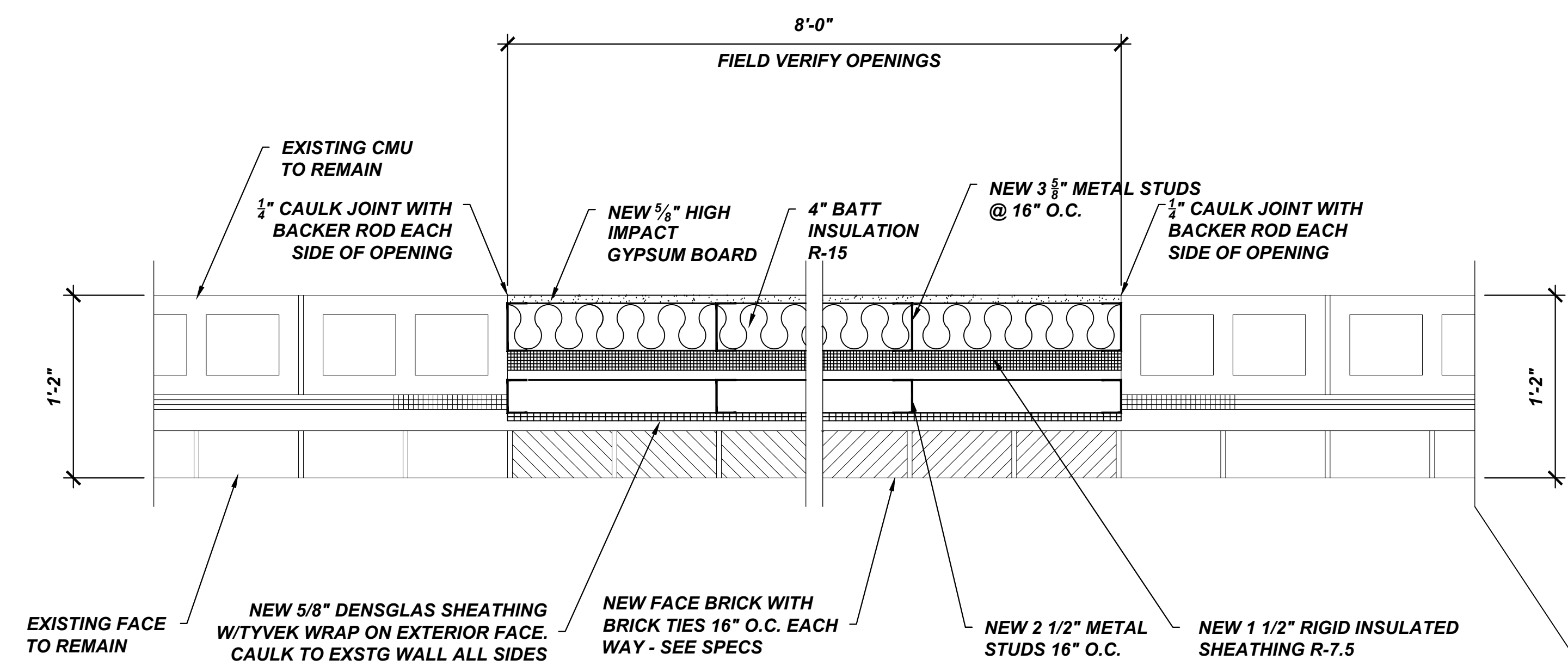
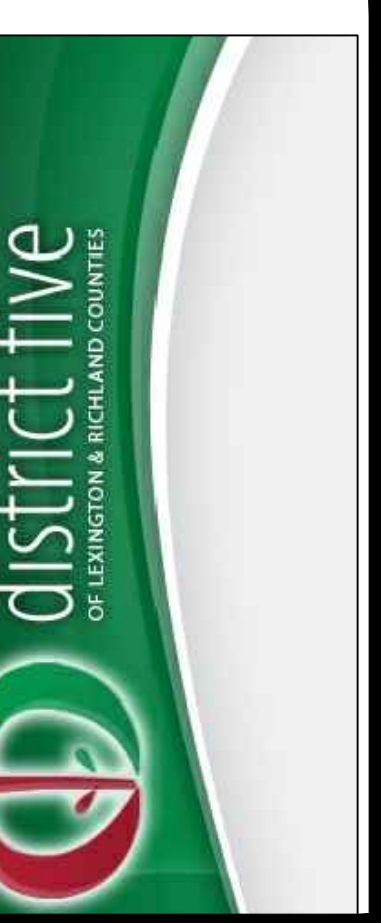
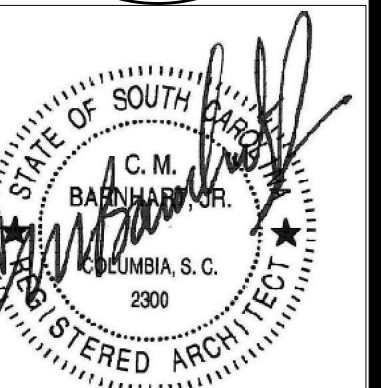
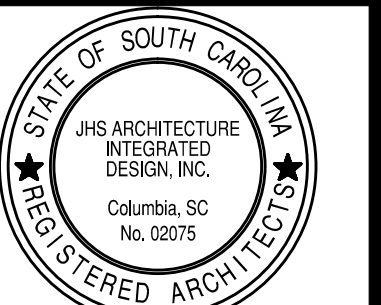
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 Designed : 2/12/2016
 Plot Date :
 Drawn : CMB
 Approved By :



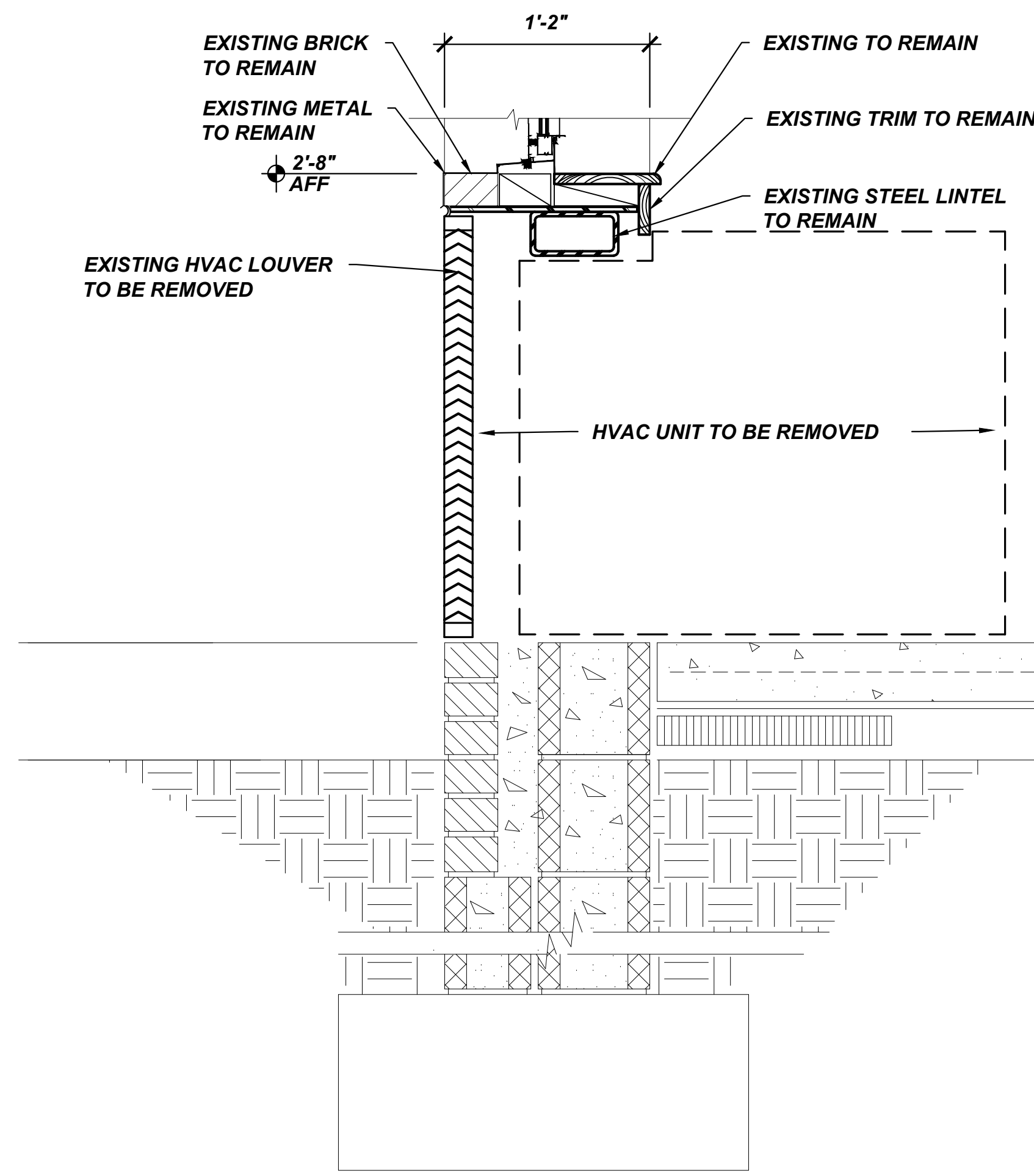
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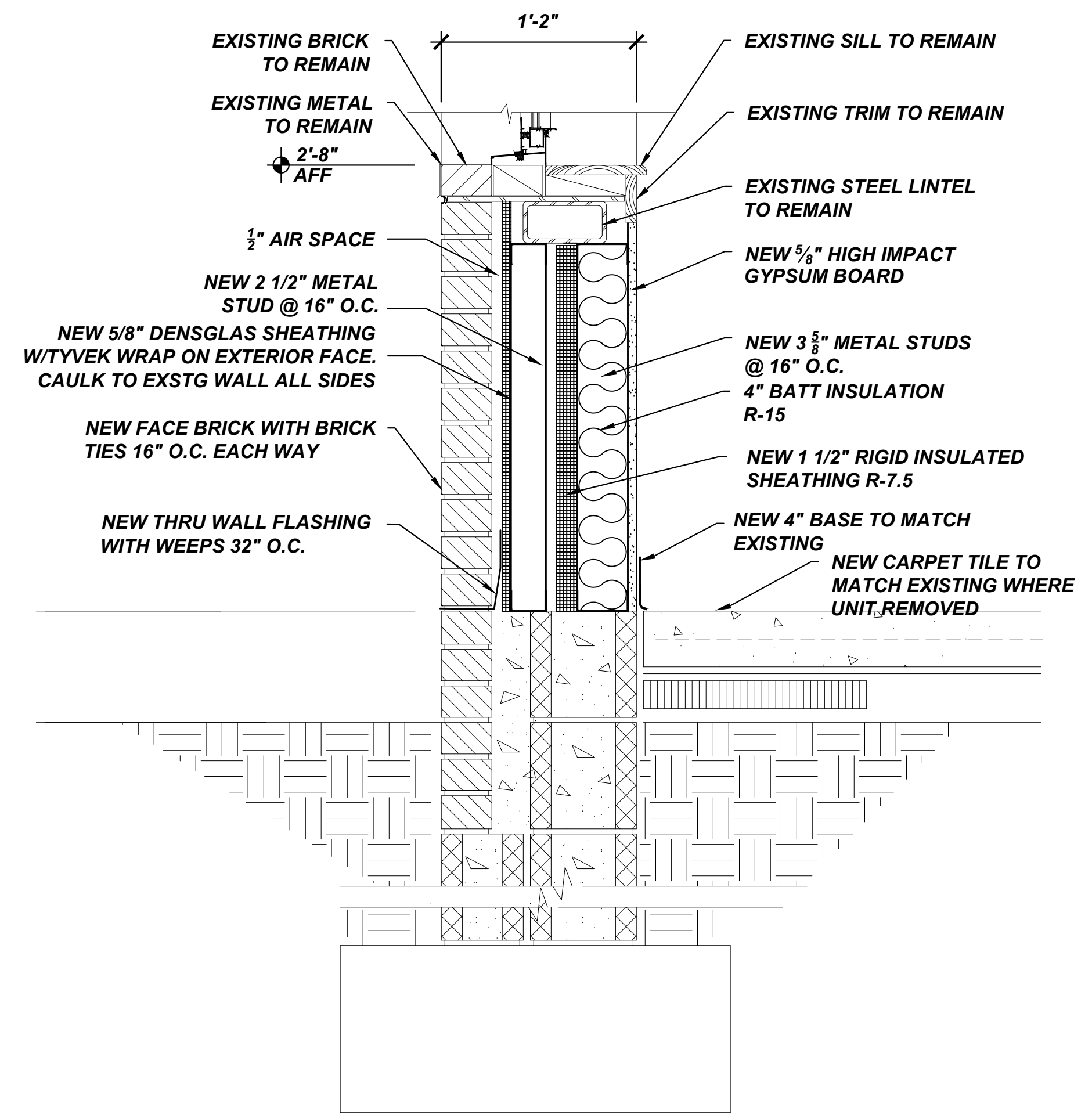
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NEW PLAN DETAIL
 1 1/2" = 1'-0"



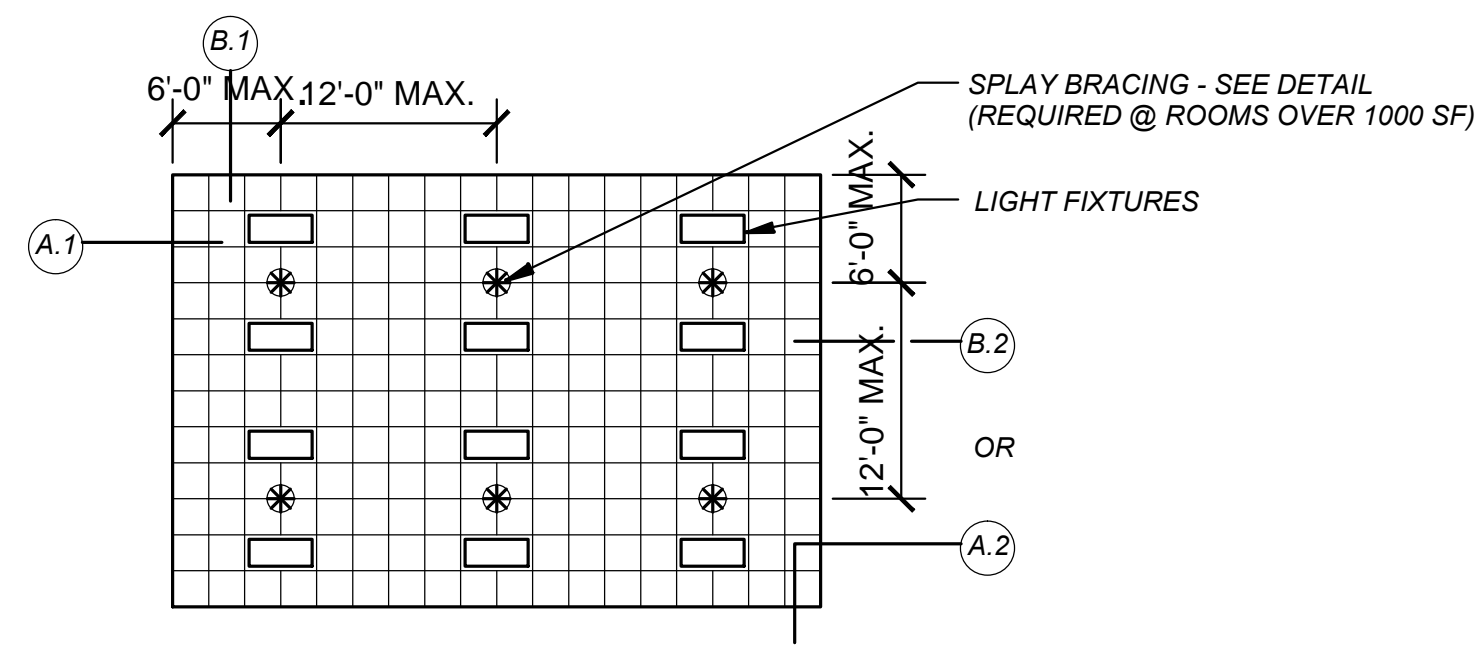
EXISTING SILL DETAIL
 1 1/2" = 1'-0"



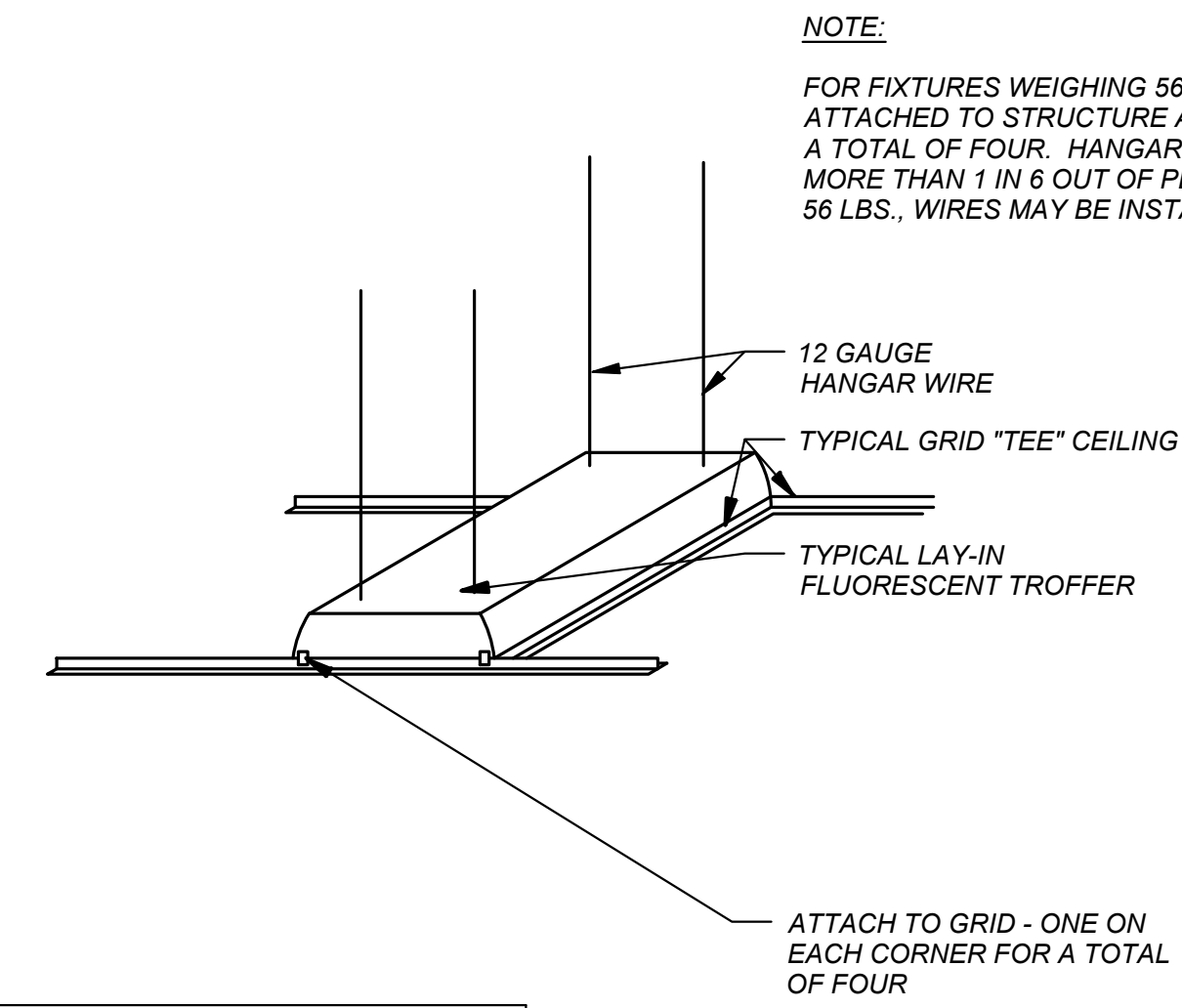
RENOVATED SILL DETAIL
 1 1/2" = 1'-0"

LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 WINDOW INFILL DETAILS

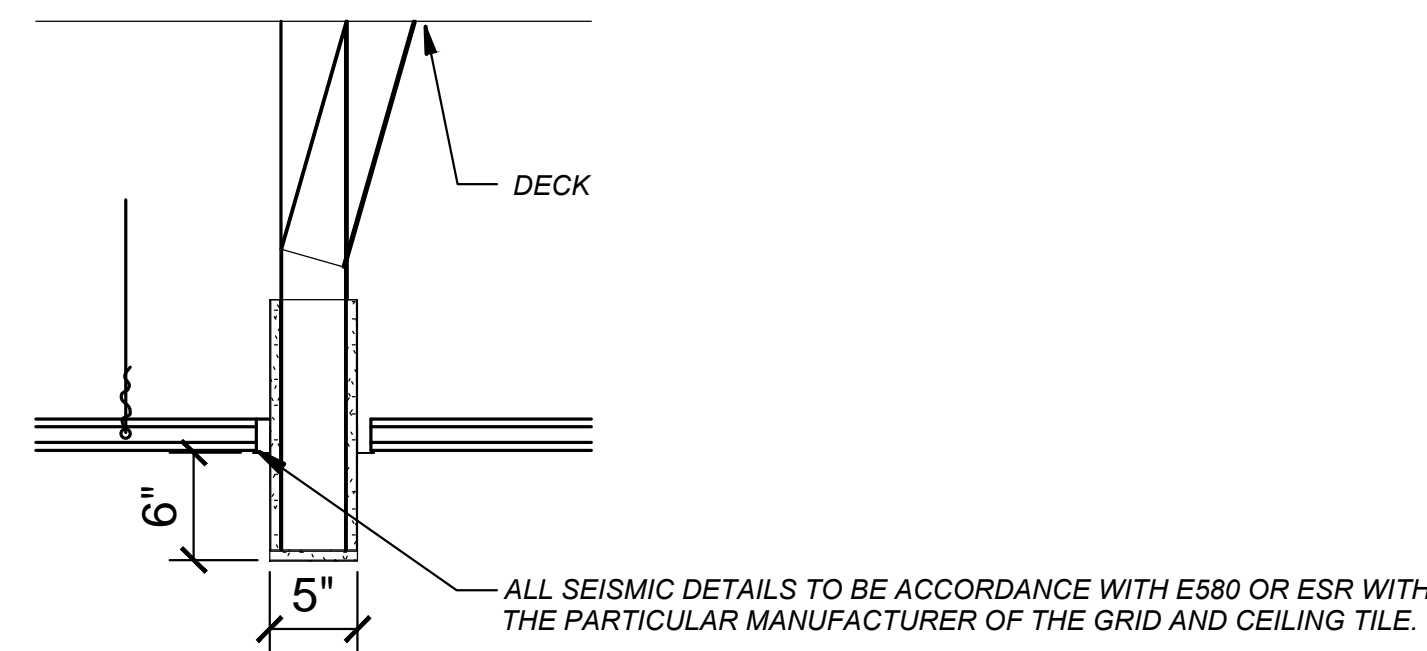
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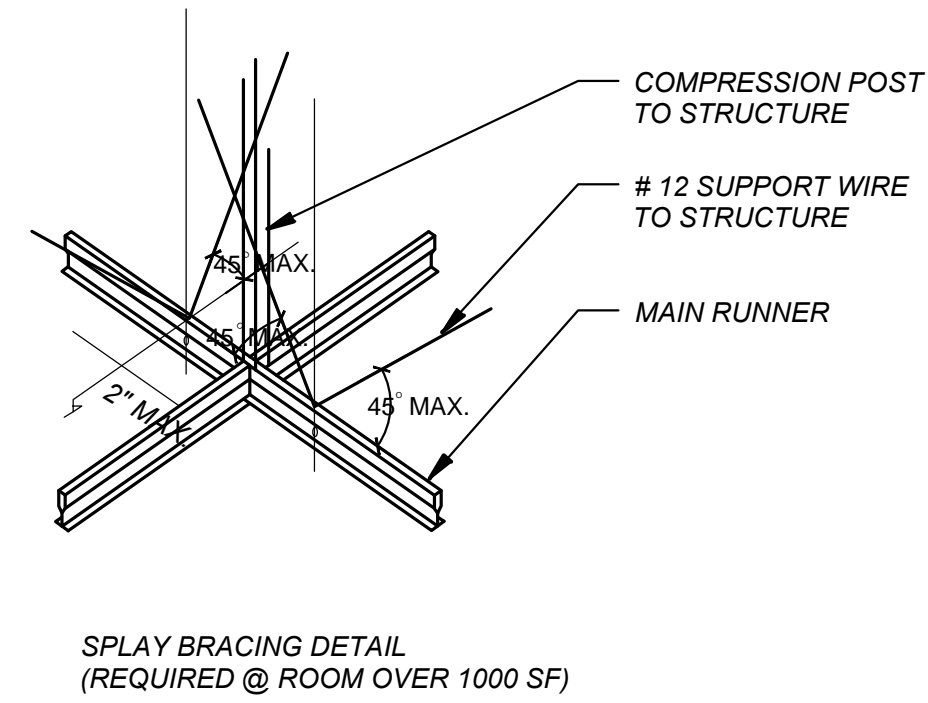
A - 03	TYPICAL GRID LAYOUT
N.T.S.	DESCRIPTION



A - 06	LIGHTING RESTRAINT DETAILS
N.T.S.	DESCRIPTION



	BULKHEAD DETAIL
N.T.S.	DESCRIPTION



A - 07	SPLAY BRACING DETAILS
N.T.S.	DESCRIPTION

NOTE:
FOR FIXTURES WEIGHING 56 LBS. OR MORE, INSTALL #12 GAUGE HANGER WIRE ATTACHED TO STRUCTURE ABOVE - ONE AT EACH CORNER OF FIXTURE FOR A TOTAL OF FOUR. HANGER WIRES MUST BE INSTALLED VERTICAL BUT NOT MORE THAN 1 IN 6 OUT OF PLUMB. FOR FIXTURES WEIGHING LESS THAN 56 LBS., WIRES MAY BE INSTALLED SLACK AT TWO DIAGONAL CORNERS.

SEISMIC REQUIREMENTS FOR CLASS 'D' CEILINGS

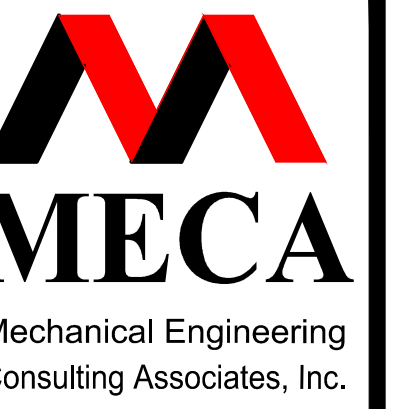
CATEGORY	REQUIREMENTS
CONNECTIONS/HANGERS	NOTE: USE HEAVY DUTY GRID
INTERSECTION STRENGTH	180 LBS
HANGERS	#12 @ 4' O.C. / #10 @ 5' O.C.
PLUMB	NOT MORE THAN 1 IN 6
CONNECTION DEVICES	MIN. 90 LBS
PERIMETER WIRES - ALL WALLS	MAXIMUM 8" FROM ALL WALLS
SPLAY BRACING	NOTE: USE HEAVY DUTY GRID
4 WIRE CLUSTERS	REQUIRED OVER 1000 SF.
FIRST POINT	MAX. 6" FROM PERIMETER WALLS
SPACING	12' O.C.
CONNECTION STRENGTH	MIN. 250 LBS
COMPRESSION POSTS	REQUIRED (CONDUIT/STEEL STUD)
MOLDING/ PARTITIONS	NOTE: USE HEAVY DUTY GRID
MOLDING	MIN. 2" OR MIN. 15/16" PER ICC APPROVED ESR
ATTACHMENT (NO MOVEMENT)	REQUIRED @ ADJACENT WALLS
CLEARANCE (FREE TO MOVE)	3/4" @ 2 ADJACENT WALLS
SPACER BARS	REQUIRED
PARTITION ATTACHMENT	ALLOWED WITH BRACING UNDER 2,500 SF.
LIGHTING/FIXTURES	NOTE: USE HEAVY DUTY GRID
LIGHTS LESS THAN 56 LBS	2 CONNECTORS / 2 SLACK WIRES
LIGHTS GREATER THAN 56 LBS	SUSPEND FROM STRUCTURE, NOT GRID
MECHANICAL LESS THAN 20 LBS	ATTACHED TO GRID
MECHANICAL GREATER THAN 20LBS, LESS THAN 56 LBS	2 SLACK WIRES
MECHANICAL GREATER THAN 56 LBS	SUSPEND FROM STRUCTURE NOT GRID

SEISMIC REQUIREMENTS FOR CEILINGS 144 GSF OR GREATER
ALL SEISMIC DETAILS TO BE IN ACCORDANCE WITH E580 OR ESR WITH THE PARTICULAR MANUFACTURER OF THE GRID AND CEILING TILE.

A - 01	RESTRAINT REQUIREMENTS
N.T.S.	DESCRIPTION

REVISIONS		
No.	Date	Description
-	---	---
-	---	---

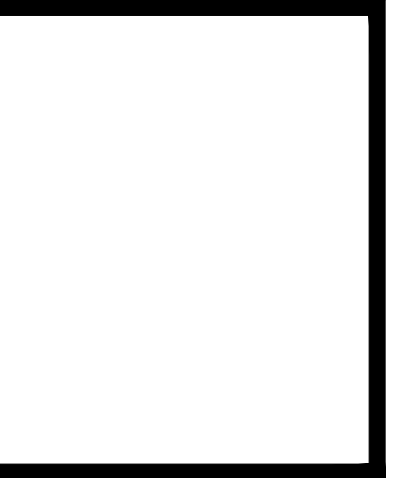
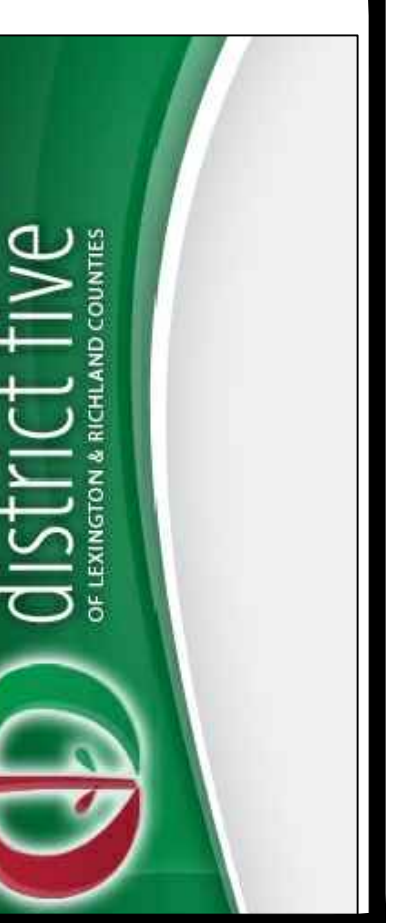
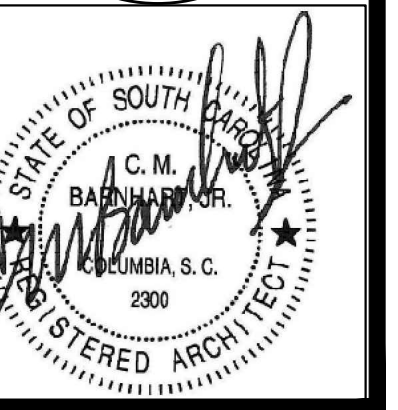
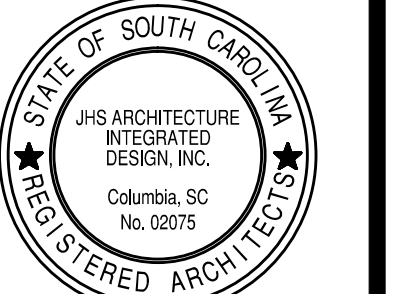
Job Number : 1070003
Designed : 2/12/2016
Drawn : CMB
Approved By :



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LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III
SEISMIC CEILING DETAILS

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PACKAGED GAS PACK SCHEDULE

SYMBOL	SPGP-35 THRU 40,42	SPGP-41	SPGP-43 & 44	SPGP-45 & 46	SPGP-47	SPGP-48 & 49 (ALTERNATE #3)
MANUFACTURER	TRANE					
MODEL NUMBER	YSC036	YSC048	YSD180	YSD180	YSD210	YSC092
AIRFLOW (C.F.M.)	1,000	1,300	5,000	5,400	6,000	2,700
EXT. STATIC PRESSURE (IN.)	0.5	0.5	0.5	0.7	0.7	0.7
TOTAL COOLING CAP. (NET BTUH)	31,690	41,960	163,110	162,560	185,520	86,890
SENSIBLE COOLING CAP. (NET BTUH)	22,650	29,970	113,350	115,830	138,060	62,880
OUTDOOR AMBIENT (°F)	95	95	95	95	95	95
ENTERING AIR (DB/WB) °F	75.00/63.00	75.00/63.00	77.00/64.74	75.93/63.81	76.96/64.71	77.00/64.74
UNIT LVG. AIR (DB/WB/DP) °F	54.55/52.00/50.05	54.19/51.77/49.91	56.46/53.78/51.85	56.50/53.60/51.50	56.55/54.61/53.26	55.91/53.95/56.56
EVAPORATOR FAN MOTOR	H.P. DRIVE BELT F.L.A. 2.5	BELT BELT 2.5	BELT BELT 4.8	BELT BELT 4.8	BELT BELT 7.6	BELT BELT 1.7
CONDENSER FAN MOTOR	NUMBER 1 H.P. (EACH) 0.33 F.L.A. (EACH) 1.2	1 1 1.2	1 1 1.6	2 2 1.6	2 2 2.9	1 1 2.8
COMPRESSOR	NUMBER 1 R.L.A. (EACH) 5.1 POWER (KW) 2.5	1 1 6.2 3.5	2 2 15.4/9.6 13.5	2 2 15.6/9.6 14.2/6.2	2 2 18.9/6.3 13.9	1 1 6.3/6.1 55.0/41.0
GAS HEATING	INPUT (MBH) 60 OUTPUT (MBH) 48 A.F.U.E. (%) 80 STAGES 1	60 48 80	250 203 81	250 203 81	250 203 81	120 97.2 81
ELECTRICAL	MCA 10.1 MOP 15.0 VOLTAGE 460/3/60	11.5 15.0 460/3/60	38.0 50.0 460/3/60	38 50 460/60/3	43.0 60.0 460/3/60	18.5 20.0 460/3/60
SEER / EER	13.0/-	13.0/-	~11.0	~11.0	~11.0	~11.2
OUTSIDE AIRFLOW (C.F.M.)	0	0	0	500	600	270
WEIGHT (LBS.)	743	774	2200	2215	2200	850

REMARKS:

- VERIFY VOLTAGE, ALL ELECTRICAL CHARACTERISTICS ARE PROVIDED BY ELECTRICAL CONTRACTOR PRIOR TO ORDERING EQUIPMENT.
- PROVIDE ALL SPGP WITH FACTORY MOUNTED FUSED DISCONNECTS.
- PROVIDE ALL SPGP WITH POWERED CONVENIENCE OUTLETS
- PROVIDE SPGP-43 THRU 49 WITH DUAL COMPRESSOR- 2-SPEED FAN OPTION
- PROVIDE WITH DUCT MOUNTED SMOKE DETECTORS MOUNTED IN RETURN DUCT AT UNIT FOR SPGP 43 THRU 49.
- ALL CAPACITIES ARE NET TO INCLUDE INDOOR FAN HEAT.
- UNIT L.A.T. INCLUDES INDOOR FAN HEAT.
- EXTERNAL S.P. IS EXTERIOR TO UNIT.
- PROVIDE HEAD PRESSURE CONTROL FOR COOLING OPERATION DOWN TO 0°F. FACTORY INSTALLED THRU-THE-BASE ELECTRICAL WITH NON-FUSED DISCONNECT**, POWERED CONVENIENCE OUTLET, SINGLE ENTRY POWER, MODULATING ECONOMIZER WITH ENTHALPY CONTROL AND POWERED EXHAUST, COIL GUARD, HINGED ACCESS DOORS, COMPRESSOR SUMP HEATERS, PHASE MONITOR, CONDENSATE OVERFLOW SWITCH, 2" FILTER RACK W/ MERV 8 PLEATED FILTERS AND 5 YR. COMPRESSOR AND HEAT EXCHANGER WARRANTY.
- PROVIDE SEISMIC ROOF CURB SLOPED AS REQUIRED TO PROVIDE LEVEL UNIT INSTALLATION (SHIM NOT ALLOWED); HEIGHT ABOVE FINISHED ROOF SHALL BE PER ROOFING MANUFACTURER AND AS RECOMMENDED BY NRCA OR 18" MINIMUM.

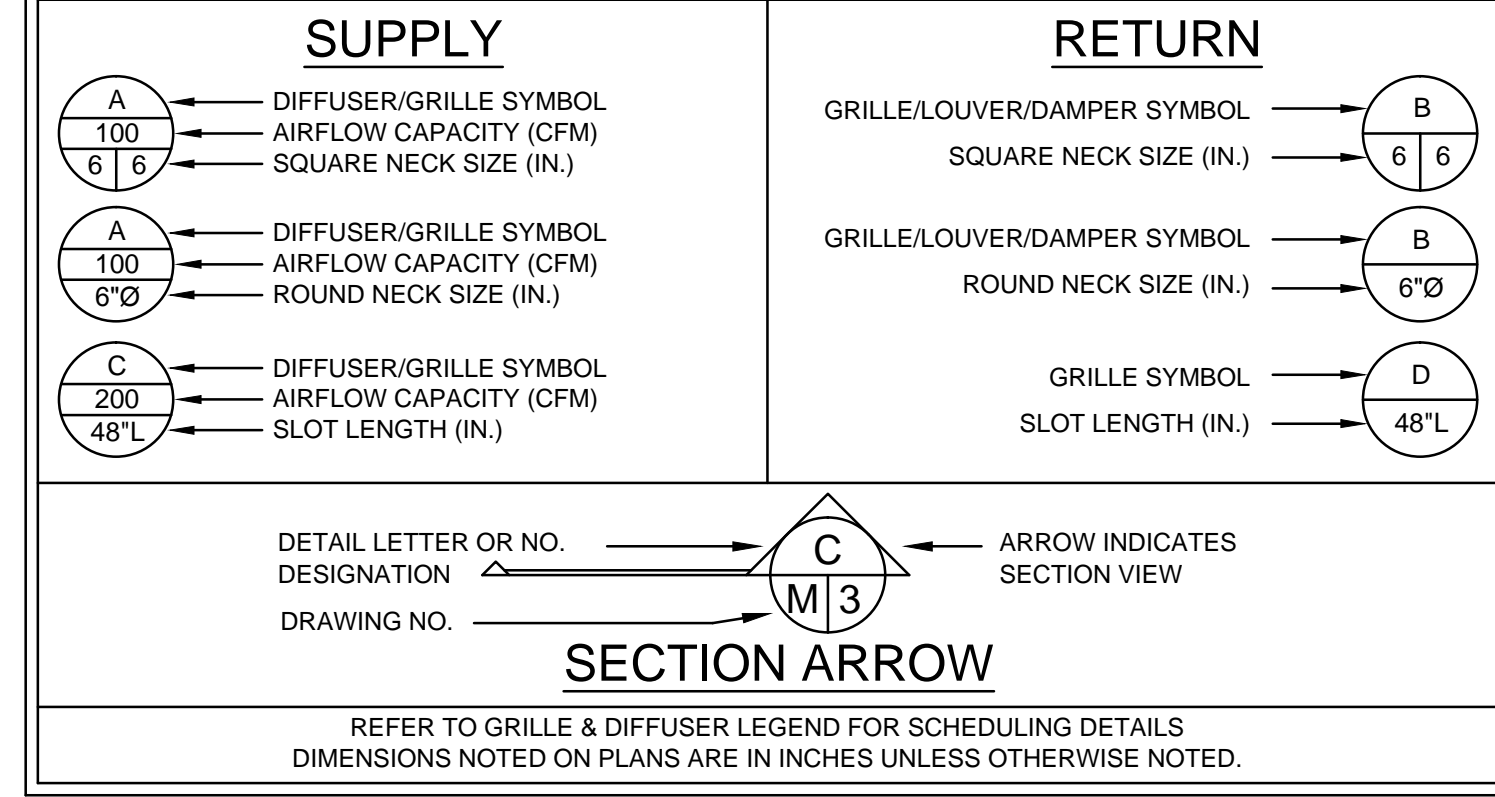
DEDICATED OUTSIDE AIR UNIT SCHEDULE(ALTERNATE #1)

SYMBOL	DOAU-4
MANUFACTURER	NOVELAIRE
MODEL NUMBER	3000 DES/DX-ERV
SUPPLY FAN	AIRFLOW (CFM TO SPACE) 2,800 EXT. STATIC PRESSURE (IN.) 2.0 MOTOR RPM 3450 HORSEPOWER 5.0
EXHAUST FAN	AIRFLOW (CFM FROM SPACE) 2,200 EXT. STATIC PRESSURE (IN.) 1.0 HORSEPOWER 3.0 MOTOR RPM 1750
REACT. FAN	HORSEPOWER 5
MAKE UP AIR (SUMMER)	A ENT UNIT AIR (DB/WB °F) 95/78 I ENT RTN AIR (DB/WB °F) 80/69.5 E LVG UNIT AIR (DB/WB/DP °F) 76.0/59.0/46.9
MAKE UP AIR (DEHUMID.)	A ENT UNIT AIR (DB/WB °F) 80/79 I ENT RTN AIR (DB/WB °F) 80/69.5 E LVG UNIT AIR (DB/WB/DP °F) 75.0/59.2/47.8
MAKE UP AIR (WINTER)	A ENT UNIT AIR (DB °F) 70 E LVG UNIT AIR (DB °F) 94.3
GAS HEATER	INPUT (BTUH) 150,000 TURNDOWN RATIO 10:1 FLA 49.9 MCA 55.7 MOP 60.0 VOLTAGE 460/3/60
ELECTRICAL	VOLTAGE 460/3/60
TOTAL UNIT WEIGHT (LBS.)	6,375

REMARKS:

- PRIOR TO ORDERING EQUIPMENT VERIFY VOLTAGE AND ALL ELECTRICAL REQUIREMENTS.
- PROVIDE DOAU WITH FACTORY MOUNTED FUSED DISCONNECT.
- PROVIDE WITH FACTORY FURNISHED CONVENIENCE OUTLET. DEDICATED 120V CIRCUIT REQUIRED FOR POWERED OUTLET. COORDINATE WITH ELECTRICAL CONTRACTOR.
- SEE DETAILS FOR MINIMUM CURB HEIGHTS ABOVE ROOF. PROVIDE SLOPING CURB AS REQUIRED. VERIFY EXISTING CONDITIONS IN FIELD PRIOR TO CONSTRUCTION/EQUIPMENT ORDER.
- PROVIDE UNIT WITH 2"-30% PLEATED FILTERS ON MAKE UP AND REACT. AIR INLETS AND EXHAUST. PROVIDE AIR INLETS WITH RAIN HOOD, SUPPLY AND EXHAUST FAN MOTOR W/ VFD & THRU THE BASE UTILITIES.
- PROVIDE FACTORY FURNISHED RETURN AIR EXHAUST AND REACT. EXHAUST GOOSENECKS.
- PROVIDE SEISMIC ROOF CURB (DOAU-4) SLOPED AS REQUIRED TO PROVIDE LEVEL UNIT INSTALLATION (SHIMS NOT ALLOWED), HEIGHT ABOVE FINISHED ROOF TO BE 18" MINIMUM.
- EXISTING ROOF IS BONDED. COORDINATE ALL WORK/ REPAIRS WITH OWNER AND BONDED/ APPROVED ROOFING SUB-CONTRACTOR PRIOR TO CONSTRUCTION.

LEGEND



MECHANICAL SYMBOLS

	SUPPLY AIR DUCT SECTION		4-WAY CEILING DIFFUSER
	RETURN AIR DUCT SECTION		3-WAY CEILING DIFFUSER
	THERMOSTAT		2-WAY CEILING DIFFUSER
	NIGHT SETBACK THERMOSTAT		1-WAY CEILING DIFFUSER
	SWITCH		CEILING RETURN/EXHAUST GRILLE
	UNDERCUT DOOR		SIDE WALL DIFFUSER
	HI/LO RETURN		SIDE WALL RETURN
	SPLITTER DAMPER	AD	ACCESS DOOR
	TURNING VANES	FD	FIRE DAMPER
	MANUAL DAMPER	RFD	ROUND FIRE DAMPER
	MOTORIZED DAMPER	OFD	OVAL FIRE DAMPER
	CONNECT TO EXISTING	FSD	FIRE SMOKE DAMPER
	TIMED OVERRIDE SWITCH	FC	FLEXIBLE CONNECTION
	SMOKE DETECTOR	DAE	DUCT AIR EXTRACTOR
	CARBON MONOXIDE DETECTOR	OA	OUTSIDE AIRFLOW
	CARBON DIOXIDE DETECTOR	SD	SMOKE DAMPER
	CONDENSATE PIPING	AFF	ABOVE FINISHED FLOOR
	REFRIGERANT PIPING	BFC	BELOW FINISHED CEILING
		CO	CASED OPENING
		PCO	PIPE CLEAN-OUT

MECHANICAL NOTES

- DO NOT SCALE DRAWING. ROUGH FROM EQUIPMENT MANUFACTURER AND ARCHITECTURAL DRAWINGS.
- DIMENSIONS NOTED ON PLANS ARE IN INCHES UNLESS OTHERWISE NOTED.
- DUCT SIZES NOTED ON PLANS ARE INTERIOR DIMENSIONS.
- ROUTE CONDENSATE DRAIN LINES TO ROOF DRAINS, GUTTERS, FLOOR DRAINS, OR FRENCH DRAIN OR AS SHOWN ON DRAWINGS.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL EQUIPMENT VOLTAGES AND DISCONNECTS WITH THE ELECTRICAL CONTRACTOR PRIOR TO RELEASING EQUIPMENT FROM MANUFACTURER.
- SOME REFRIGERANT LINE LENGTHS AND/OR VERTICAL LIFTS MAY EXCEED MANUFACTURER'S RECOMMENDATIONS. MECHANICAL CONTRACTOR IS RESPONSIBLE FOR INSURING THE EQUIPMENT MANUFACTURER SIZES ALL REFRIGERANT LINES FOR THESE PIECES OF EQUIPMENT.
- ALL DUCTWORK SHOWN ON DRAWING IS DIAGRAMMATIC. ACTUAL RUN SHALL BE SHORTEST POSSIBLE WITHOUT SHARP BENDS. ALL DUCTWORK SHALL BE GALVANIZED STEEL INSTALLED PER SMACNA, INTERNATIONAL AND LOCAL CODES WITH 2-1/2" THICK FIBERGLASS DUCT WRAP INSULATION AND/OR AS OUTLINED IN SPECIFICATIONS.
- FLEXIBLE DUCTWORK WILL BE ALLOWED AT THE END OF GALVANIZED STEEL RUN OUTS. MAXIMUM LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 8'-0". REFER TO TYPICAL RUN OUT DETAIL.
- DUCT SMOKE DETECTORS FOR ALL RETURN AIR SYSTEMS 2000 CFM OR GREATER BY FIRE ALARM CONTRACTOR OR AUDIBLE/VISIBLE DETECTOR BY MECHANICAL CONTRACTOR WHEN NO FIRE ALARM SYSTEM AVAILABLE. DUCT SMOKE DETECTORS SHALL BE INSTALLED BY MECHANICAL CONTRACTOR PER CODE.
- PROVIDE PLASTIC NAMEPLATES FOR ALL EQUIPMENT SPECIFIED ON PROJECT. LABELING TAG SHALL BE SAME AS EQUIPMENT NUMBER.
- ALL DUCTWORK SHALL BE SEALED AIRTIGHT. DUCT SEALING SHALL BE MASTIC ONLY. NO HEAT SENSITIVE, PRESSURE SENSITIVE OR DUCT TAPE ALLOWED ON PROJECT.
- ALL DUCTWRAP INSULATION SHALL BE SEALED PER MANUFACTURER'S RECOMMENDATIONS FOR GLASS FABRIC AND MASTIC INSTALLATIONS. NO PRESSURE SENSITIVE TAPE SHALL BE ALLOWED.
- COORDINATION OF ALL MECHANICAL SYSTEMS WITH OTHER DISCIPLINES IS THE RESPONSIBILITY OF THE CONTRACTOR. NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO INSTALLING. CONTRACTOR SHALL NOT PROCEED WITH UNCERTAINTY.
- ENTIRE MECHANICAL SYSTEMS SHALL BE INSTALLED PER LATEST INTERNATIONAL CODES, LOCAL CODES, AND AUTHORITY HAVING JURISDICTION.
- ALL PIPING SHALL BE MANUFACTURED IN THE UNITED STATES OF AMERICA. NO FOREIGN PIPING ALLOWED ON THIS PROJECT.
- ALL PIPING SUPPORT SPACING SHALL BE PER MSS-SP88 AND WITHIN 18" OF CHANGE IN DIRECTION.
- ALL EQUIPMENT, PIPE AND DUCT SHALL BE SEISMICALLY RESTRAINED PER 2012 IBC. SEISMIC RESTRAINT SYSTEMS AS MANUFACTURED BY MASON INDUSTRIES, AMBER/BOOTH OR APPROVED EQUAL WHO MUST BE A MEMBER OF VISMA. CONTRACTOR TO PROVIDE SEISMIC CALCULATIONS AND DRAWINGS CERTIFIED AND STAMPED BY AN ENGINEER EMPLOYED BY THE MANUFACTURER. CALCULATIONS TO MEET ICC, IBC, NFPA, ASCE/SEI 7-10, SMACNA AND AUTHORITY HAVING JURISDICTION (AHJ).
- PROVIDE TESTING AND BALANCING OF ALL SYSTEMS BY A THIRD PARTY NEBB CERTIFIED T&B CONTRACTOR. SUBMIT T&B FORMS PRIOR TO PERFORMING WORK FOR APPROVAL.

MECHANICAL NOTE

- MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL WALL, FLOOR AND ROOF REPAIRS IN PROJECT.

F3 - MECHANICAL INFORMATION

GENERAL INFORMATION	
Building(s) Location	Chapin SC
Climate Zone	3A
Outdoor Design Temperature	Summer 95 deg F DB 78 deg F WB
	Winter 22 deg F DB deg F WB
Indoor Design Temperature	Summer 75 deg F DB 50 % RH
	Winter 70 deg F DB 50 %RH
OUTSIDE AIR	
Occupied Minimum Outside Air	10 cfm / person & 0.12 cfm / sf
C O2 Demand Management	yes
Supervised Control System	yes
MECHANICAL SYSTEMS, SERVICE SYSTEMS & EQUIPMENT	
HVAC Replacement	

ASHRAE 62.1 O/A Rate Table

AREA	People (Pz)	CFM/Per (Rp)	Area (SF)	CFM/SF (Ra)	Space O/A (Vbz)	Space Vol (V)	Avg time-min (T)	Avg Occ (% of T)	Space O/A	Final O/A
Classroom	25	10	940	0.12	362.8	11280	93.27453142	0.75	272.1	300
Art	25	10	965	0.12	365.8	11580	94.96992892	0.75	274.35	300
Music	25	10	935	0.12	362.2	11220	92.93208172	0.75	271.65	300
Resource	25	10	800	0.12	346	9600	83.23699422	0.75	259.5	300
Cafeteria	325	7.5	4162	0.06	2687.22	49944	55.75725099	0.35	940.527	1000

DUCTLESS CEILING CASSETTE HEAT PUMP

MANUFACTURER	MITSUBISHI
SYMBOL	DHP-2
MODEL NUMBER	SLZ-KA15NA
SUPPLY AIRFLOW	350
EXTERNAL S.P. (IN.)	0
FAN MOTOR WATTS	0.28
DRY BULB (°F)	75
WET BULB (°F)	63
AMBIENT (°F)	95
OUTSIDE AIR (CFM)	50
UNIT VOLTAGE	DC24V/208-230/60/1
WEIGHT (LBS.)	43
SYMBOL	DHP-2A
MODEL NUMBER	SUZ-KA15NA
FAN QNTY./ F.L.A.	1 @ 0.5
COMP. QUANTITY	1
M.C.A.	12
M.O.C.P.	15
UNIT VOLTAGE	208-230/60/1
WEIGHT (LBS.)	80
AMBIENT (°F)	95
T.C. RANGE (BTUH)	12,850
S.C. RANGE (BTUH)	9,250
INTEGRATED HTG. CAP. @ 17°F	10,200
SEER RATING @ AHRI	16/10.2
COP RATING @ 47°F	2.7/9.6

REMARKS:

- PRIOR TO ORDERING, CONTRACTOR SHALL VERIFY VOLTAGE, ALL ELECTRICAL REQUIREMENTS AND CONFIRM DISCONNECTS ARE PROVIDED BY ELECTRICAL CONTRACTOR. INDOOR UNIT RECEIVES POWER AND COMMUNICATION FROM OUTDOOR UNIT THROUGH FIELD SUPPLIED INTERCONNECTED WIRING.
- PROVIDE UNITS WITH LOW AMBIENT COOLING OPERATION DOWN TO 0°F. R-410A VARIABLE REFRIGERANT FLOW, DC INVERTER-DRIVEN COMPRESSOR, BUILT-IN DRAIN LIFT CONDENSATE REMOVAL, WIRED REMOTE CONTROLLER, AND DPLS1 SOLID STATE DRAIN PAN LEVEL SENSOR, FRESH AIR INTAKE, INDEPENDENT VANE MOTOR CONTROL AND WIND BAFFLE ACCESSORY.
- PROVIDE "LINE-HIDE" LINESSET COVER SYSTEM FOR EXPOSED WIRING. CONDENSATE AND REFRIGERANT LINES ON EXTERIOR WALL. COLOR TO MATCH EXISTING WALL.

FAN SCHEDULE

SYMBOL	CEF-1,2,3	CEF-4,5	REF-3	REF-4,5,6	REF-7,8
MANUFACTURER	GREENHECK				
MODEL NUMBER	SP-B150	SP-A290	G-080-VG	G-098-VG	G-099-VG
AIRFLOW (C.F.M.)	75	150	300	500	700/600
STATIC PRESSURE (IN.)	0.625	0.625	.625	.625	.625
SONES (MAX.)	1.5	3.5	8.7	8.3	9.1
MOTOR HORSEPOWER	FRACT.	FRACT.	FRACT.	FRACT.	FRACT.
FAN R.P.M.	877	100	1725	1725	1725
VOLTAGE	115/1/60	115/1/60	115/1/60	115/1/60	115/1/60
DRIVE TYPE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT
ROOF/WALL OPENING SIZE (IN.)	-	-	12.5x12.5	14.5x14.5	14.5x14.5
OPERATION	EXHAUST	EXHAUST	EXHAUST	EXHAUST	EXHAUST
DAMPER SIZE (IN.)	8Ø	8Ø	14x14	16x16	16x16
WEIGHT (EXCLUDING CURB) (LBS.)	15	25	30	40	40

REMARKS:

- *PRIOR TO ORDERING, CONTRACTOR SHALL VERIFY VOLTAGE, ALL ELECTRICAL REQUIREMENTS AND CONFIRM DISCONNECTS ARE PROVIDED BY ELECTRICAL CONTRACTOR.
- ALL REF FANS UNLESS OTHERWISE NOTED TO BE ON BUILDING MANAGEMENT SYSTEM.
- REF-4 TO BE CONTROLLED BY 12hr TIMER SWITCH.
- REF-8 TO BE CONTROLLED BY T'STAT
- CEF-1 TO BE CONTROLLED BY WALL SWITCH.
- PROVIDE ALL FANS WITH SOLID STATE SPEED CONTROLLER.
- DFW-1 TO INTERLOCK BACK TO EXISTING CONTROLS

AIR DISTRIBUTION SCHEDULE

SYMBOL	TYPE	MANUFACTURER	MODEL NUMBER	FINISH	DAMPER	REMARKS
A	LAY-IN DIFFUSER	PRICE	ASPD-31	OFF-WHITE	W/OBD	
B	LAY-IN RETURN	PRICE	APDDR-3	OFF-WHITE	---	FLAT BLACK PLENUM
C	SURF. MTD. DIFFUSER	PRICE	ASPD-31	OFF-WHITE	W/OBD	12"x12" PANEL FOR 6" & 8" W/ PLASTER FRAME
D	SURF. MTD. RETURN	PRICE	APDDR-1	OFF-WHITE	---	12"x12" PANEL FOR 6" & 8" W/ PLASTER FRAME
E	LAY-IN LOUVER FACED SUPPLY	PRICE	AMD-36	OFF-WHITE		
F	LINEAR BAR GRILLE	PRICE	LBP-16A-1000	ALUMINUM	W/OBD	COLOR PER ARCHITECT. SURF. INSUL. PLENUM
BDD	BACK DRAFT DAMPER	RUSKIN	---	MILL		
	DUCT AIR EXTRACTOR	PRICE	AE-1S			BLADES PARALLEL TO SHORT DIM.
FSD	FIRE/SMOKE DAMPER	RUSKIN	FSD-60	MILL		
OFD	OVAL FIRE DAMPER	RUSKIN	IBD2 "STYLE CO"	MILL		
FD	FIRE DAMPER	RUSKIN	IBD2 "STYLE B"	MILL		
RFD	ROUND FIRE DAMPER	RUSKIN	IBD2 "STYLE CR"	MILL		
FD3	3 HR FIRE DAMPER	RUSKIN	IBD23	MILL		
RD	RADIATION DAMPER	RUSKIN	CFD	MILL		PROVIDE W/BLANKET
	MANUAL DAMPER	RUSKIN	MD-35/MDRS-25	MILL		
	MOTORIZED DAMPER	RUSKIN	CD-60/CDRS-25	MILL		

REMARKS:

- ALTERNATE AIR DISTRIBUTION SUPPLIERS SHALL INSURE THAT "NC" AND PERFORMANCE DATA MATCHES SPECIFIED DEVICES.
- COORDINATE ALL AIR DISTRIBUTION STYLES AND LOCATIONS WITH ARCHITECTURAL CEILING GRID AND ELECTRICAL LIGHT LAYOUT PRIOR TO SUBMITTING SHOP DRAWINGS OR ORDERING.

REVISIONS		
No.	Date	Description

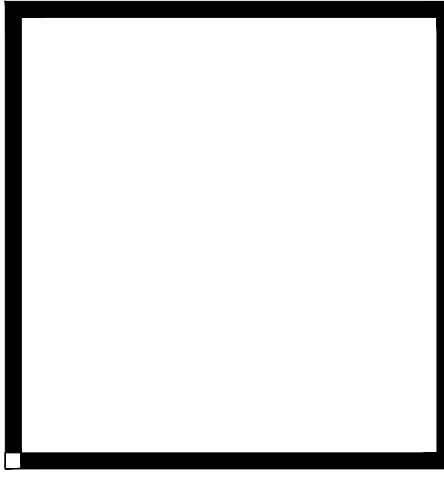
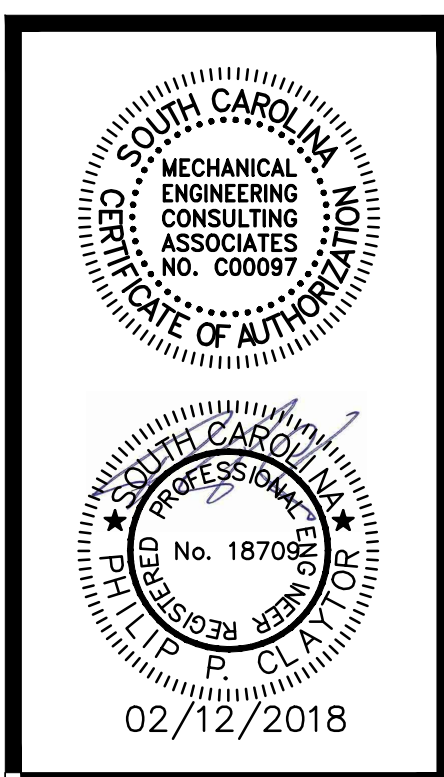
Job Number : 114211.02
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 Drawn : JAS
 Approved By : PPC



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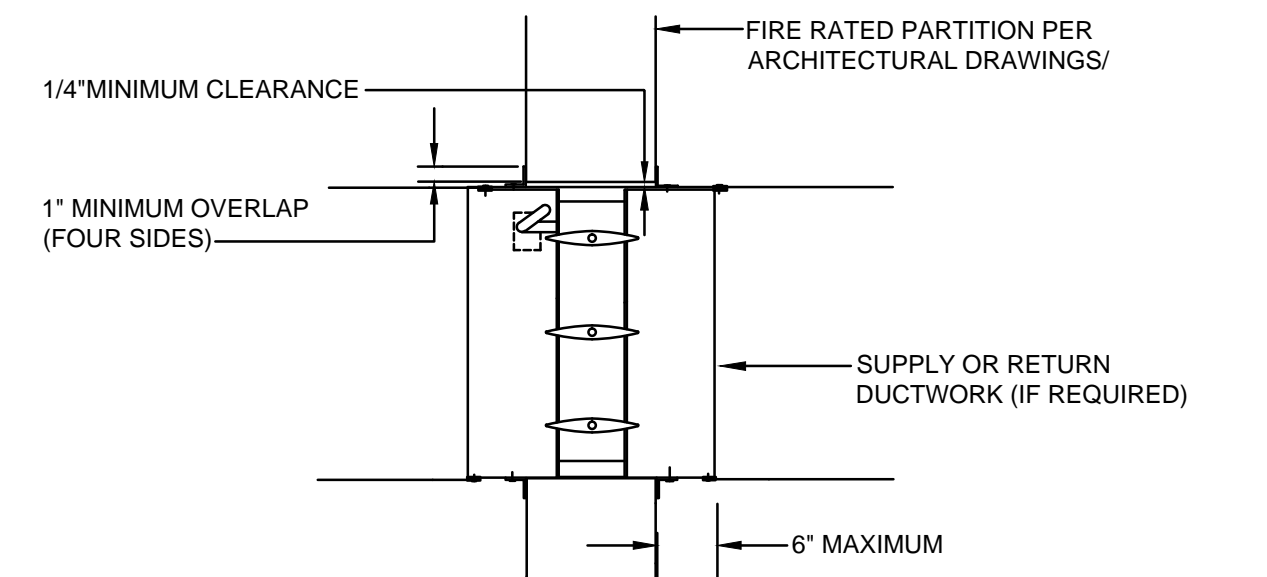
Jacksonville Office
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 Jacksonville, FL 32206
 Phone: (904) 494-6300



LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 MECHANICAL SCHEDULES

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NOTE:
REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS AND INSTALL ALL DEVICES IN STRICT COMPLIANCE WITH THOSE INSTRUCTIONS. CONTRACTOR TO MAINTAIN A COPY OF THE INSTALLATION INSTRUCTIONS ON THE JOB SITE AT ALL TIMES FOR REFERENCE.

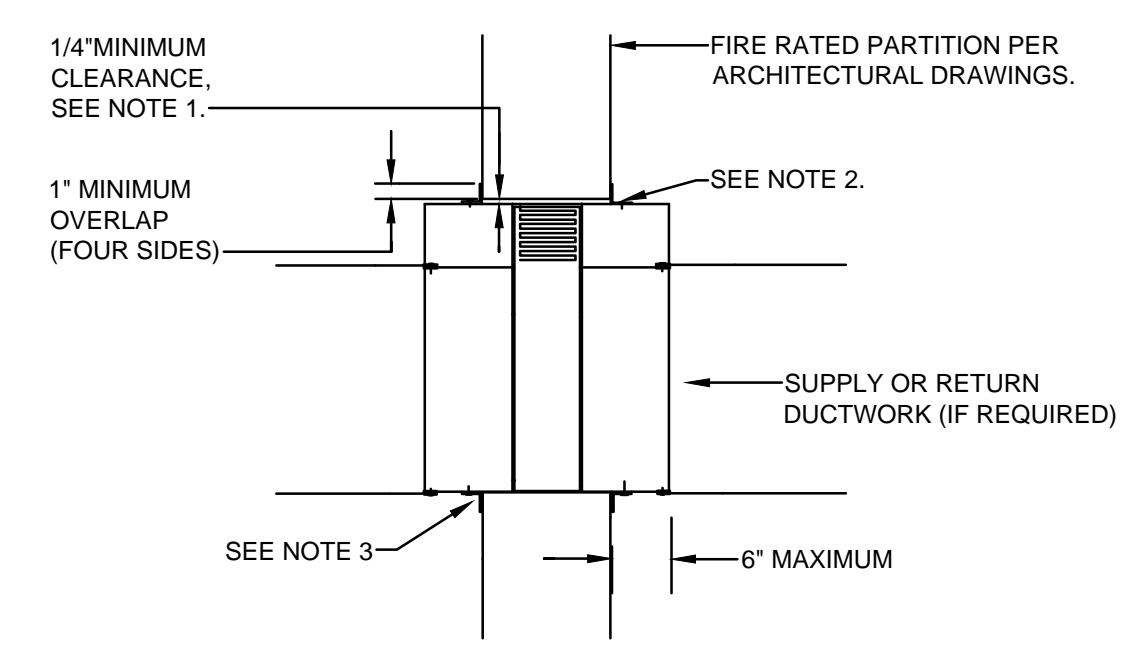


TYPICAL FIRE/SMOKE DAMPER DETAIL
NO SCALE

FIRE/SMOKE DAMPER INSTALLATION NOTES

NOTES ARE FOR GENERAL INSTALLATION GUIDELINES. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS AND INSTALL ALL DEVICES IN STRICT COMPLIANCE WITH THOSE INSTRUCTIONS. CONTRACTOR TO MAINTAIN A COPY OF THE INSTALLATION INSTRUCTIONS ON THE JOB SITE AT ALL TIMES FOR REFERENCE.

- OPENING IN FLOOR OR WALL SHALL BE A MINIMUM 1/8" PER FOOT LARGER THAN THE OVERALL DAMPER AND SLEEVE ASSEMBLY SIZE. MAXIMUM OPENING SIZE SHALL NOT EXCEED 1/8" PER FOOT PLUS 1". OPENING SHALL NOT BE LESS THAN 1/4" LARGER THAN ANY SIZE DAMPER AND SLEEVE ASSEMBLY.
- DUCT TO DAMPER SLEEVE CONNECTIONS SHALL BE BREAKAWAY STYLE. RECTANGULAR DUCTS MUST USE ONE OR MORE OF THE FOLLOWING CONNECTIONS: PLAIN S-SLIP, HEMMED S-SLIP, STANDING S-SLIP, REINFORCED STANDING S-SLIP, INSIDE SLIP JOINT, AND DOUBLE S-SLIP. ROUND DUCTS MUST USE A 4" WIDE DRAW BAND CONNECTION. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS FOR CONNECTION DETAILS. DUCTS CONNECTING TO SLEEVES SHALL BE AT LEAST EQUAL TO THE DUCT GAUGES OUTLINED IN NFPA84. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SLEEVE GAUGES.
- DUCTS CONNECTING TO SLEEVES SHALL BE EQUAL TO OR LESS THAN THE SLEEVE THICKNESS. REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SLEEVE GAUGES.
- MOUNTING ANGLES SHALL BE A MINIMUM OF 1-1/2" X 1-1/2" X 16 GAUGE, BOLTED WITH 1/4" X 20 BOLTS, WELDED, OR SCREWED WITH NO. 10 SCREWS TO DAMPER FRAME. MAXIMUM SPACING FOR FASTENERS SHALL BE 12" CENTER TO CENTER FOR VERTICAL DAMPER MOUNTING AND 8" CENTER TO CENTER FOR HORIZONTAL MOUNTING. A MINIMUM OF TWO CONNECTIONS IN EACH SIDE, TOP, AND BOTTOM IS REQUIRED. MOUNTING ANGLES SHALL OVERLAP FLOOR OR WALL A MINIMUM OF 1".
- IF SLEEVES ARE TO BE FIELD SUPPLIED, THEY SHALL BE 10 TO 24 GAGE STEEL. THE FINAL SLEEVE ASSEMBLY SHALL HAVE INNER DIMENSIONS EQUAL TO THE DAMPER'S OUTER DIMENSIONS.
- DAMPER SLEEVES SHALL NOT EXTEND MORE THAN 6" BEYOND THE FIRE WALL OR PARTITION UNLESS DAMPER IS EQUIPPED WITH AN ACTUATOR AND/OR FACTORY INSTALLED ACCESS DOOR. SLEEVE MAY EXTEND UP TO 16" BEYOND THE FIRE WALL OR PARTITION ON SIDES EQUIPPED WITH ACTUATOR AND/OR FACTORY INSTALLED ACCESS DOOR. SLEEVE SHALL TERMINATE AT BOTH SIDES OF WALL WITH DIMENSIONS SHOWN.
- WHEN JOINING MULTIPLE DAMPER ASSEMBLIES OR FASTENING THE DAMPER TO THE SLEEVE, DAMPERS SHALL BE FASTENED WITH 1/4"-20 (M6) BOLTS, NO. (M6) SCREWS, OR 1/2" LONG WELDS STAGGERED INTERMITTENTLY 2" FROM THE ENDS OF THE JOINING SECTIONS OR FROM EACH CORNER. WHEN JOINING MULTIPLE DAMPER ASSEMBLIES, A CONTINUOUS 1/8" BEAD OF DOW-CORNING 989, DOW CORNING SILASTIC 732 RTV, OR GE RTV 108 SEALANT SHALL BE APPLIED ON THE MULLION JOINT. PRESS THE SURFACE OF THE SEALANT IN PLACE TO DISPEL ANY AIR.
- ANOTHER BEAD OF THE SAME SEALANT SHALL BE APPLIED BETWEEN THE DAMPER AND SLEEVE IN THE SAME MANNER. ONLY ONE SIDE OF THE DAMPER REQUIRES CAULKING. NOTE THE SEALANT IS NOT REQUIRED WHEN DAMPERS ARE SUPPLIED FOR FIRE DAMPER APPLICATIONS ONLY AND ARE NOT REQUIRED TO BE LEAKAGE RATED.
- VERTICAL INSTALLATION IS DEPICTED; HORIZONTAL INSTALLATION IN CONCRETE FLOORS IS SIMILAR. USE "MOUNT WITH ARROW UP" LABEL AS A GUIDE FOR PROPER DAMPER ORIENTATION.
- DAMPER MAY BE SUPPLIED WITHOUT OPERATOR/ACTUATOR INSTALLED. QUALIFIED ACTUATORS (SUPPLIED BY THE DAMPER MANUFACTURER OR OTHERS) SHIPPED LOOSE FOR FIELD MOUNTING. MUST BEAR A UL LABEL AFFIXED BY THE DAMPER MANUFACTURER. ACTUATORS MUST BE INSTALLED AS TESTED PER UL INSTALLATION INSTRUCTIONS SUPPLIED BY THE DAMPER MANUFACTURER. CONTACT DAMPER MANUFACTURER FOR ACTUATORS INSTALLATION INSTRUCTIONS FOR FIELD MOUNTING.
- REFER TO MECHANICAL FLOOR PLANS FOR ACCESS DOOR LOCATIONS.
- INSTALLATION MUST COMPLY WITH UNDERWRITERS LABORATORIES SAFETY STANDARD 555 AND MANUFACTURERS RECOMMENDATIONS.

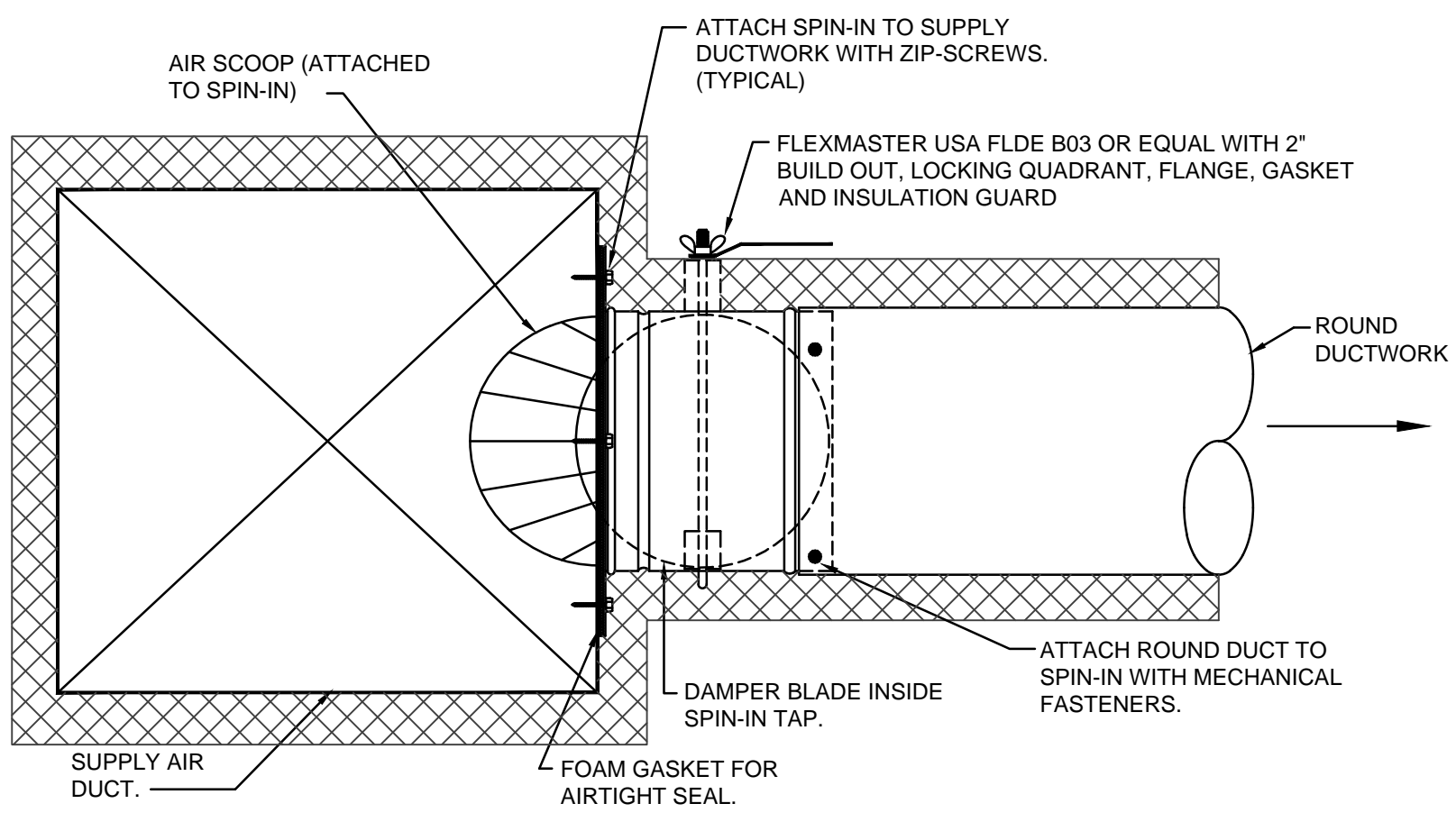


FIRE DAMPER DETAIL "STYLE B"
NO SCALE

FIRE DAMPER INSTALLATION NOTES

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- REFER TO MECHANICAL FLOOR PLANS FOR ACCESS DOOR LOCATIONS.
- INSTALLATION MUST COMPLY WITH UNDERWRITERS LABORATORIES SAFETY STANDARD 555 AND MANUFACTURERS RECOMMENDATIONS.



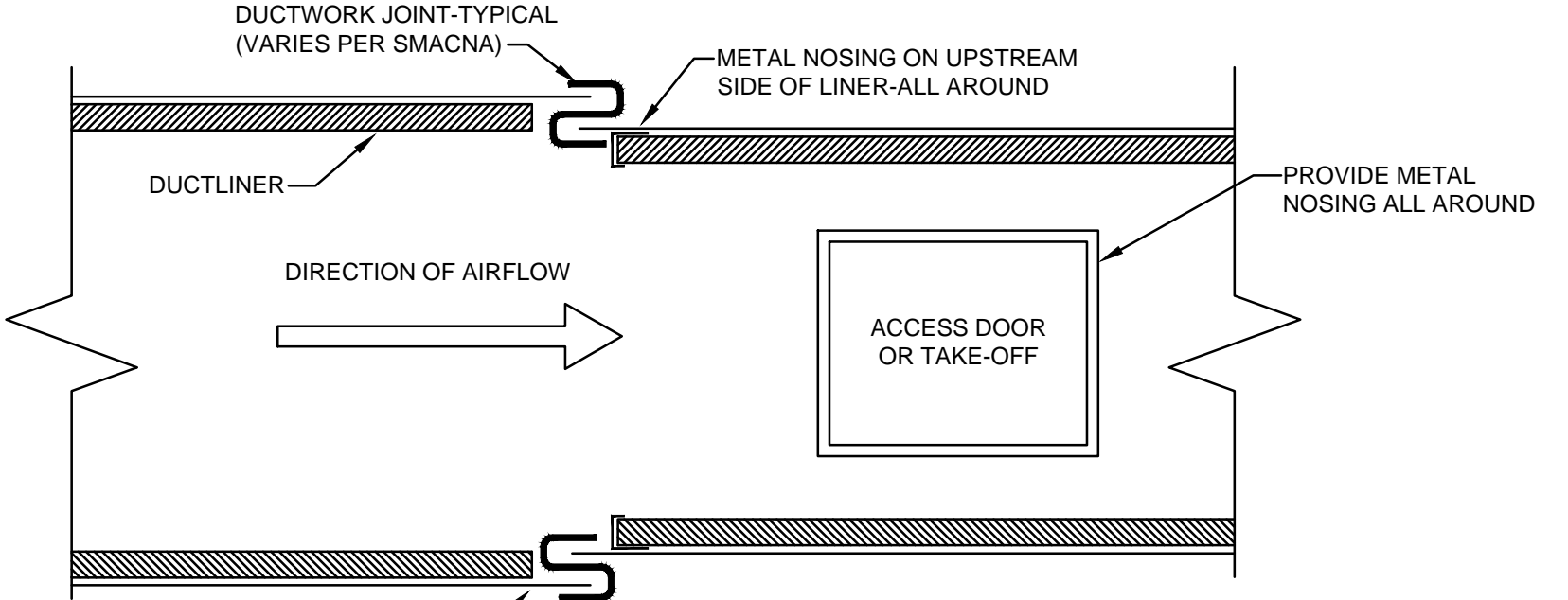
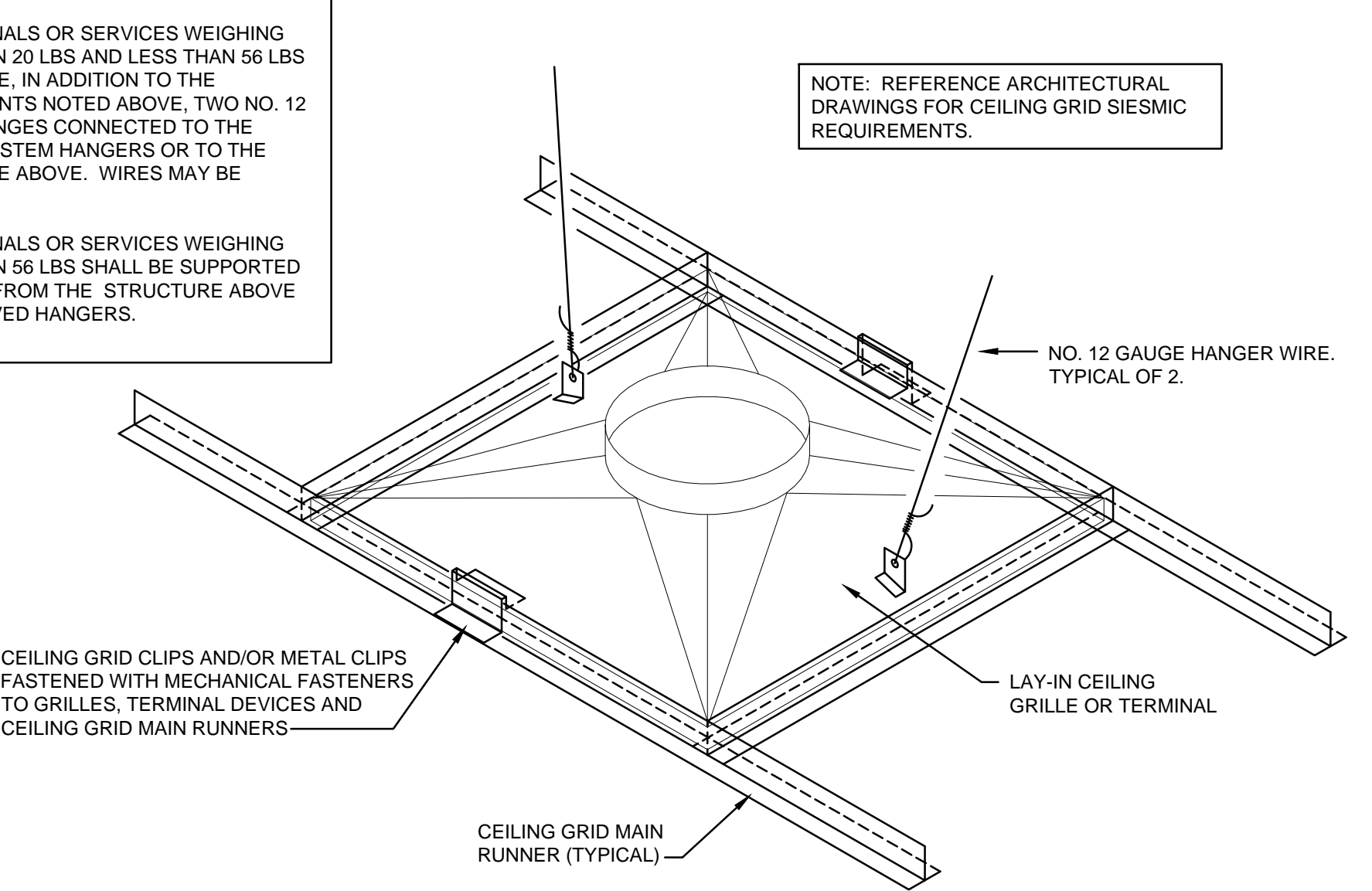
TYPICAL SPIN-IN DETAIL
NO SCALE

ATTACHMENT NOTES:
CEILING MOUNTED AIR TERMINALS OR SERVICES WEIGHING 20 LBS. OR LESS SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION MAIN RUNNERS OR CROSS RUNNERS.

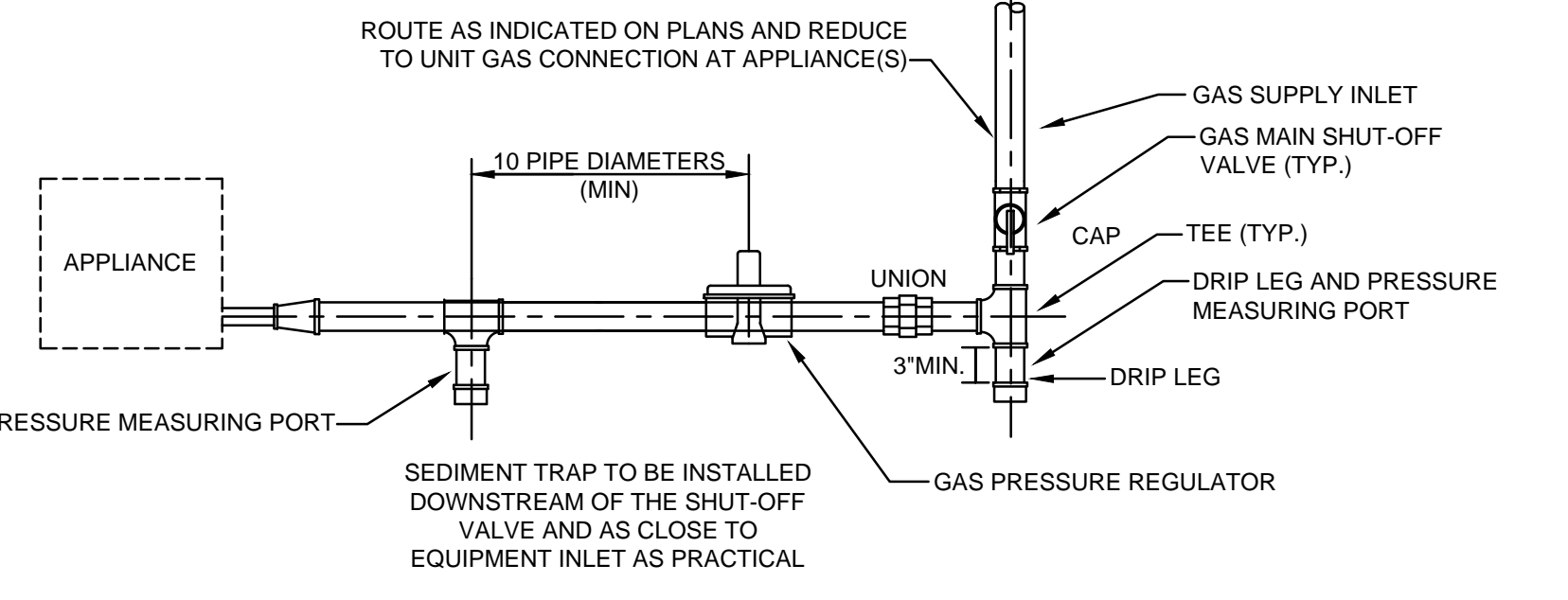
AIR TERMINALS OR SERVICES WEIGHING MORE THAN 20 LBS AND LESS THAN 56 LBS SHALL HAVE, IN ADDITION TO THE ATTACHMENTS NOTED ABOVE, TWO NO. 12 GAUGE HANGERS CONNECTED TO THE CEILING SYSTEM HANGERS OR TO THE STRUCTURE ABOVE. WIRES MAY BE SLACK.

AIR TERMINALS OR SERVICES WEIGHING MORE THAN 56 LBS SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY APPROVED HANGERS.

AIR TERMINAL / SERVICES SIESMIC RESTRAINT DETAIL
NO SCALE



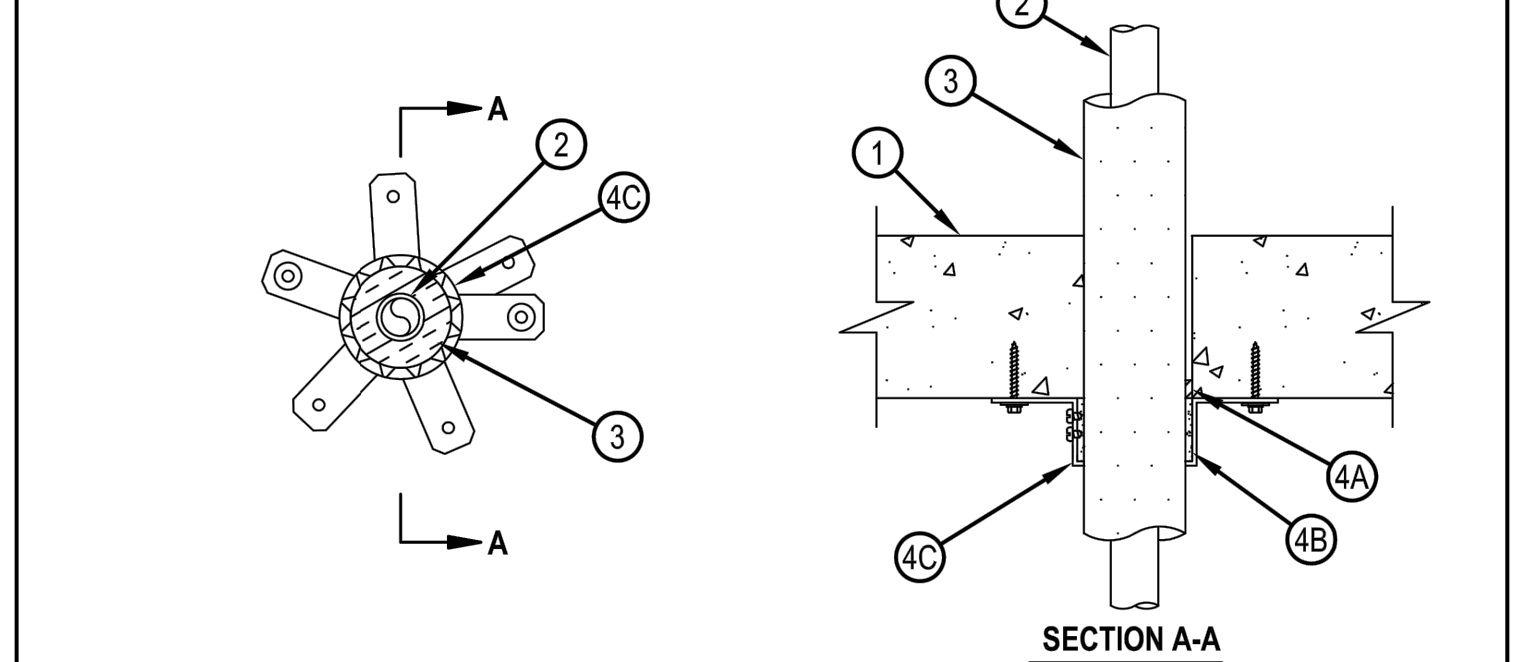
DUCTLINER NOSING DETAIL
NO SCALE



TYPICAL GAS PIPING DETAIL
NO SCALE

System No. C-AJ-5320

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 2 Hr	FT Rating — 2 Hr
	FH Rating — 2 Hr
	FTH Rating — 2 Hr



- Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 - 2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks* Max diam of opening is 7 in (178 mm).
- Through-Penetrant — One nonmetallic pipe or conduit installed concentrically or eccentrically within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of nonmetallic pipes may be used:
A. Polyvinyl Chloride (PVC) Pipe — Nom 4 in. (102 mm) diam (or smaller) Schedule 40 cellular or solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — Nom 4 in. (102 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
- Pipe Insulation — Required on pipes with nom diam of 1 in. (25 mm) or smaller. Nom 3/4 in. (19 mm) thick acrylonitrile butadiene/polyvinyl chloride (AB/PVC) flexible foam furnished in the form of tubing with skin. Annular space between pipe insulation and periphery of opening to be min 0 in. (point contact) and max 3/16 in. (4.8 mm).
- See Plastics (OMF22) category in the Recognized Component Directory for names of manufacturers. Any Recognized Component tube insulation material meeting the above specifications and having a UL94 Flammability Classification of 94-SVA may be used.
- Pipe Covering — Required on pipes with nom diam greater than 1 in. (25 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 48 kg/m³) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing tape. Transverse joints sealed with metal fasteners or with but tape supplied with the product. A nom annular space of min 0 in. (point contact) to max 1/2 in. (13 mm) is required within the firestop system.
- See Pipe and Equipment Covering - Materials (BRQJ) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

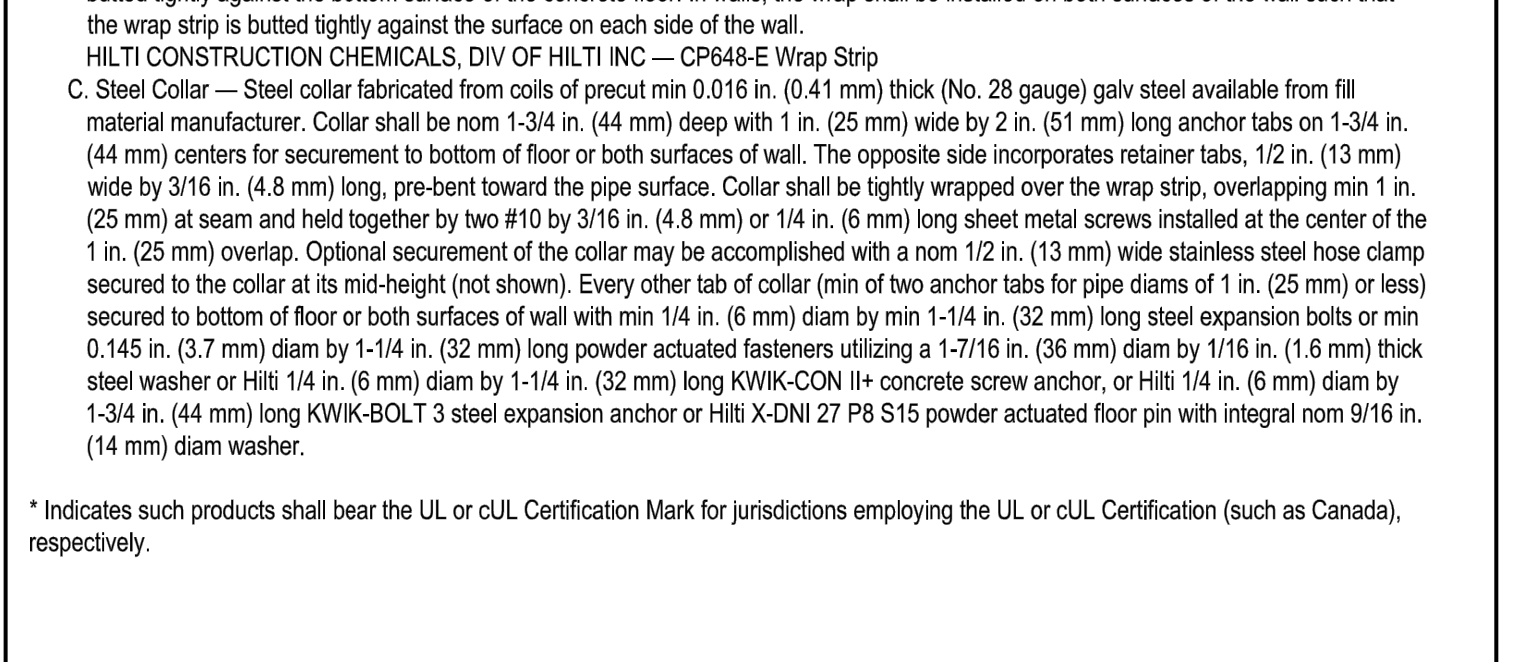
Hilti Firestop Systems

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Page: 1 of 2

System No. C-AJ-5320

ANSI/UL1479 (ASTM E814)	CANULC S115
F Rating — 2 Hr	F Rating — 2 Hr
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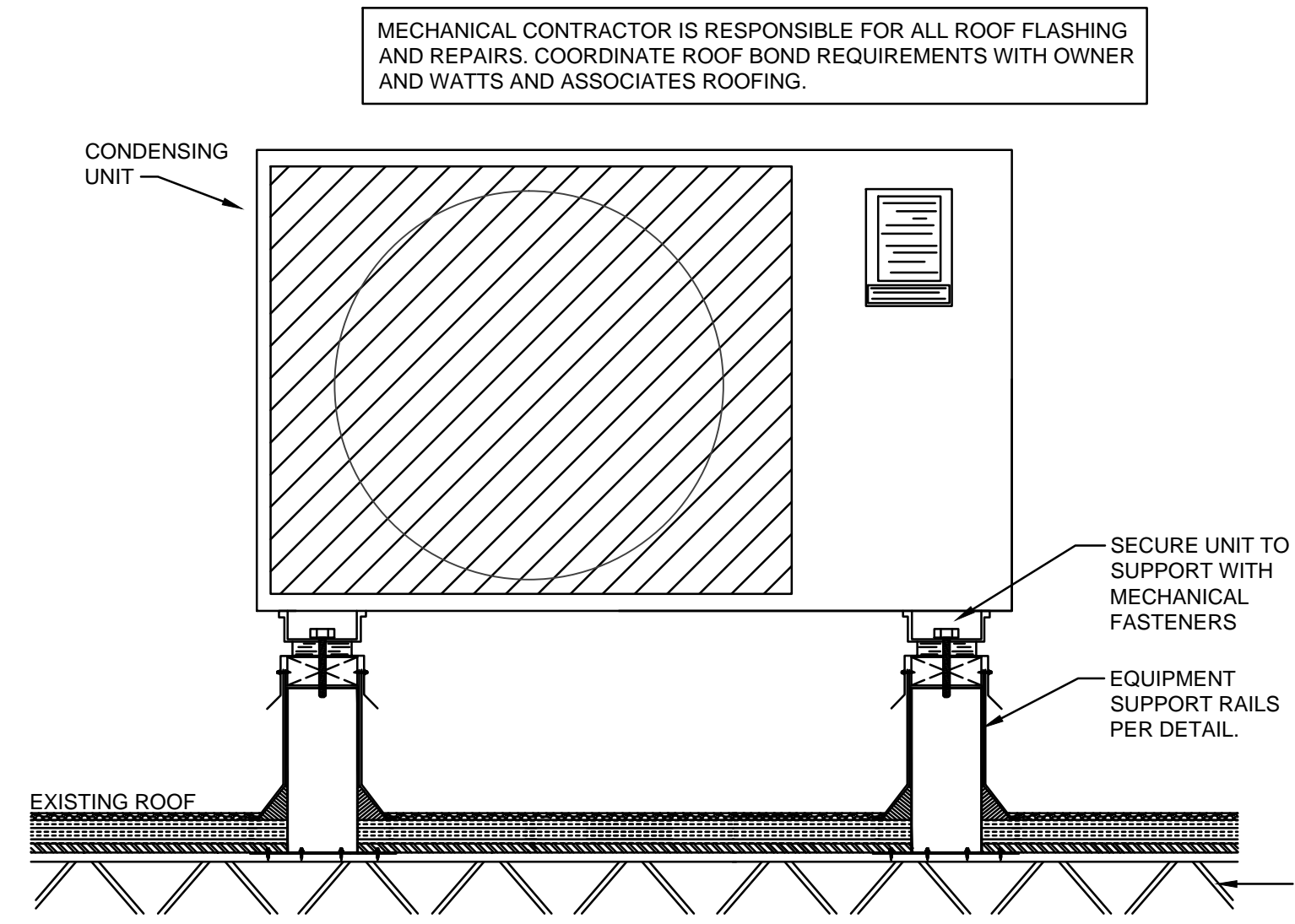


- Firestop System — The firestop system shall consist of the following:
A. Fill, Void or Cavity Material - Sealant* — Min 1/2 in. (13 mm) thickness of fill material applied within annulus, flush bottom surface of floor or both surfaces of wall.
B. Fill, Void or Cavity Material* — Wrap Strip — Nom 3/16 in. (4.8 mm) thick by 1-3/4 in. (44 mm) wide intumescent wrap strip. The wrap strip is continuously wrapped around the outer circumference of the pipe covering one time for nom pipe diam of 1 in. (25 mm) or less and three times for nom pipe diams exceeding 1 in. (25 mm) with ends held in place with tape. When multiple wrap strips are used to achieve the required total length, the ends are to be butted end to end and held in place with tape. The bottom edge of the wrap strip shall be butted tightly against the bottom surface of the concrete floor. In walls, the wrap shall be installed on both surfaces of the wall such that the wrap strip is butted tightly against the surface on each side of the wall.
C. Steel Collar — Steel collar fabricated from coils of precast min 0.016 in. (0.41 mm) thick (No. 28 gauge) galv steel available from fill material manufacturer. Collar shall be nom 1-3/4 in. (44 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs on 1-3/4 in. (44 mm) centers for securement to bottom of floor or both surfaces of wall. The opposite side incorporates retainer tabs, 1/2 in. (13 mm) wide by 3/16 in. (4.8 mm) long, pre-bent toward the pipe surface. Collar shall be tightly wrapped over the wrap strip, overlapping min 1 in. (25 mm) at seam and held together by two #10 by 3/16 in. (4.8 mm) or 1/4 in. (6 mm) long sheet metal screws installed at the center of the 1 in. (25 mm) overlap. Optional securement of the collar may be accomplished with a nom 1/2 in. (13 mm) wide stainless steel hose clamp secured to the collar at its mid-height (not shown). Every tab of collar (min of two anchor tabs for pipe diams of 1 in. (25 mm) or less) secured to bottom of floor or both surfaces of wall with min 1/4 in. (6 mm) diam by min 1-1/4 in. (32 mm) long steel expansion bolts or min 0.145 in. (3.7 mm) diam by 1-1/4 in. (32 mm) long powder actuated fasteners utilizing a 1-7/16 in. (36 mm) diam by 1/16 in. (1.6 mm) thick steel washer or Hilti 1/4 in. (6 mm) diam by 1-1/4 in. (32 mm) long KWIK-CON II concrete screw anchor, or Hilti 1/4 in. (6 mm) diam by 1-3/4 in. (44 mm) long KWIK-BOLT 3 steel expansion anchor or Hilti X-DWI 27 PB S15 powder actuated floor pin with integral nom 9/16 in. (14 mm) diam washer.

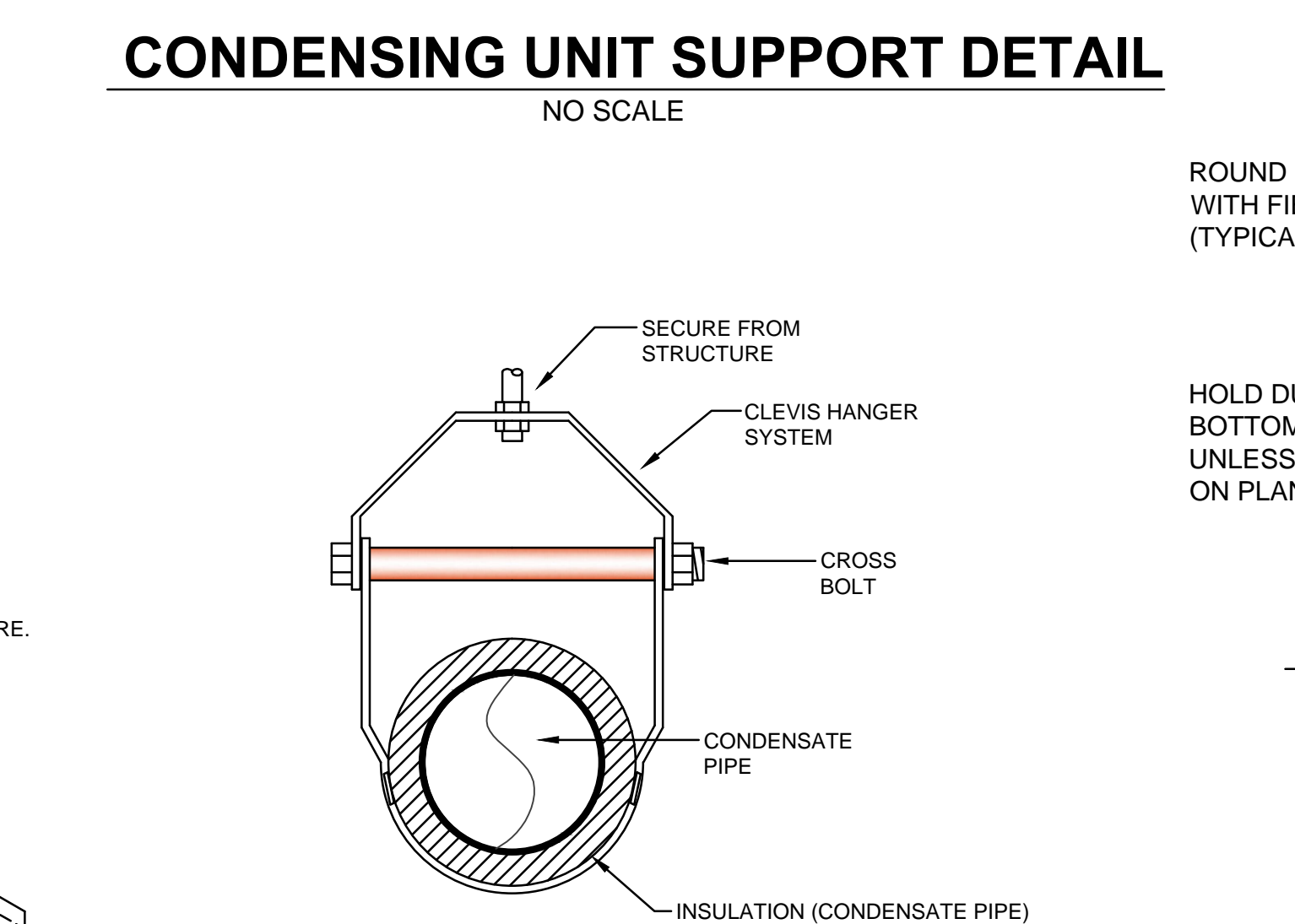
Hilti Firestop Systems

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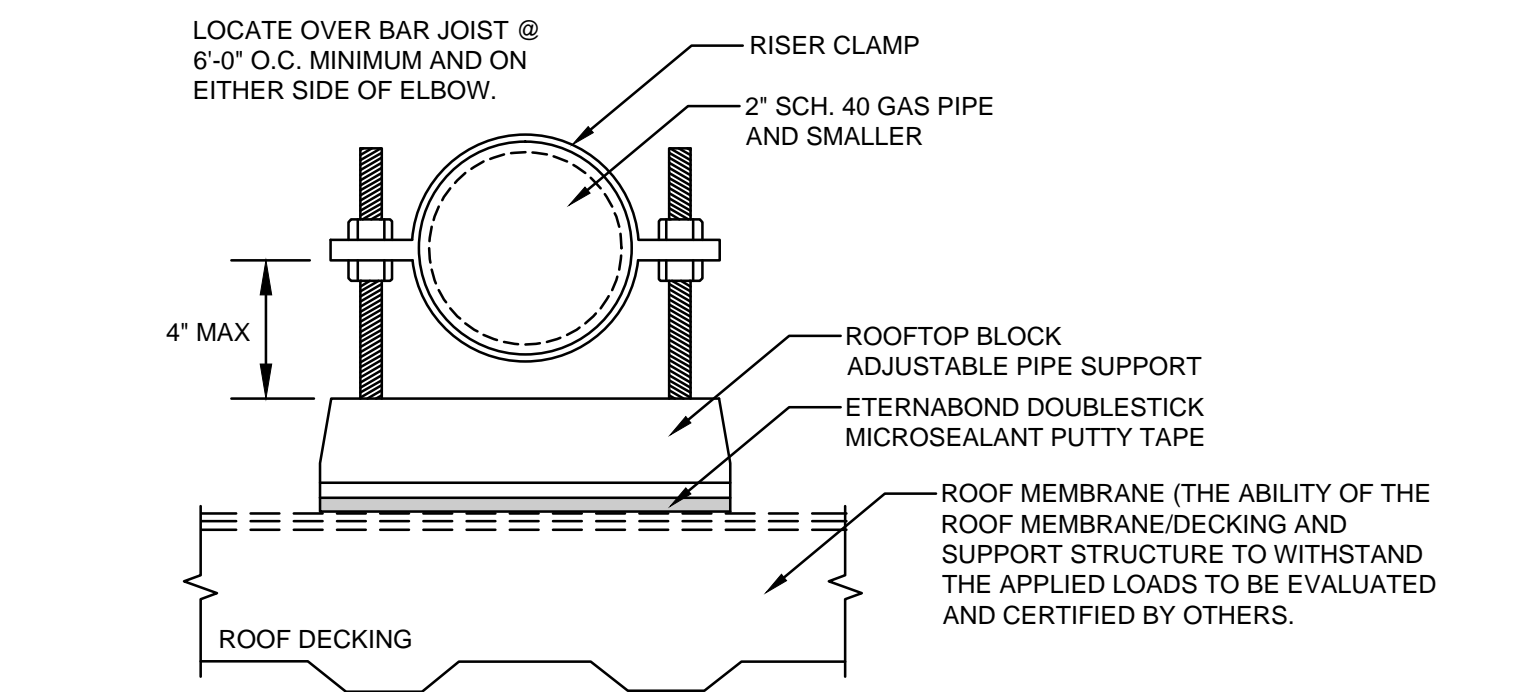
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CONDENSING UNIT SUPPORT DETAIL
NO SCALE

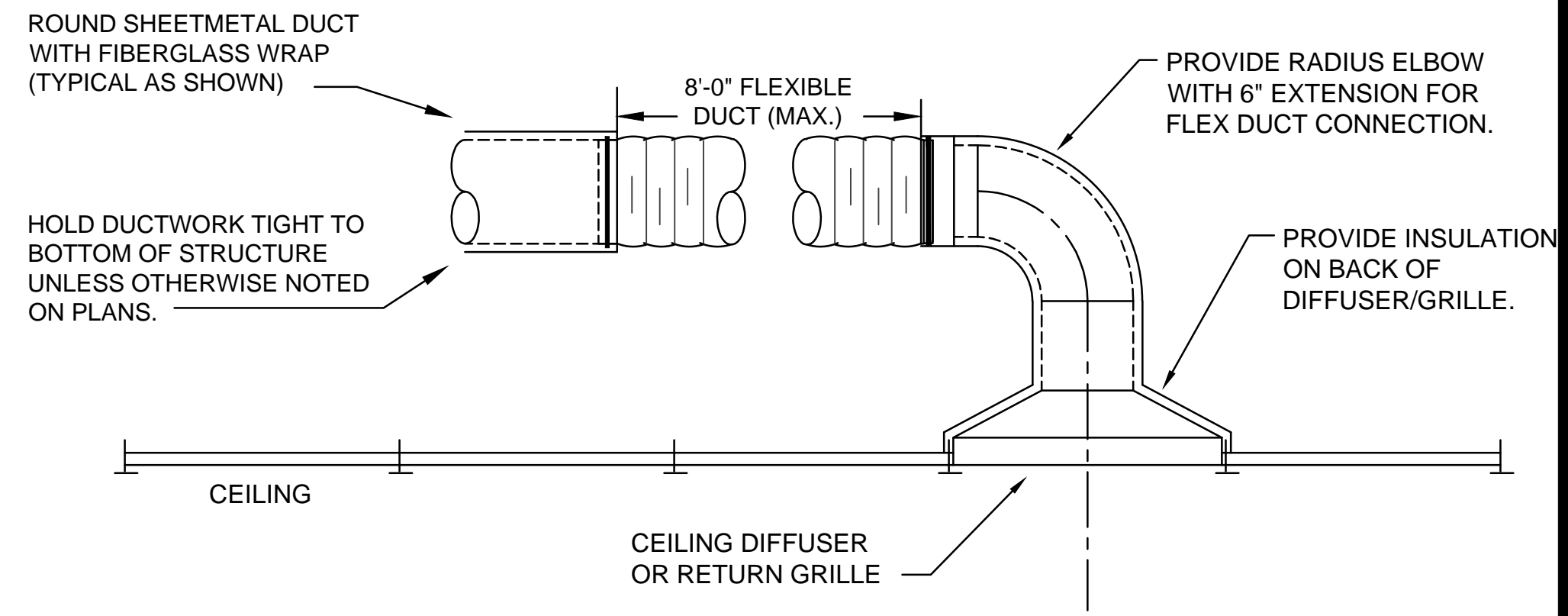


CONDENSATE LINE HANGER DETAIL
NO SCALE



SEISMIC GAS PIPE SUPPORT DETAIL
NO SCALE

- GENERAL NOTES:**
- SUPPORT SHEETMETAL AND FLEXIBLE DUCTWORK PER SMACNA STANDARDS.
 - OVERLAP FLEXIBLE DUCTWORK MINIMUM 4" OVER SHEETMETAL DUCTWORK. SECURE LINER WITH ZIP TIE. STAPLE GLASS FABRIC TAPE TO DUCT WRAP AND MASTIC IN ORDER TO SEAL FLEXIBLE DUCTWORK.



TYPICAL ROUND DUCT RUNOUT DETAIL
NO SCALE

REVISIONS

No.	Date	Description

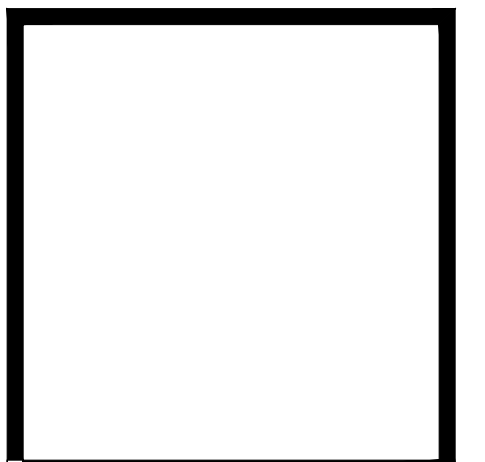
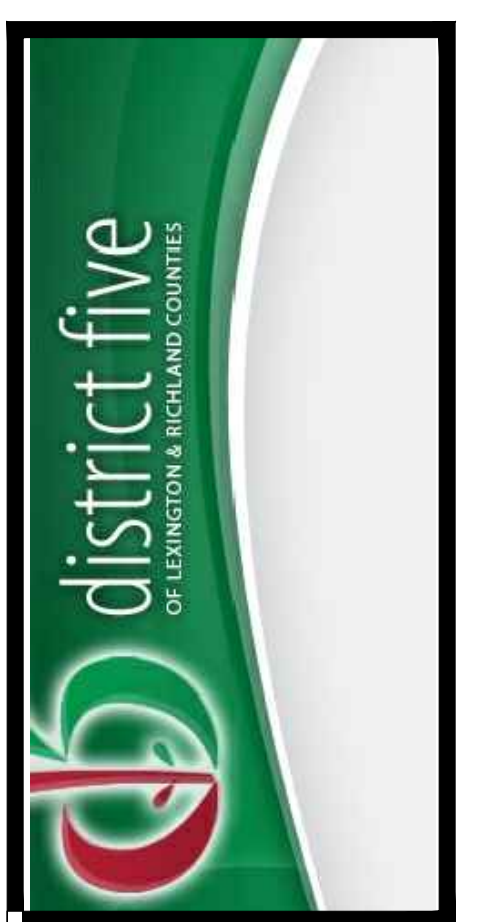
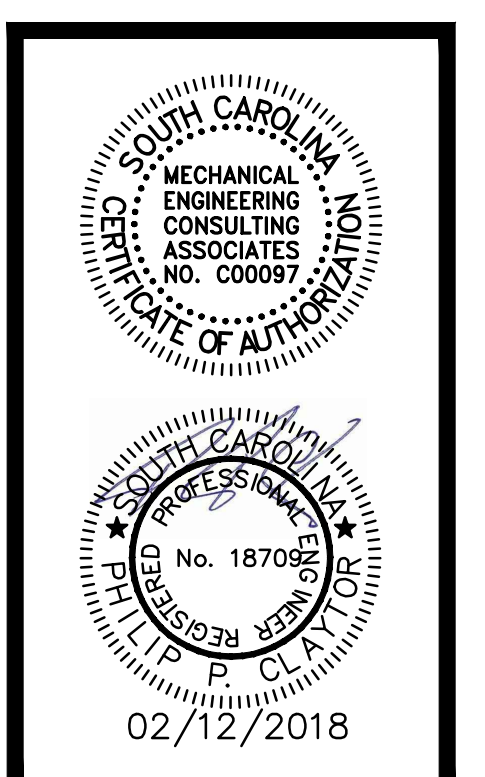
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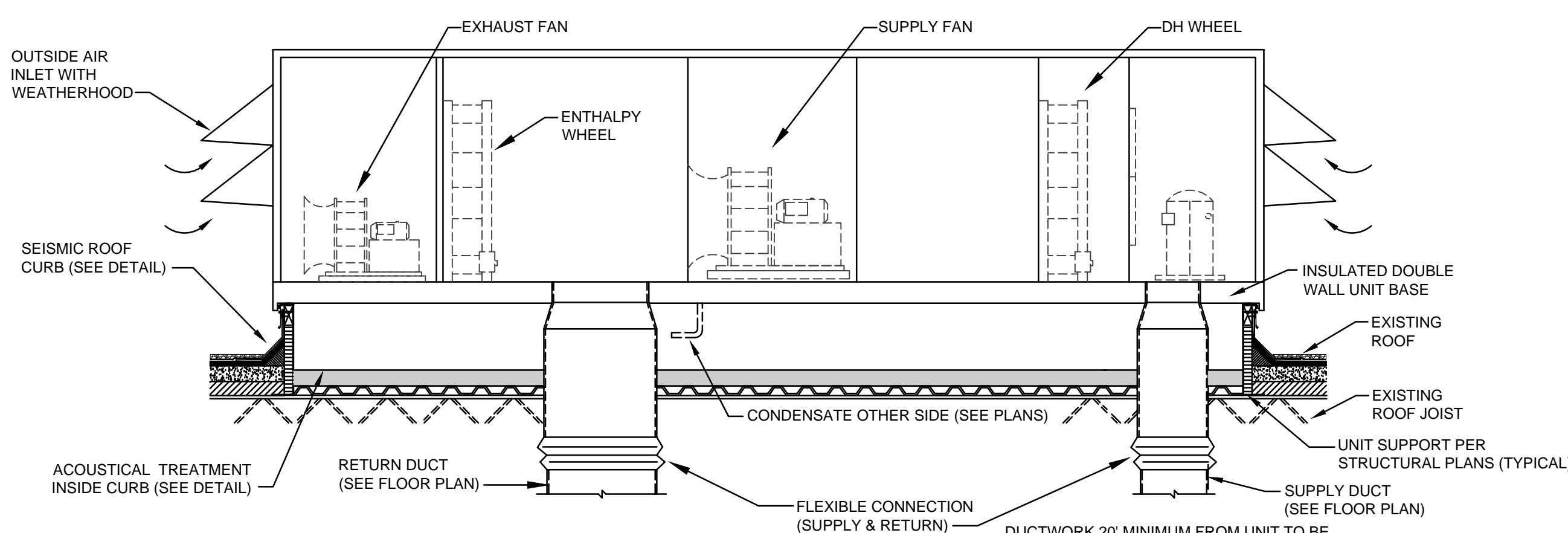
**LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III**

Sheet Title
MECHANICAL DETAILS

Sheet No.
 of **M-101**
 Project No.
114211.02

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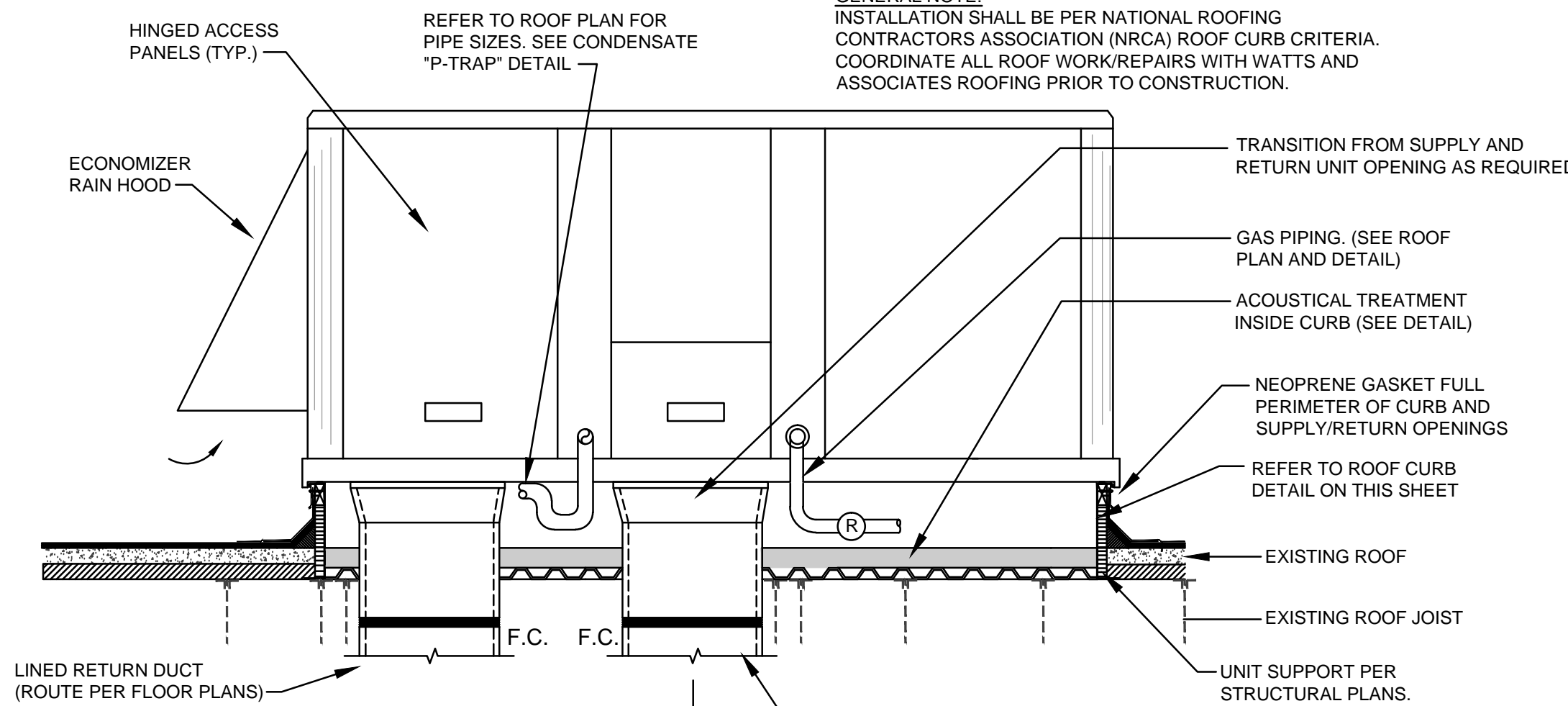
MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ROOF FLASHING AND REPAIRS. COORDINATE ROOF BOND REQUIREMENTS WITH OWNER AND WATTS AND ASSOCIATES ROOFING.



ROOF MOUNTED DEDICATED OUTSIDE AIR UNIT
NO SCALE

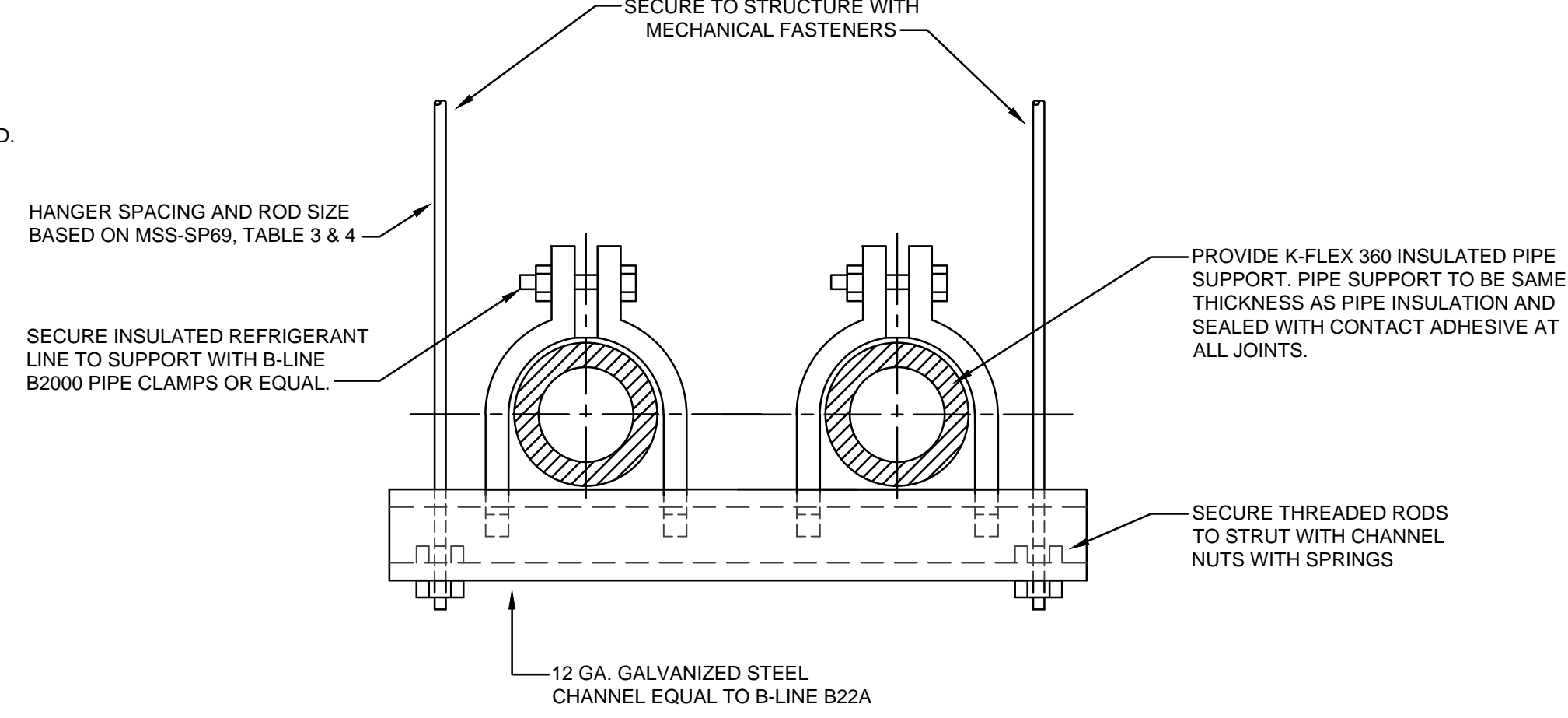
GENERAL NOTE:
INSTALLATION SHALL BE PER NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA) ROOF CURB CRITERIA. COORDINATE ALL ROOF WORK/REPAIRS WITH WATTS AND ASSOCIATES ROOFING PRIOR TO CONSTRUCTION.

NOTE:
UNITS TO HAVE FACTORY CONDENSATE OVERFLOW SWITCH OR RESOURCE CONSERVATION TECHNOLOGIES (www.rctus.com) MODEL 3180E ELECTRONIC OVERFLOW SENSOR MOUNTED DIRECTLY TO THE PRIMARY DRAIN PAN.

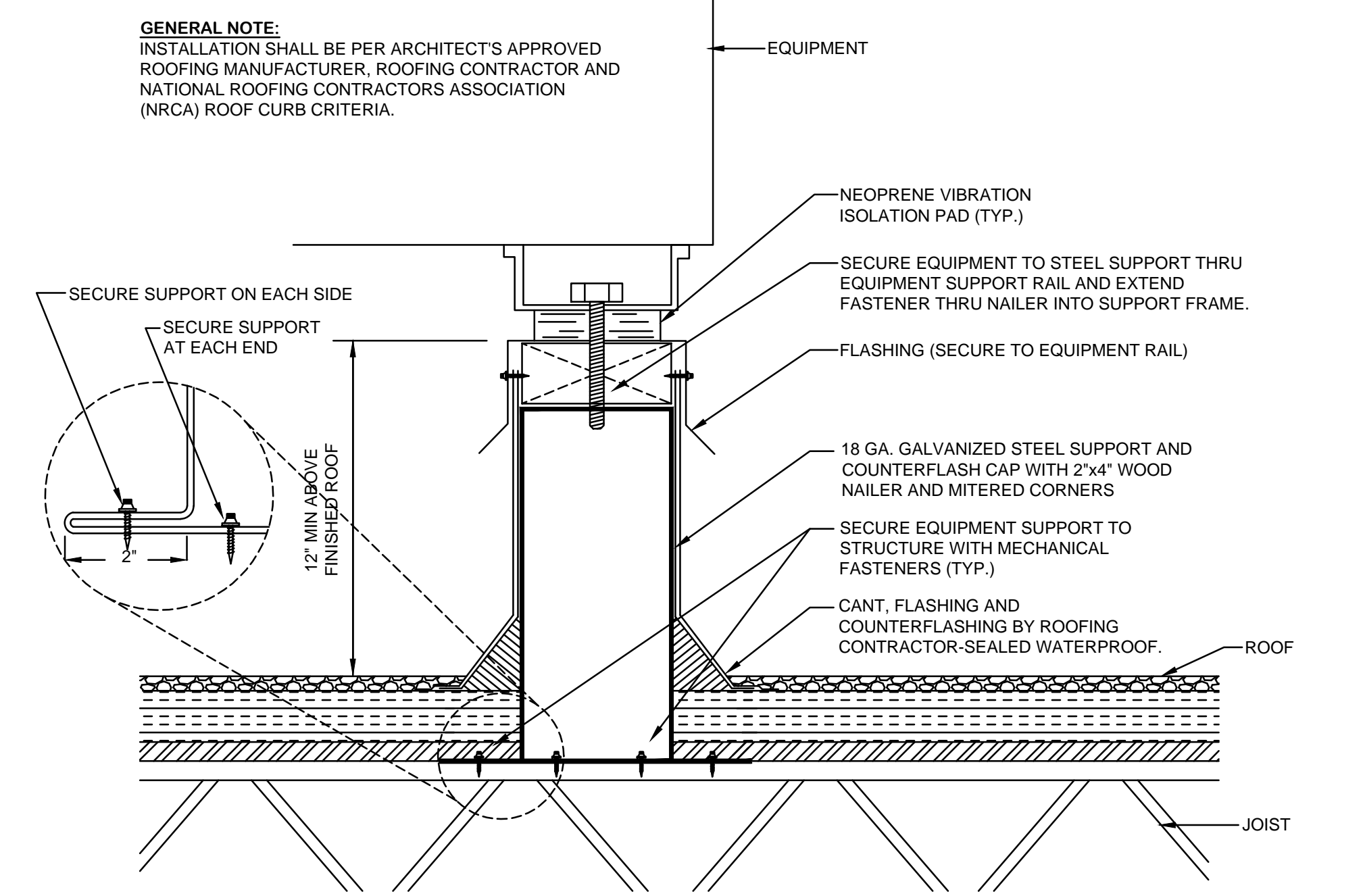


ROOFTOP GAS PACK DETAIL
NO SCALE

GENERAL NOTE:
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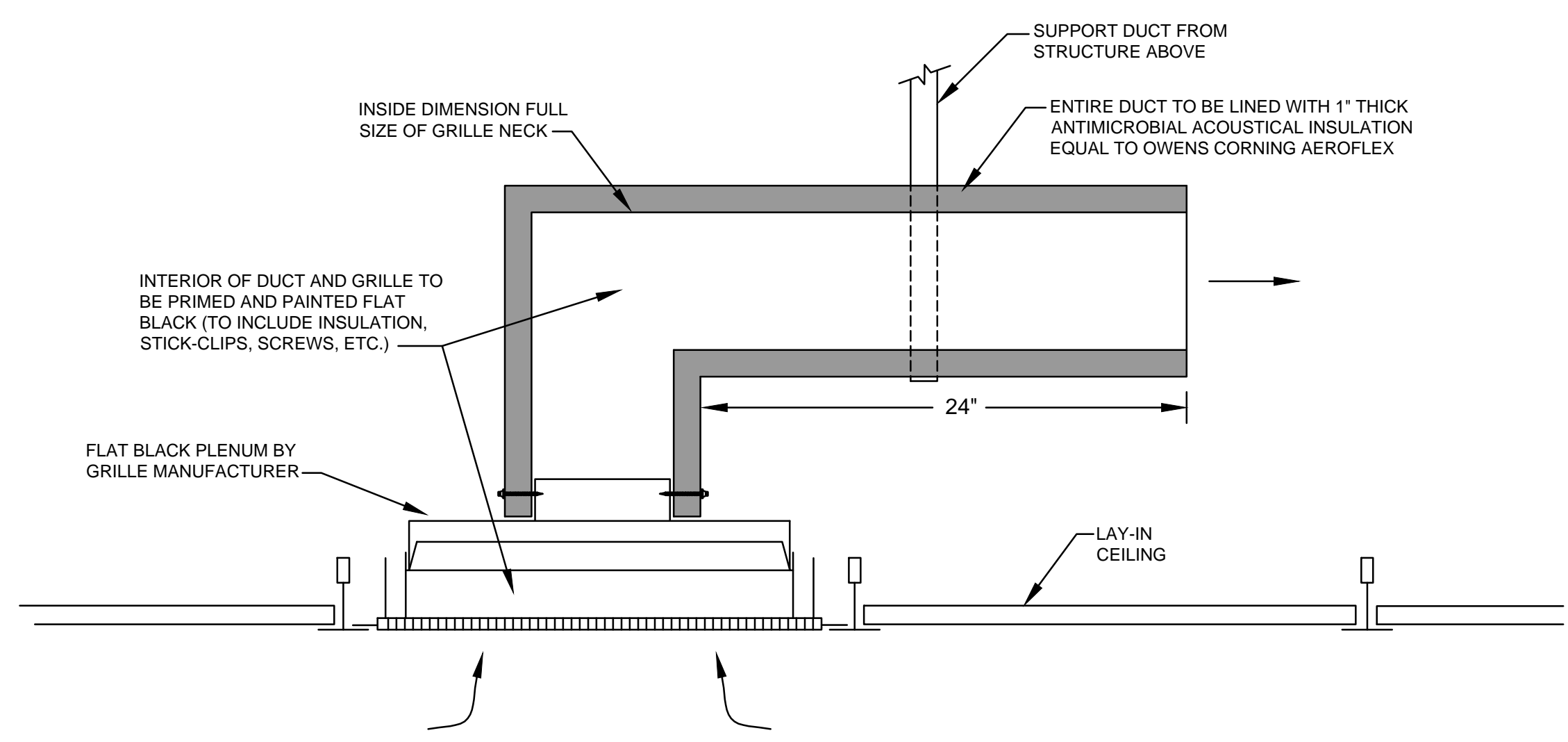


REFRIGERANT PIPE CHANNEL SUPPORT DETAIL
NO SCALE

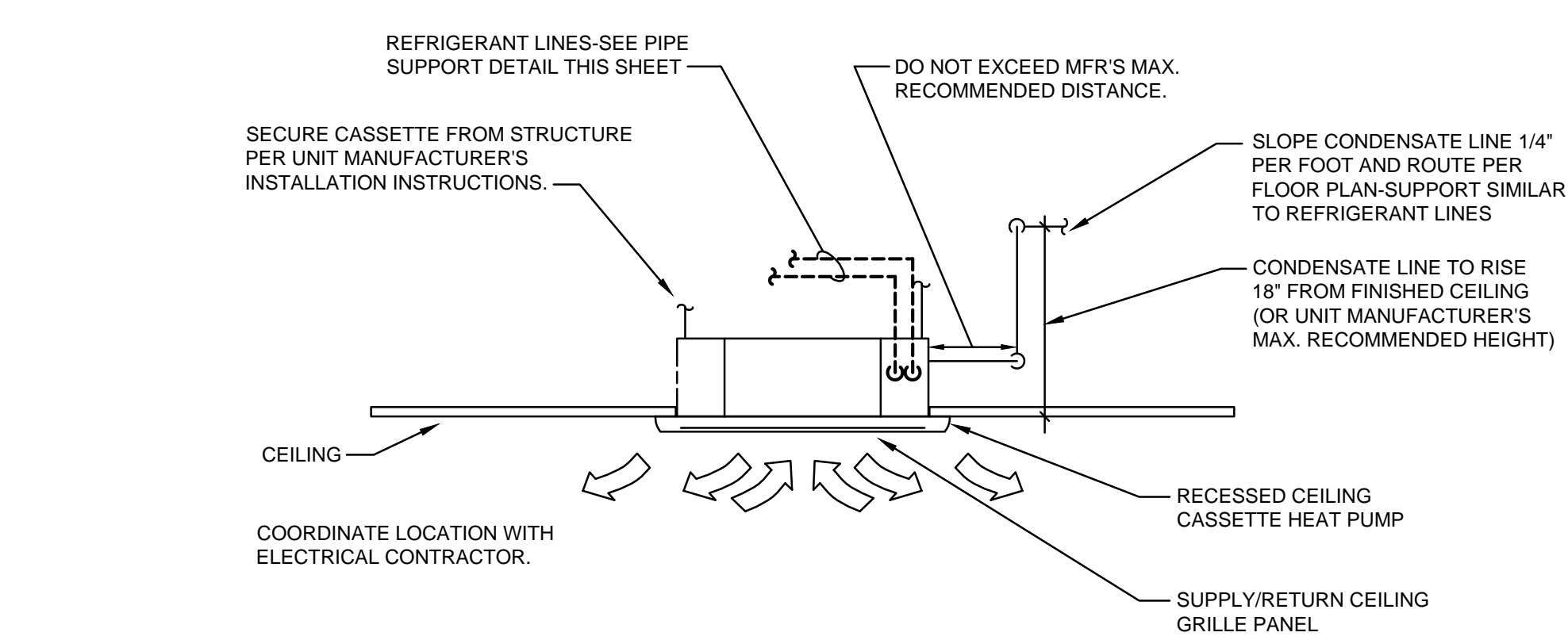


CEILING CASSETTE AIR HANDLER
NO SCALE

GENERAL NOTE:
INSTALLATION SHALL BE PER ARCHITECT'S APPROVED ROOFING MANUFACTURER, ROOFING CONTRACTOR AND NATIONAL ROOFING CONTRACTORS ASSOCIATION (NRCA) ROOF CURB CRITERIA.

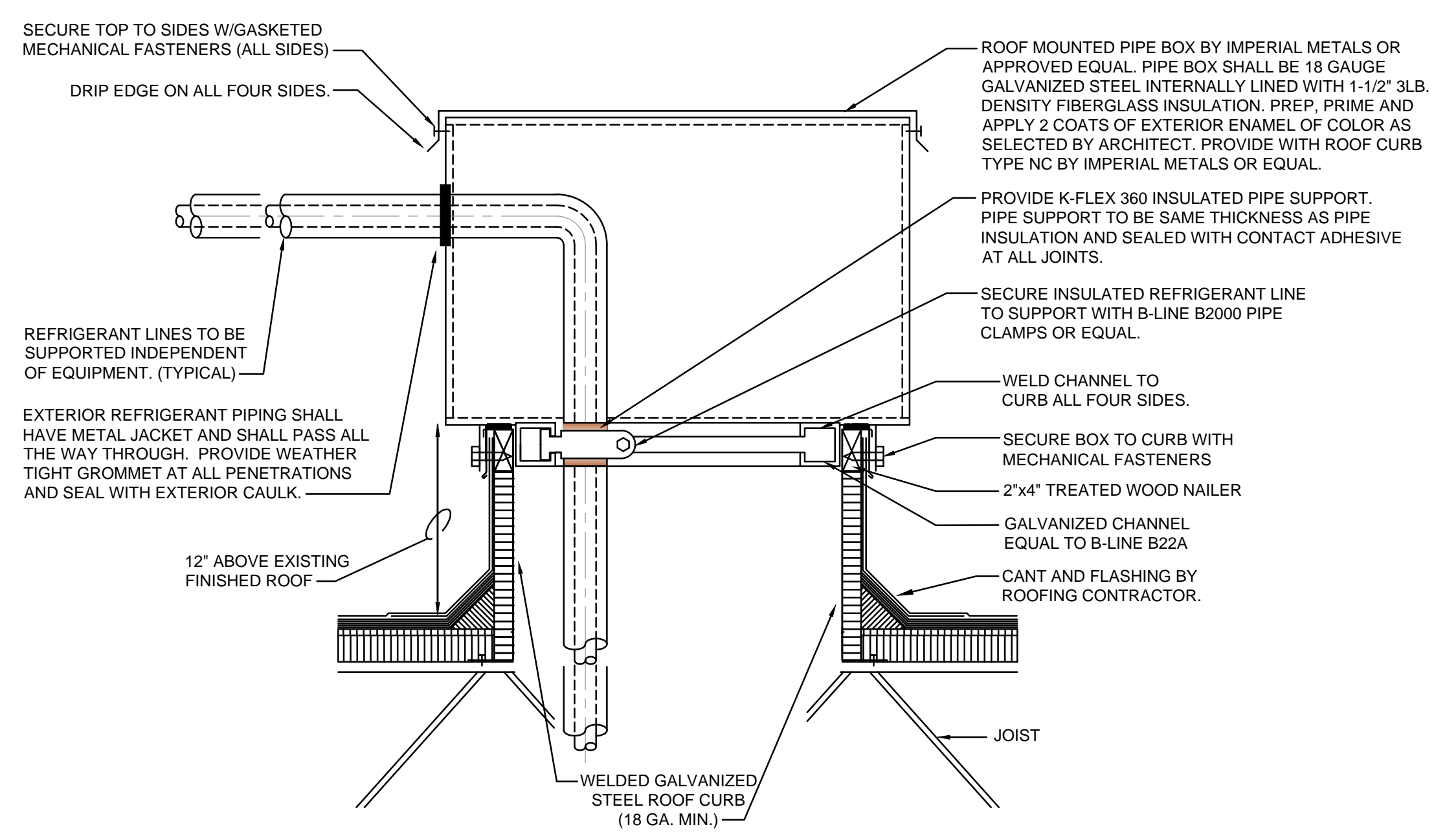


CEILING RETURN AIR GRILLE SOUND TRAP
NO SCALE

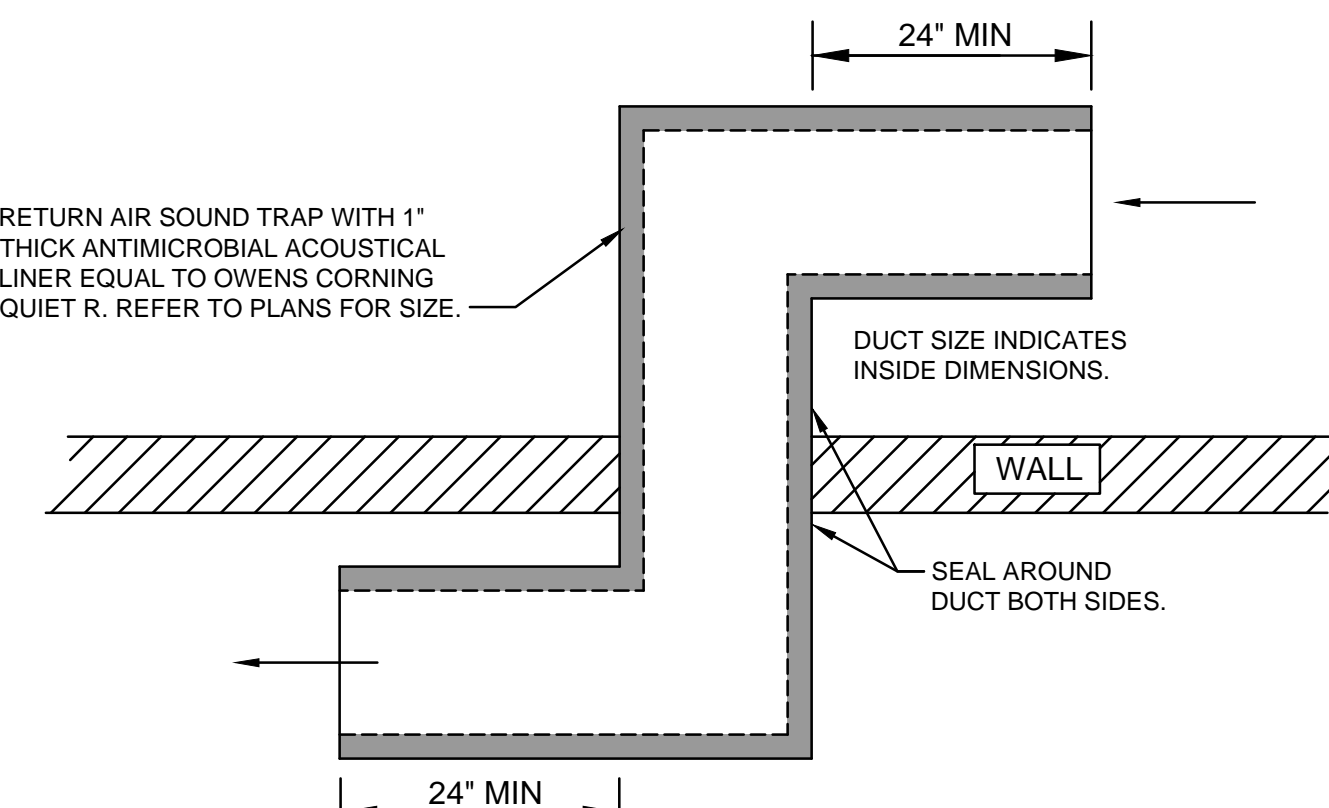


"Z" DUCT SOUND TRAP DETAIL
NO SCALE

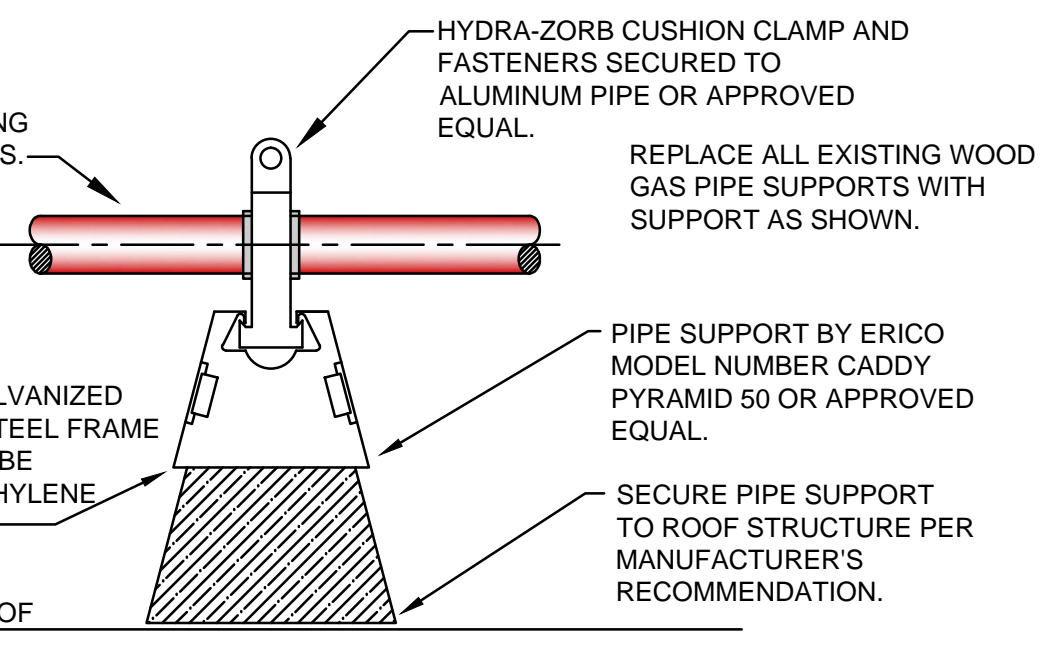
EQUIPMENT SUPPORT RAIL DETAIL
NO SCALE



REFRIGERANT LINE ROOF PENETRATION DETAIL
NO SCALE

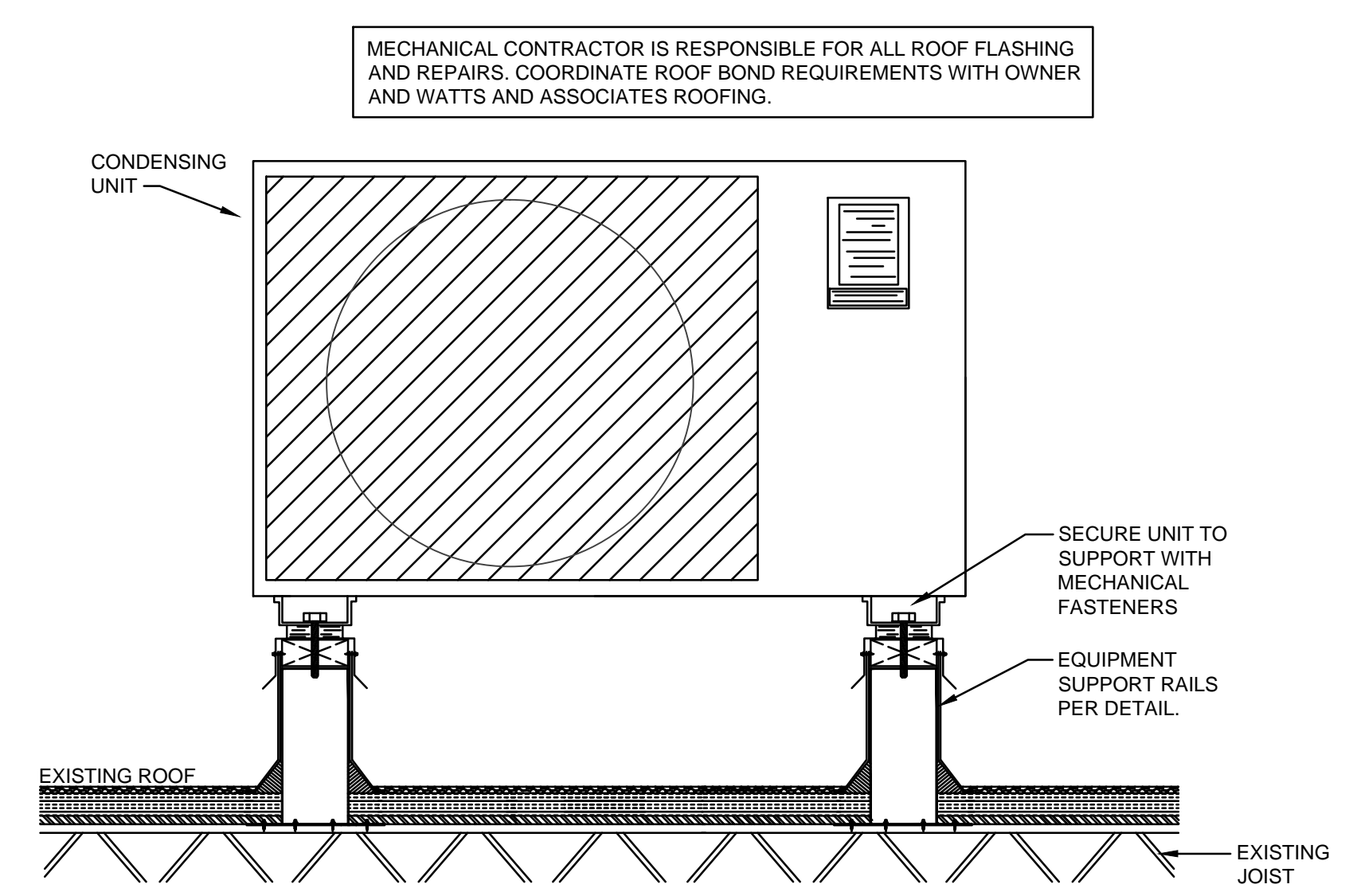


CONDENSATE PIPE SUPPORT DETAIL
NO SCALE



CONDENSATE "P-TRAP" DETAIL
NO SCALE

H = TWO PIPE DIAMETERS
J = SCHEDULE FAN STATIC + 1'
L = H + J + ONE PIPE DIAMETER



CONDENSING UNIT SUPPORT DETAIL
NO SCALE

MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL ROOF FLASHING AND REPAIRS. COORDINATE ROOF BOND REQUIREMENTS WITH OWNER AND WATTS AND ASSOCIATES ROOFING.

REVISIONS		
No.	Date	Description

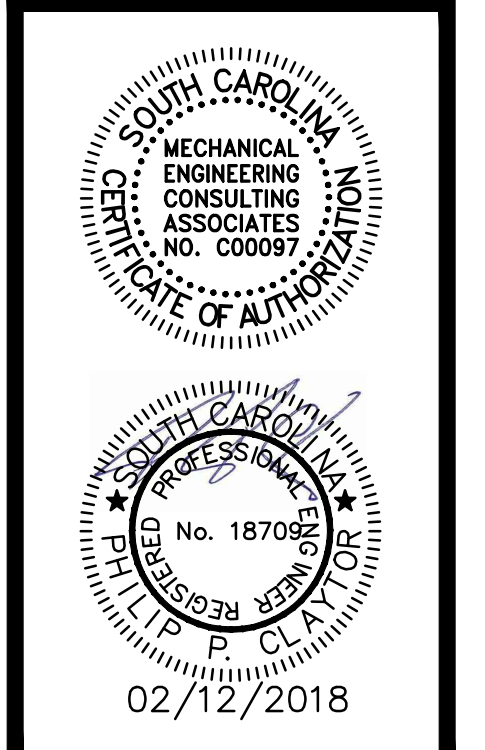
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LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III
MECHANICAL DETAILS

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MODULAR FAN PACKAGE SCHEDULE (ALTERNATE #2)

SYMBOL	MFP-1	
MANUFACTURER	GREENHECK	
MODEL NUMBER	IGX-115-H22	
KITCHEN SUPPLY FAN	AIRFLOW (CFM)	7000
	TOT. SP (IN)	1.5
	EXT. SP (IN)	1.0
	HORSEPOWER	7.5
	R.P.M.	1050
	VOLTAGE	460/3/60
	M.C.A./M.O.P.	25.1/30
	SONES	35
	WEIGHT	1900
	TYPE	NATURAL
INDIRECT GAS HEAT	INPUT (MBH)	600
	OUTPUT (MBH)	480
KITCHEN EXHAUST FAN	LAT (°F)	83.5
	TEMP RISE (°F)	63.5
KITCHEN EXHAUST FAN	MODEL NUMBER	CUBE-300HP-50
	AIRFLOW (CFM)	7500
	TOT. SP (IN)	2.0
	HORSEPOWER	5
	R.P.M.	1725
	VOLTAGE	460/3/60
	SONES	23
WEIGHT	250	

REMARKS:

- PRIOR TO ORDERING, CONTRACTOR SHALL VERIFY VOLTAGE WITH ELECTRICAL CONTRACTOR
- ELECTRICAL CONTRACTOR TO PROVIDE DISCONNECT FOR KEF AND MUF FANS.
- BIRD SCREEN WEATHERHOOD SUPPLIED WITH UNIT. INSTALLED IN FIELD -INLET DAMPER (VCD-23) MOTORIZED DAMPER SUPPLIED BY UNIT MFG
- INTERLOCK FANS TO EXISTING CONTROLS.
- PROVIDE WITH SEISMIC RATED ROOF CURB SLOPED AS REQUIRED TO PROVIDE LEVEL INSTALLATION (SHIM NOT ALLOWED).
- KEF-1 SHALL BE UL 705 AND UL 762 LISTED FOR KITCHEN APPLICATIONS. EQUIPMENT AND INSTALLATION TO COMPLY WITH NFPA 96 AND MEET UL REQUIREMENTS. PROVIDE WITH DISCONNECT, DRAIN, HINGED CURB CAP WITH CABLES, VENTED CURB EXTENSION AND ACCESS PANEL.
- COORDINATE ALL INTAKE FAN LOCATIONS TO MAINTAIN 10'-0" SEPARATION FROM ANY EXHAUST, VENT, OR PLUMBING VENT.
- VERIFY KITCHEN HOOD AIRFLOWS IN FIELD PRIOR TO ORDERING EQUIPMENT.

FAN SCHEDULE (ALTERNATE #2)

SYMBOL	DWF-1
MANUFACTURER	GREENHECK
MODEL NUMBER	CUE-099-VG
AIRFLOW (C.F.M.)	700
STATIC PRESSURE (IN.)	.75
SONES (MAX.)	8.8
MOTOR HORSEPOWER	FRACT.
FAN R.P.M.	1532
VOLTAGE	115/1/60
DRIVE TYPE	DIRECT
ROOF/WALL OPENING SIZE (IN.)	14.5x14.5
OPERATION	EXHAUST
DAMPER SIZE (IN.)	19x19
WEIGHT (EXCLUDING CURB) (LBS.)	40

REMARKS:

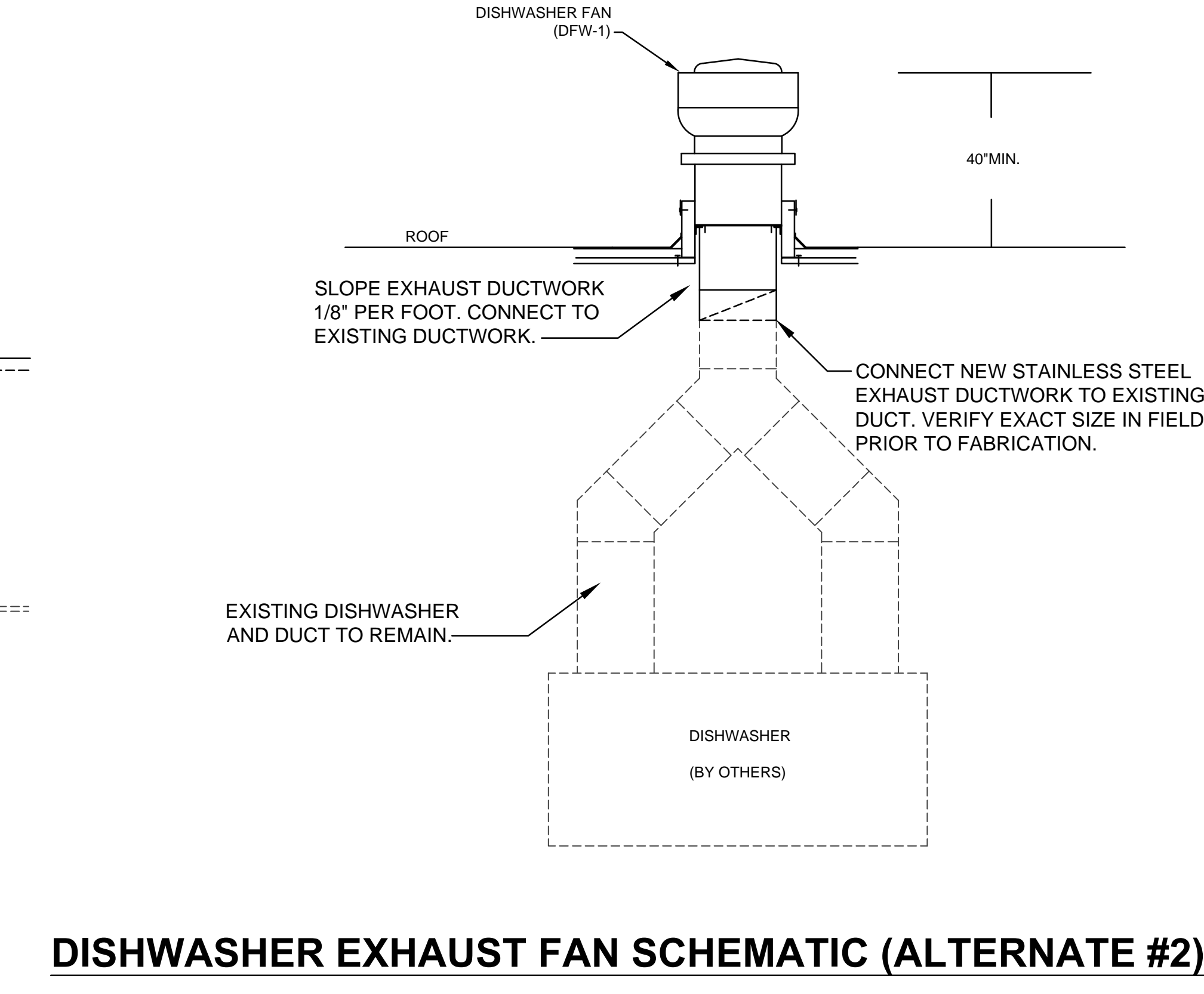
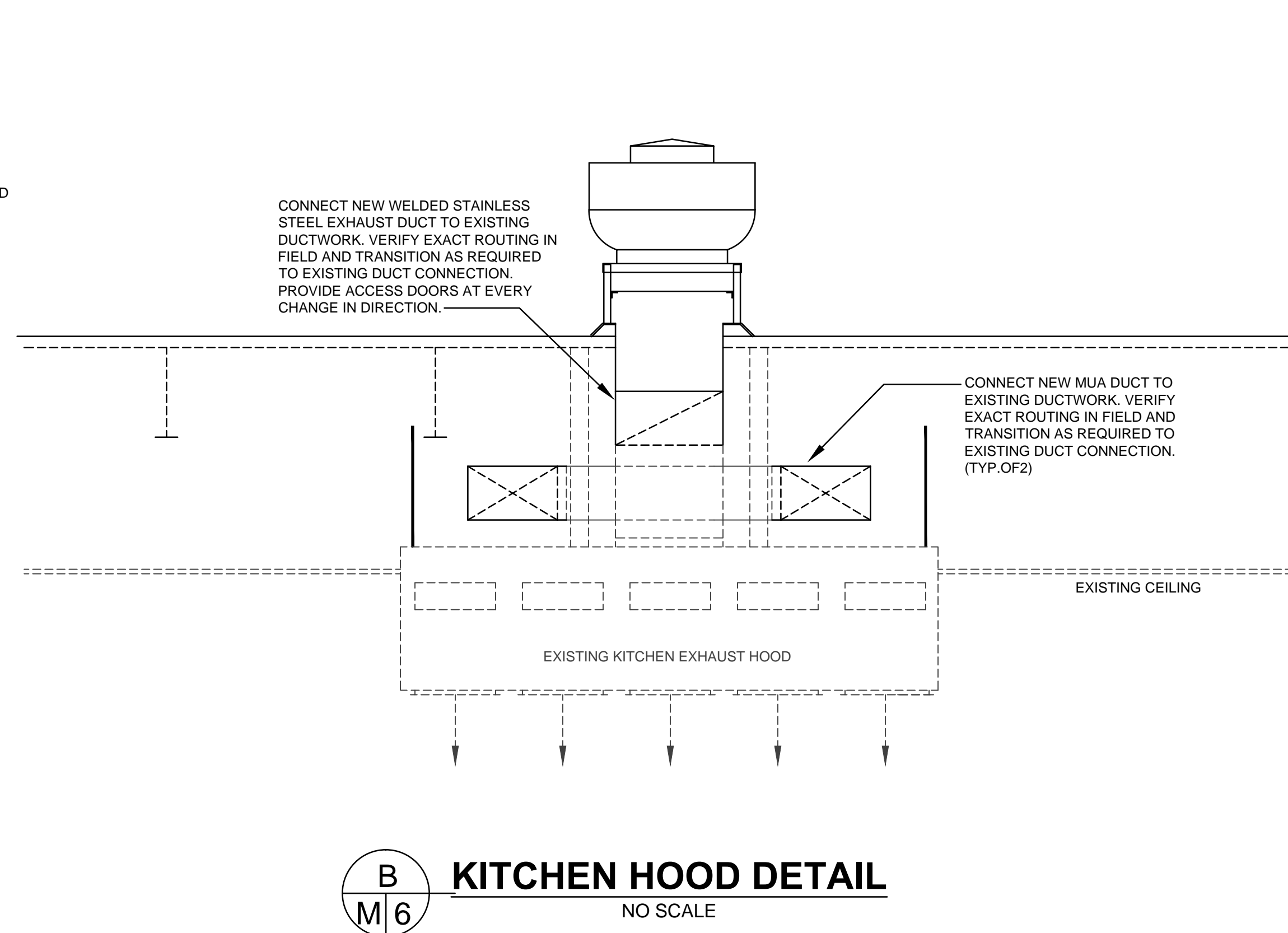
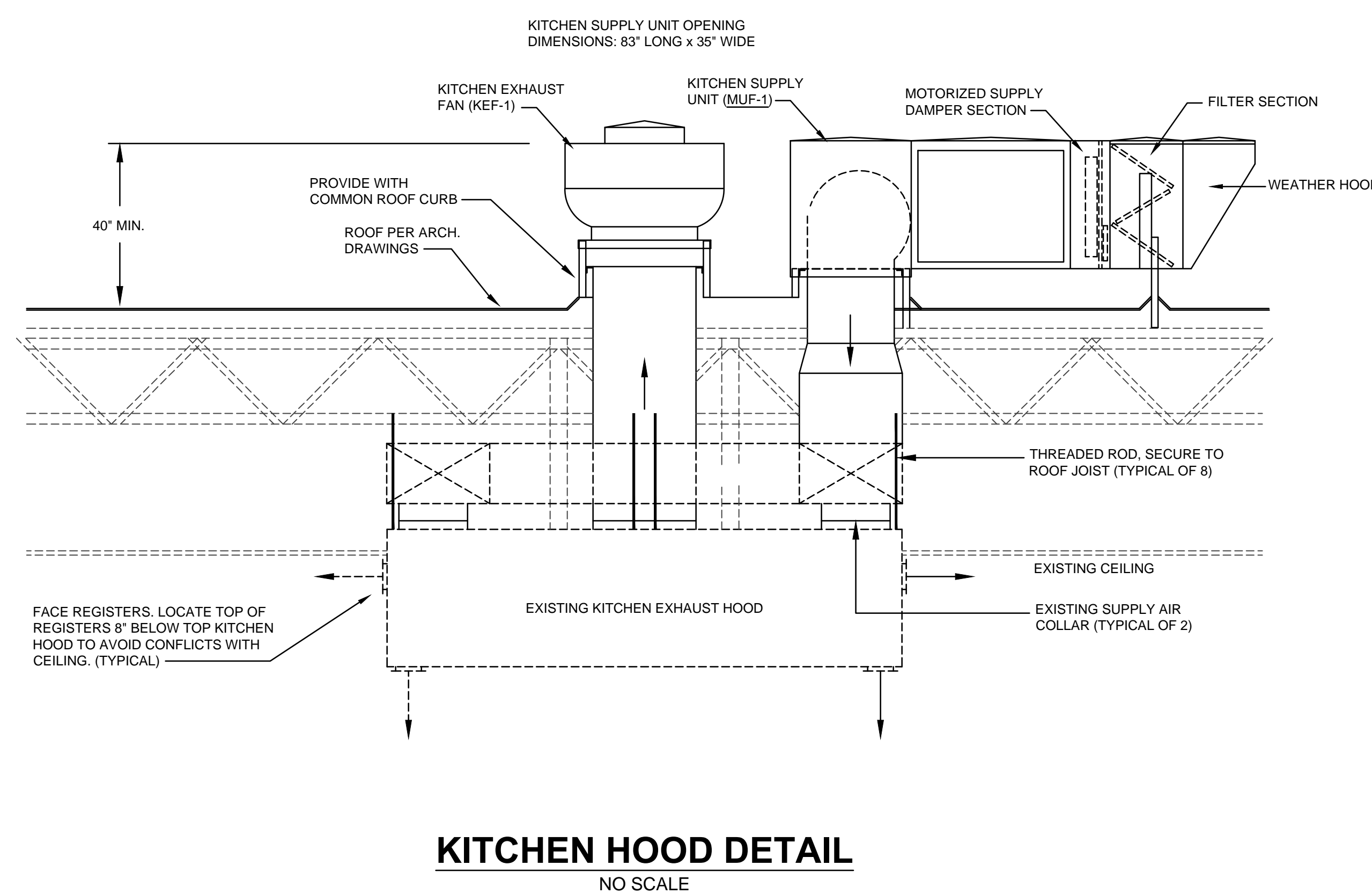
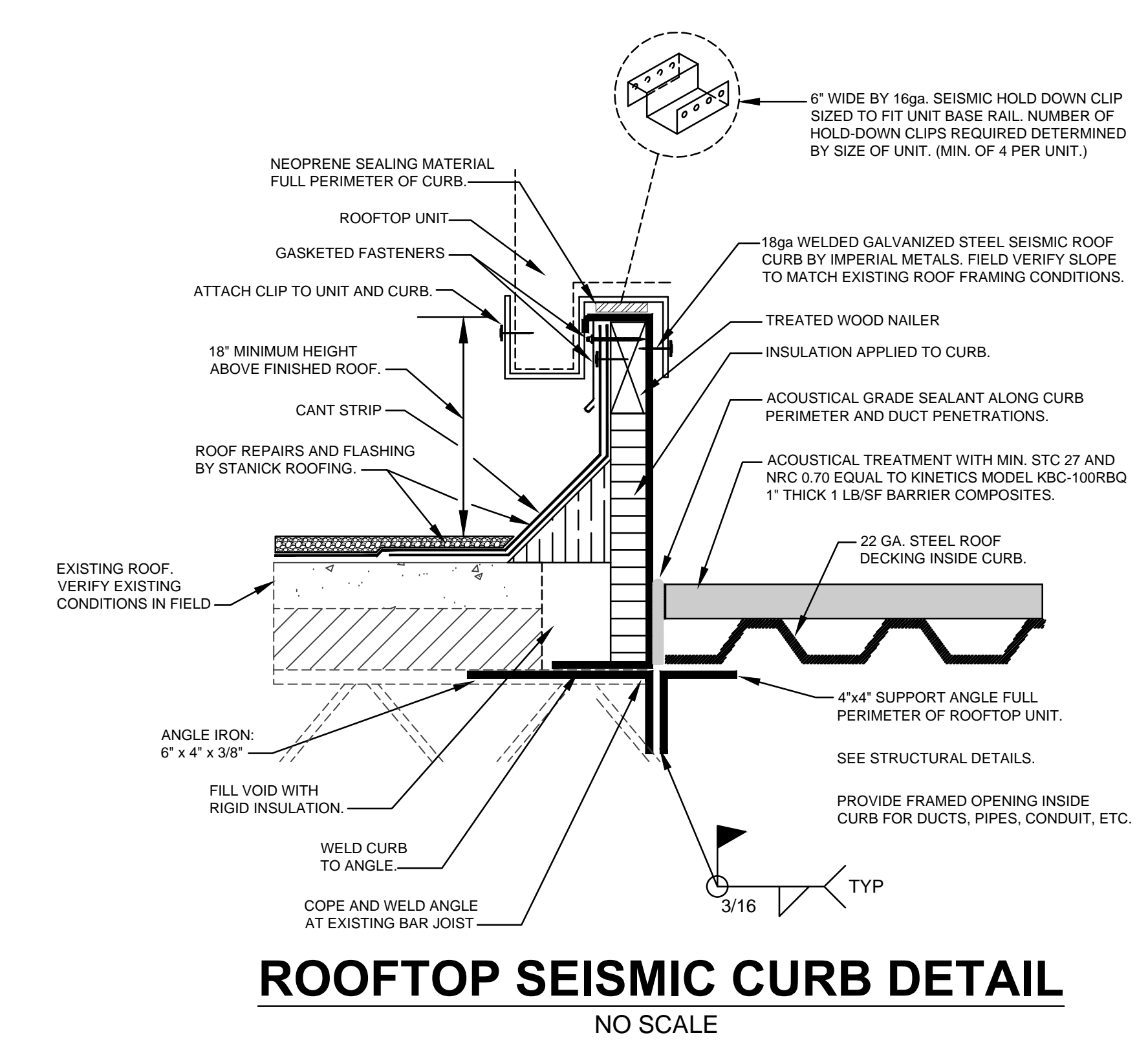
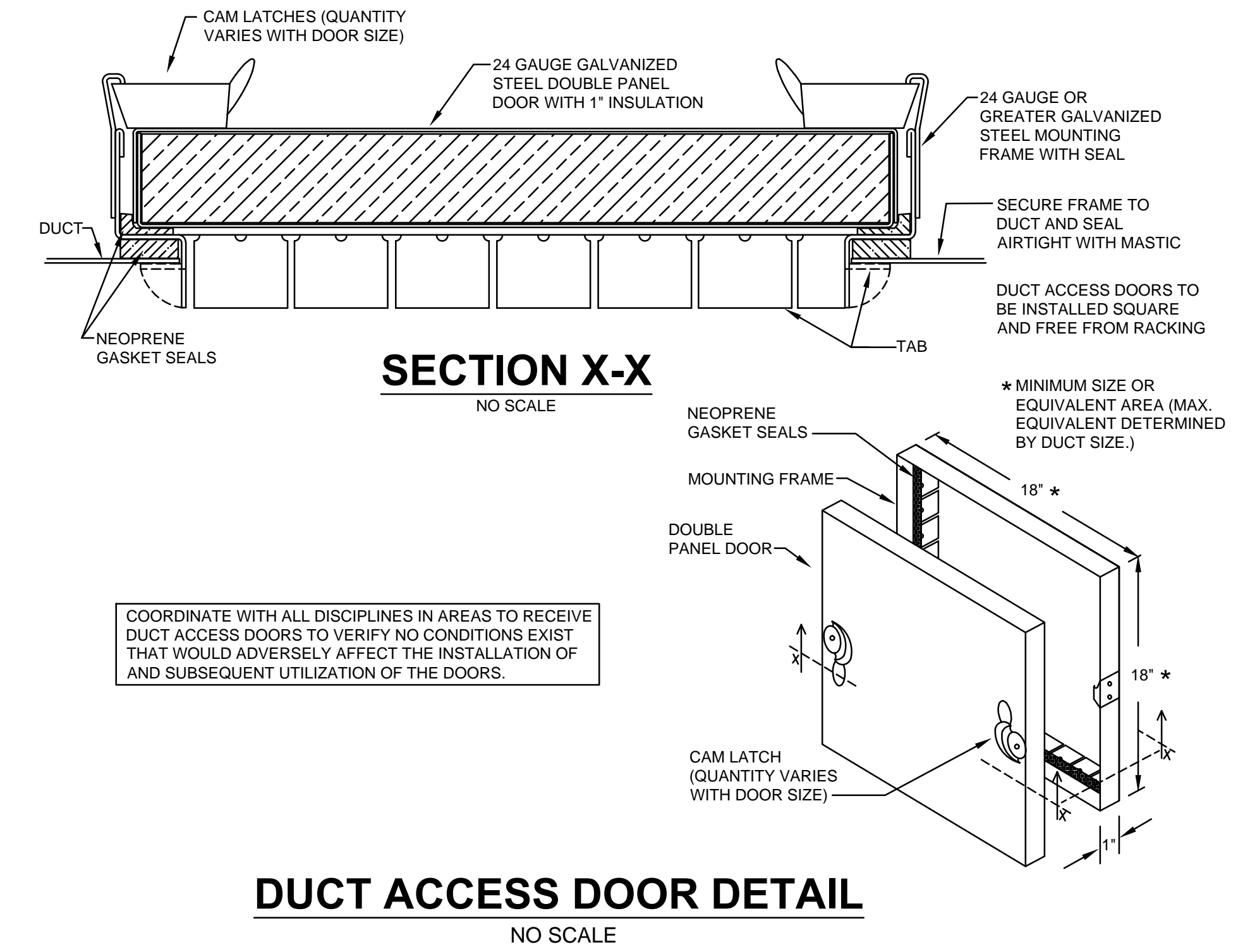
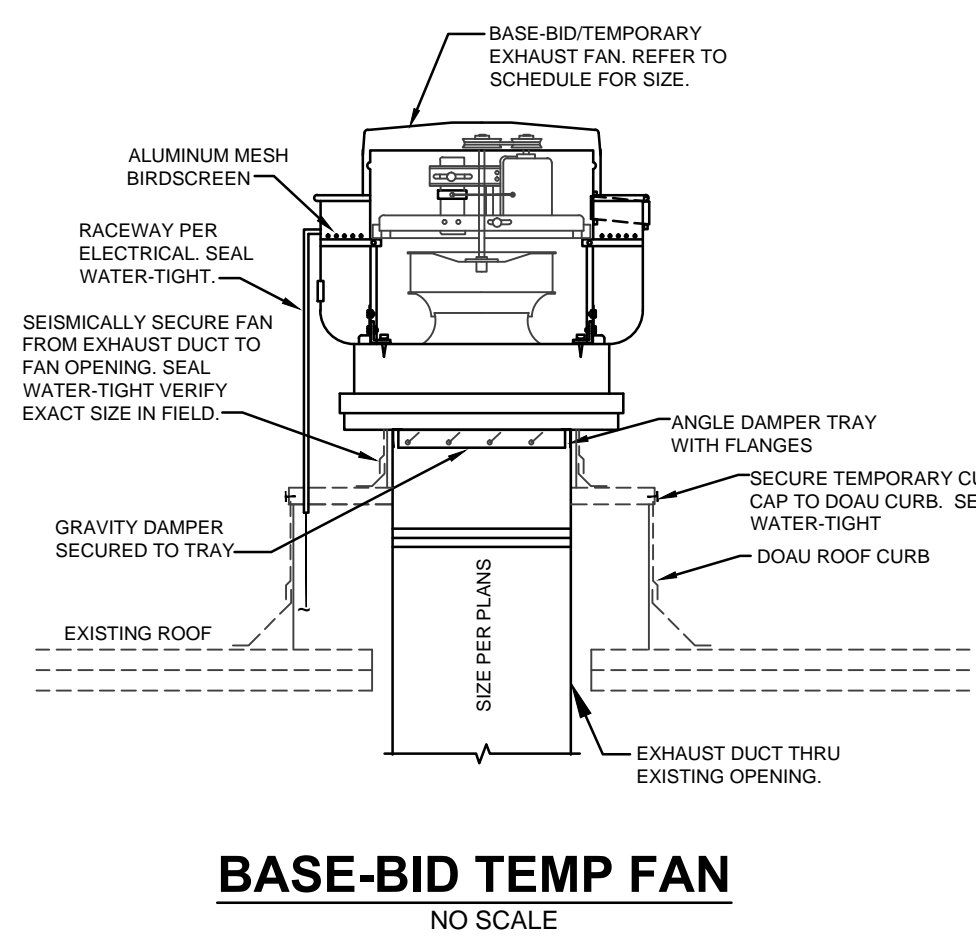
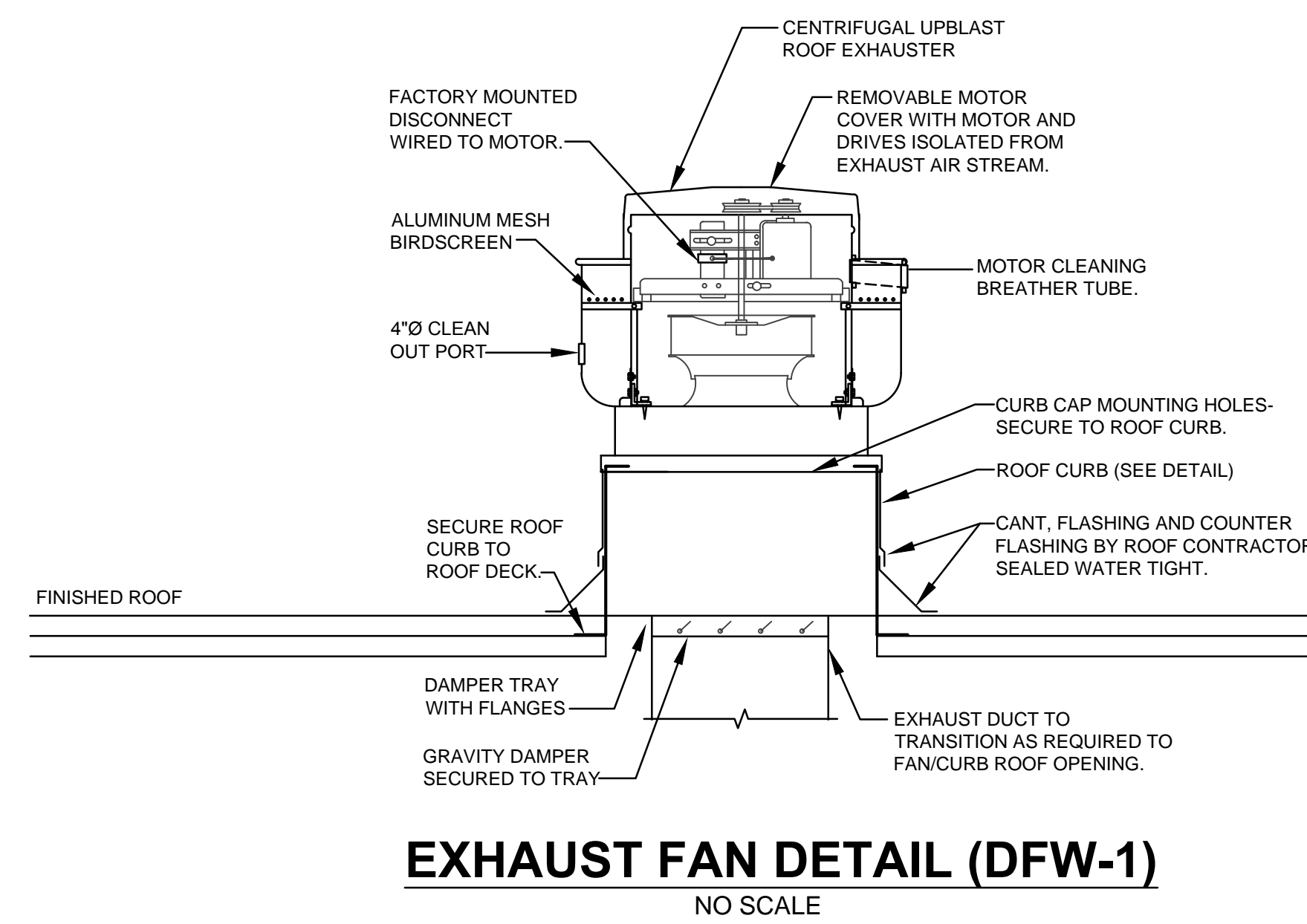
- *PRIOR TO ORDERING, CONTRACTOR SHALL VERIFY VOLTAGE, ALL ELECTRICAL REQUIREMENTS AND CONFIRM DISCONNECTS ARE PROVIDED BY ELECTRICAL CONTRACTOR.
- ALL REF FANS UNLESS OTHERWISE NOTED TO BE ON BUILDING MANAGEMENT SYSTEM.
- PROVIDE ALL FANS WITH SOLID STATE SPEED CONTROLLER.
- DWF-1 TO INTERLOCK BACK TO EXISTING CONTROLS

TEMP FAN SCHEDULE (BASE-BID)

SYMBOL	BBEF-1
MANUFACTURER	GREENHECK
MODEL NUMBER	GB-180-7
AIRFLOW (C.F.M.)	2800
STATIC PRESSURE (IN.)	.75
SONES (MAX.)	11.5
MOTOR HORSEPOWER	3/4
FAN R.P.M.	975
VOLTAGE	115/1/60
DRIVE TYPE	BELT
ROOF/WALL OPENING SIZE (IN.)	20.5x20.5
OPERATION	DOAU EXH
WEIGHT (EXCLUDING CURB) (LBS.)	110

REMARKS:

- *PRIOR TO ORDERING, CONTRACTOR SHALL VERIFY VOLTAGE, ALL ELECTRICAL REQUIREMENTS AND CONFIRM DISCONNECTS ARE PROVIDED BY ELECTRICAL CONTRACTOR.
- FAN CONTROLLED BY TIMELOCK



REVISIONS		
No.	Date	Description

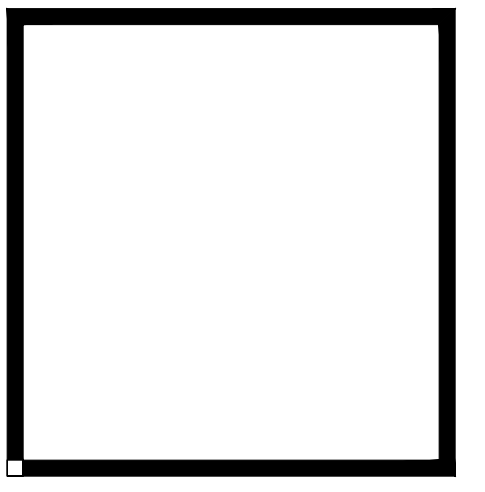
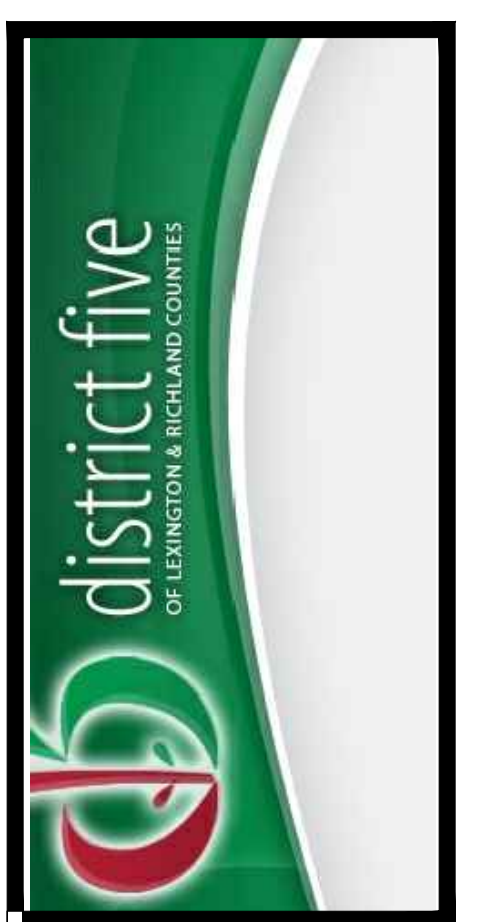
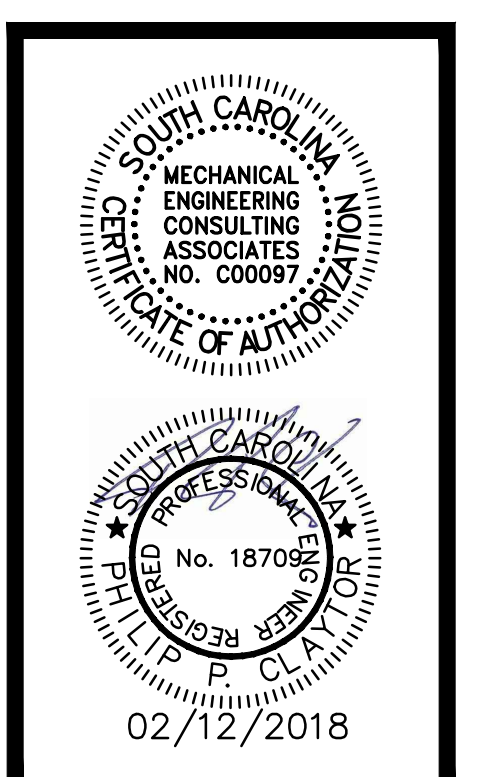
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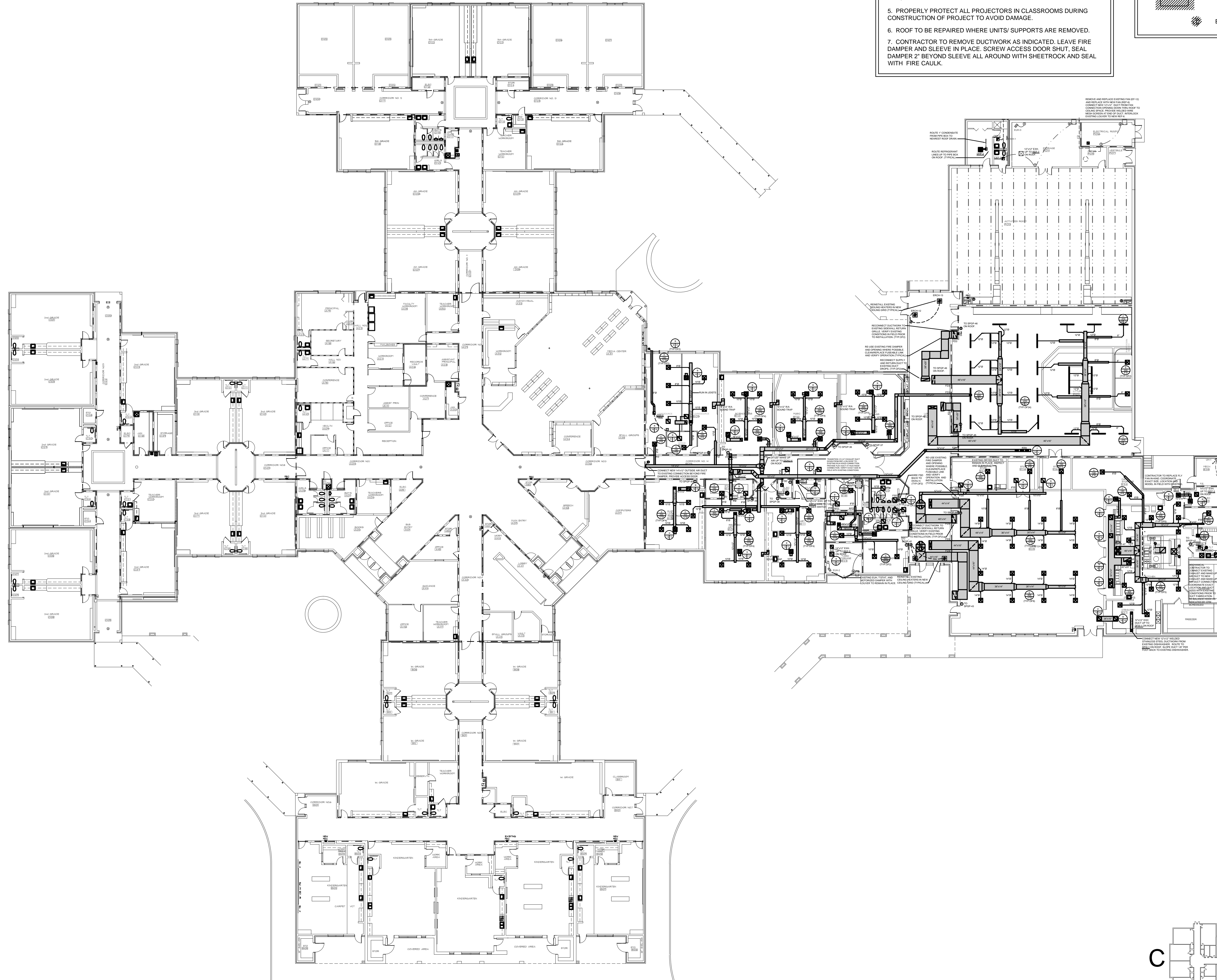
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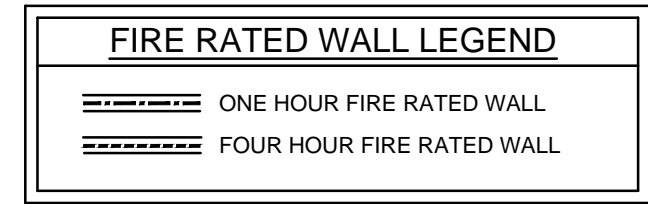
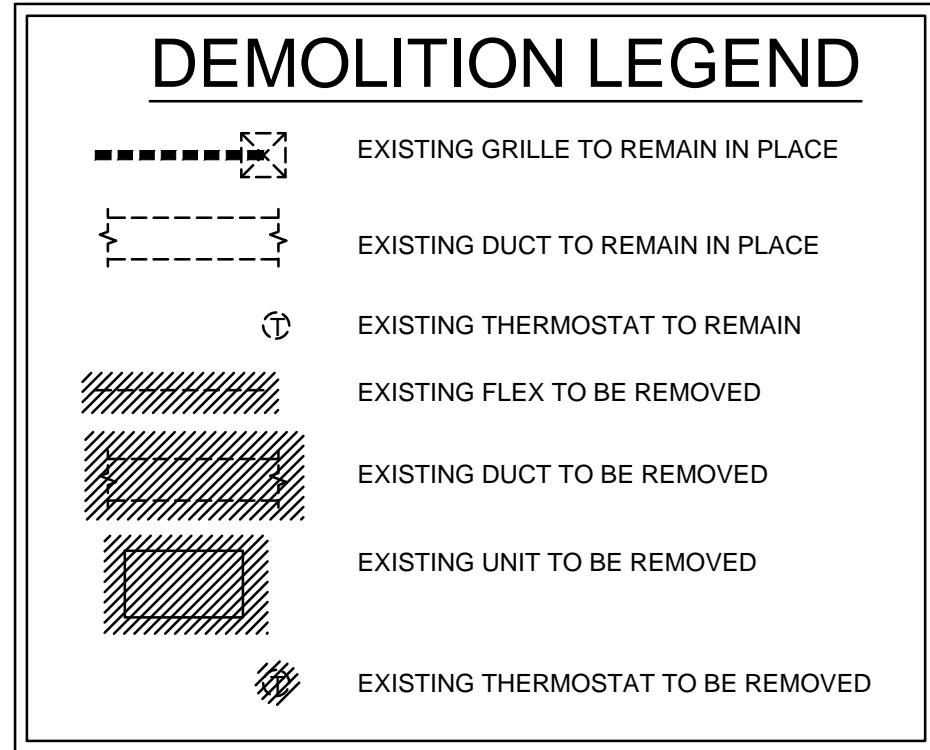
LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 MECHANICAL DETAILS

Sheet No. M-103
 of M-103
 Project No. 114211.02

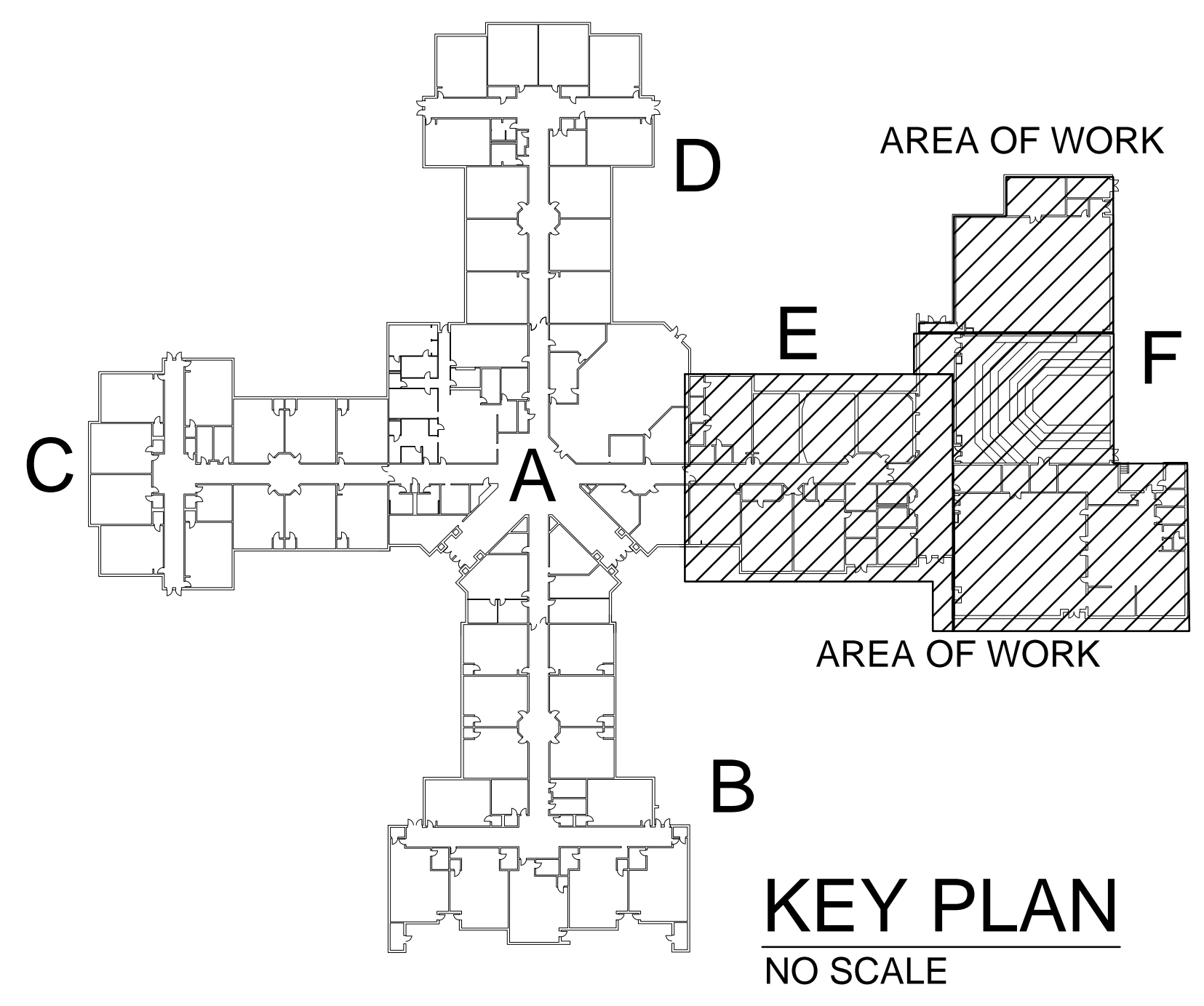
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- GENERAL NOTES:**
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 - MECHANICAL CONTRACTOR TO COMPLETELY REMOVE ALL INDICATED DUCT SYSTEMS, EQUIPMENT, CURSS, AND PIPING INCLUDING ALL ASSOCIATED SUPPORT STEEL NECESSARY TO INSTALL NEW EQUIPMENT. DISPOSITION OF EQUIPMENT TO BE AS DIRECTED BY DISTRICT AND ESTABLISHED PRIOR TO THE START OF DEMOLITION.
 - REMOVE ALL EXISTING DUCTWORK AND ASSOCIATED AIR DISTRIBUTION (TYPICAL)
 - EXISTING DUCT TO REMAIN. REMOVE/REPLACE CEILING DIFFUSERS AS INDICATED.
 - PROPERLY PROTECT ALL PROJECTORS IN CLASSROOMS DURING CONSTRUCTION OF PROJECT TO AVOID DAMAGE.
 - ROOF TO BE REPAIRED WHERE UNITS/ SUPPORTS ARE REMOVED.
 - CONTRACTOR TO REMOVE DUCTWORK AS INDICATED. LEAVE FIRE DAMPER AND SLEEVE IN PLACE. SCREW ACCESS DOOR SHUT, SEAL DAMPER 2" BEYOND SLEEVE ALL AROUND WITH SHEETROCK AND SEAL WITH FIRE CAULK.



OVERALL MECHANICAL DEMOLITION PLAN
SCALE: 1"=20'-0"



REVISIONS		
No.	Date	Description

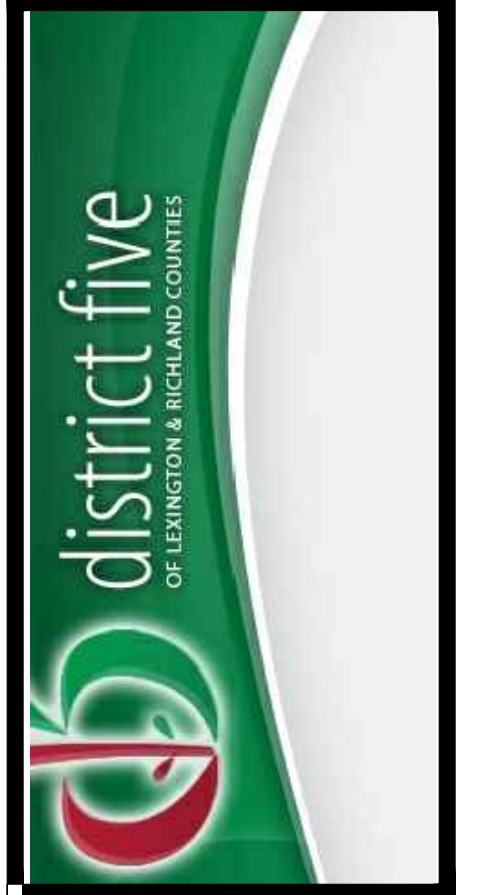
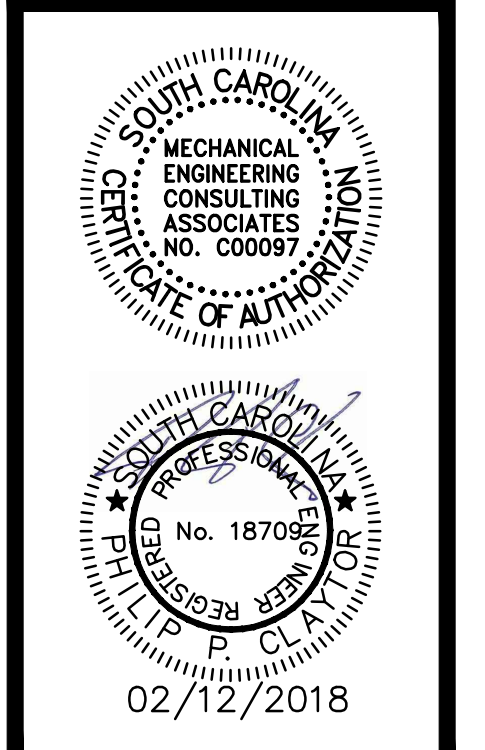
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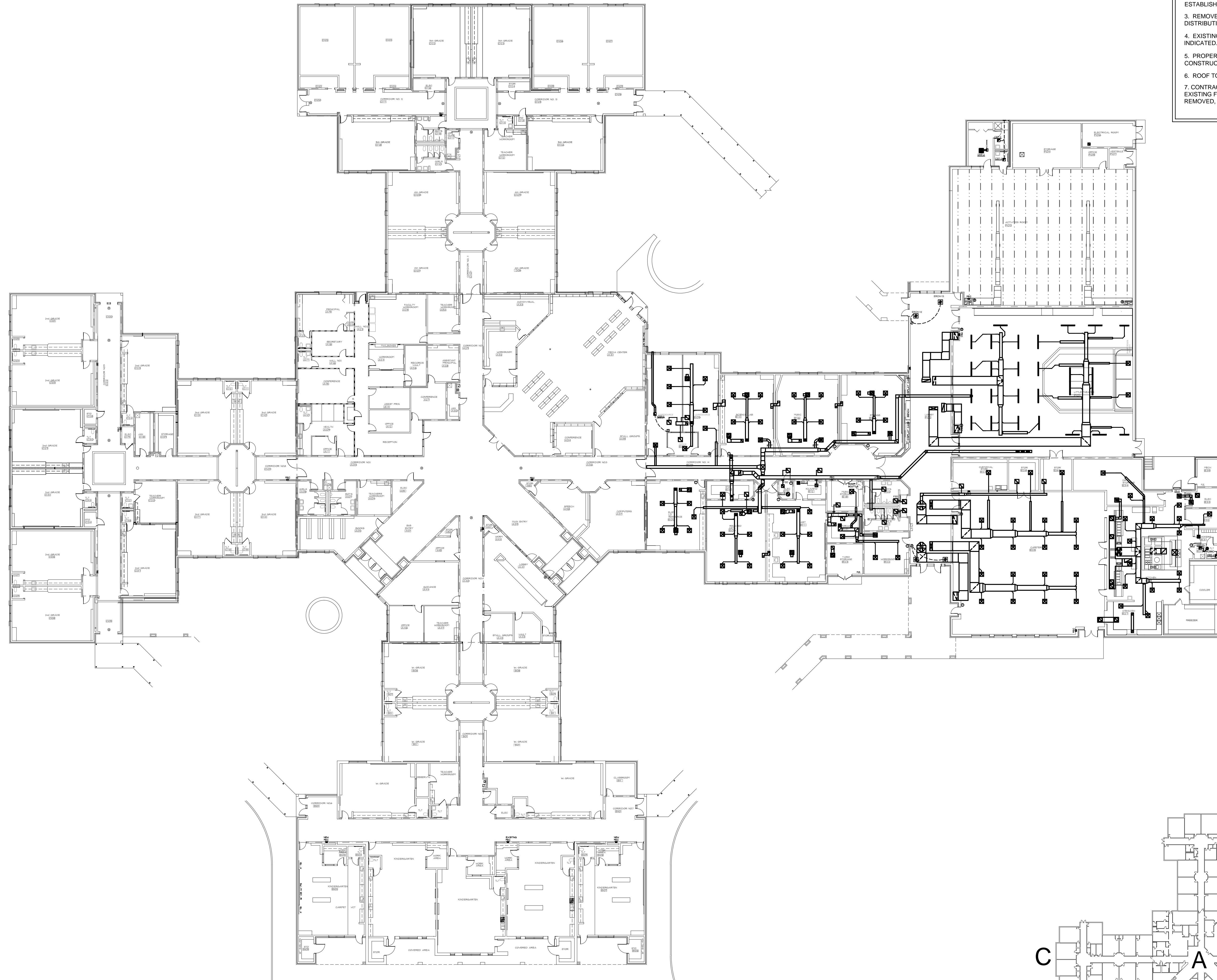
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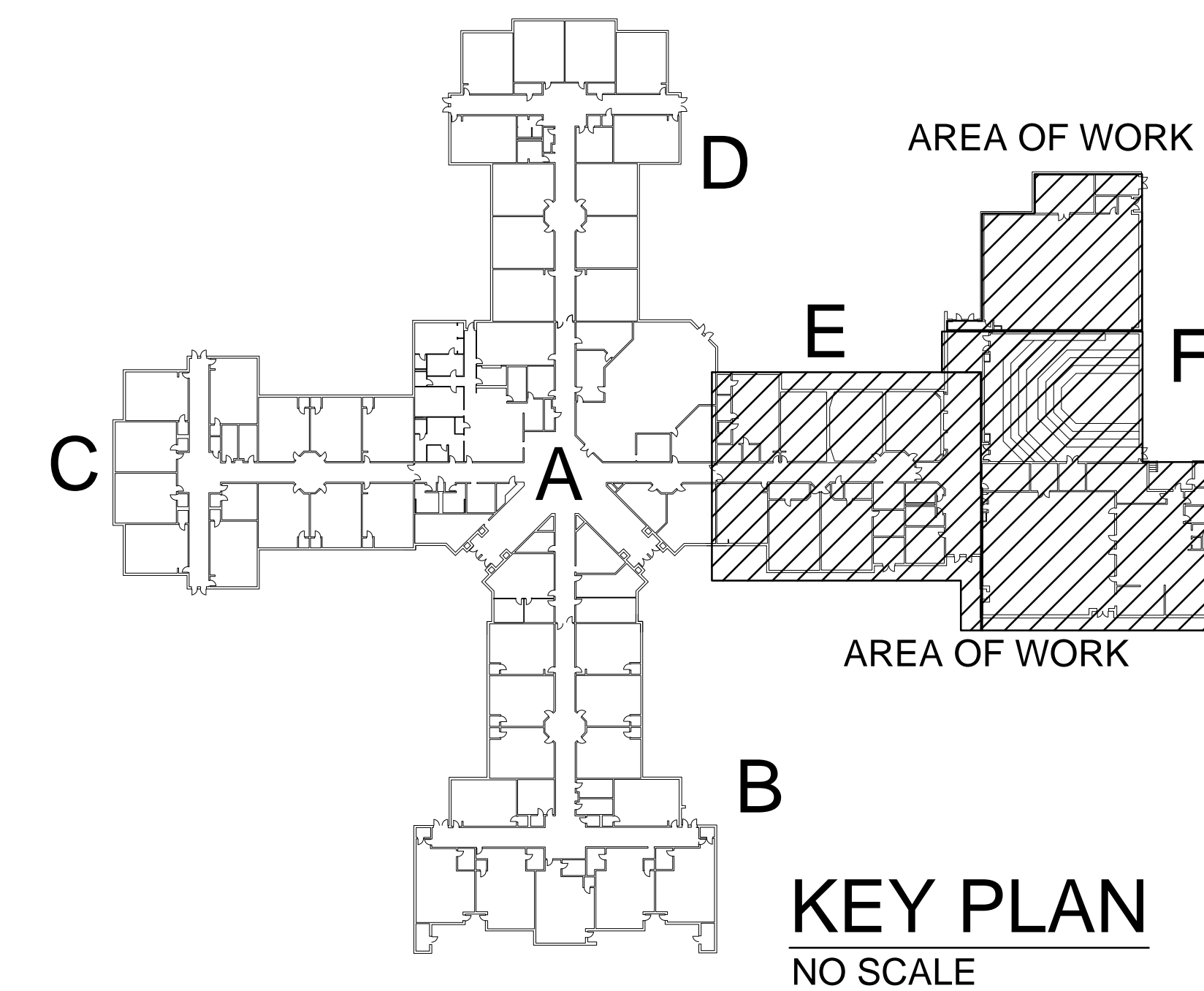
**LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III**
Sheet Title: **OVERALL MECHANICAL DEMOLITION PLAN**

Sheet No. **M-200**
of
Project No. **114211.02**

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OVERALL MECHANICAL RENOVATION PLAN
SCALE: 1"=20'-0"



REVISIONS		
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 - REMOVE ALL EXISTING DUCTWORK AND ASSOCIATED AIR DISTRIBUTION (TYPICAL)
 - EXISTING DUCT TO REMAIN. REMOVE/REPLACE CEILING DIFFUSERS AS INDICATED.
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 - ROOF TO BE REPAIRED WHERE UNITS/ SUPPORTS ARE REMOVED.
 - CONTRACTOR TO REMOVE DUCTWORK AS INDICATED. REMOVE ALL EXISTING FIRE DAMPERS AND SLEEVES. WHERE FIRE DAMPERS ARE REMOVED, REPAIR WALL BACK TO ORIGINAL WALL CONSTRUCTION.

REVISIONS		
No.	Date	Description

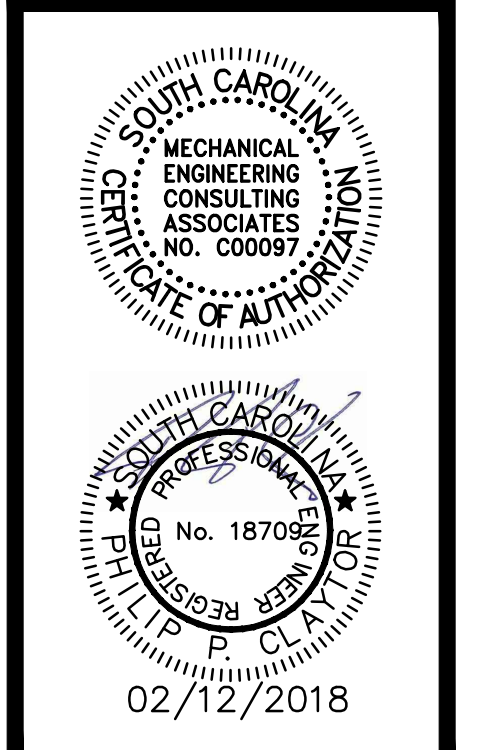
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**LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III**
 Sheet Title: **OVERALL MECHANICAL RENOVATION PLAN**

Sheet No. **M-300**
 of **114211.02**

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FIRE RATED WALL LEGEND	
	ONE HOUR FIRE RATED WALL
	FOUR HOUR FIRE RATED WALL

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REVISIONS		
No.	Date	Description

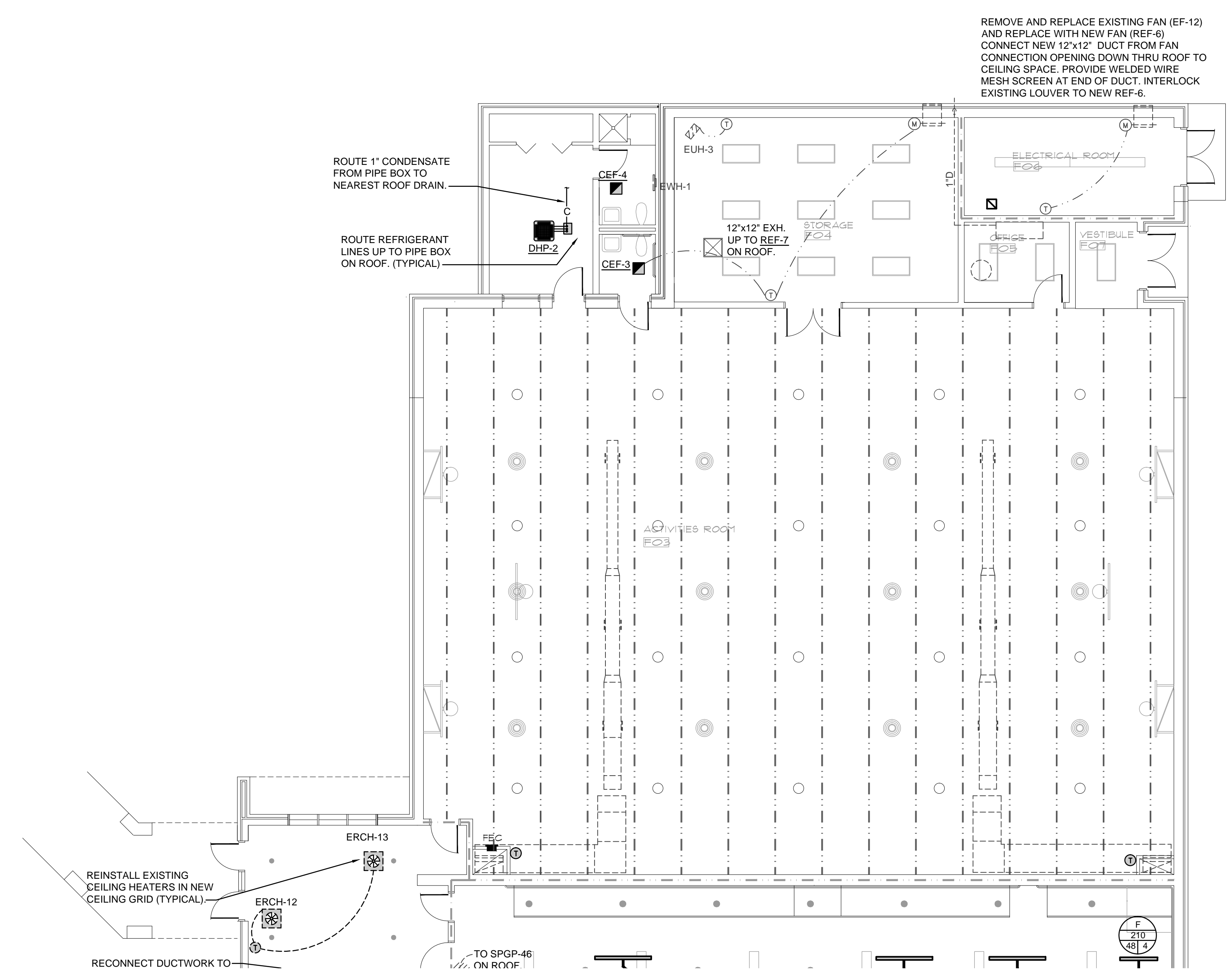
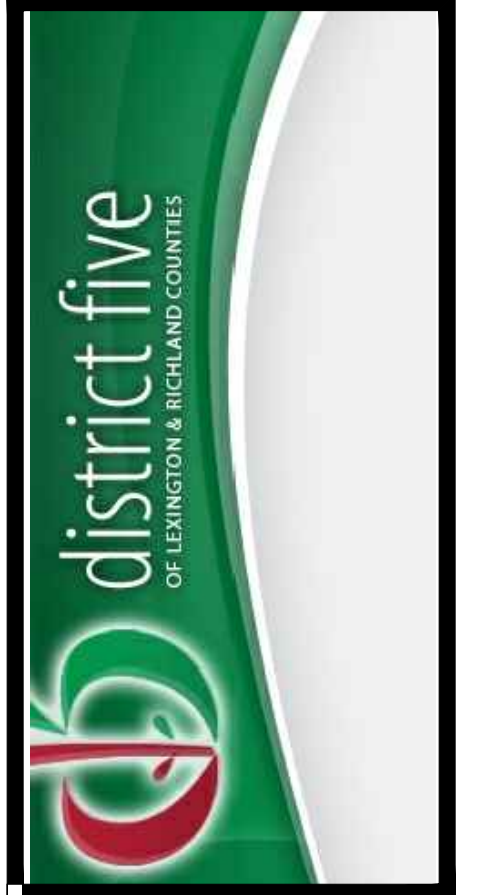
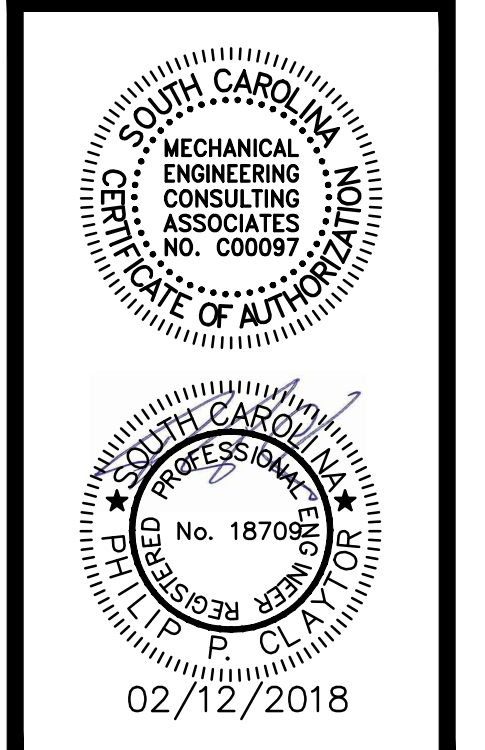
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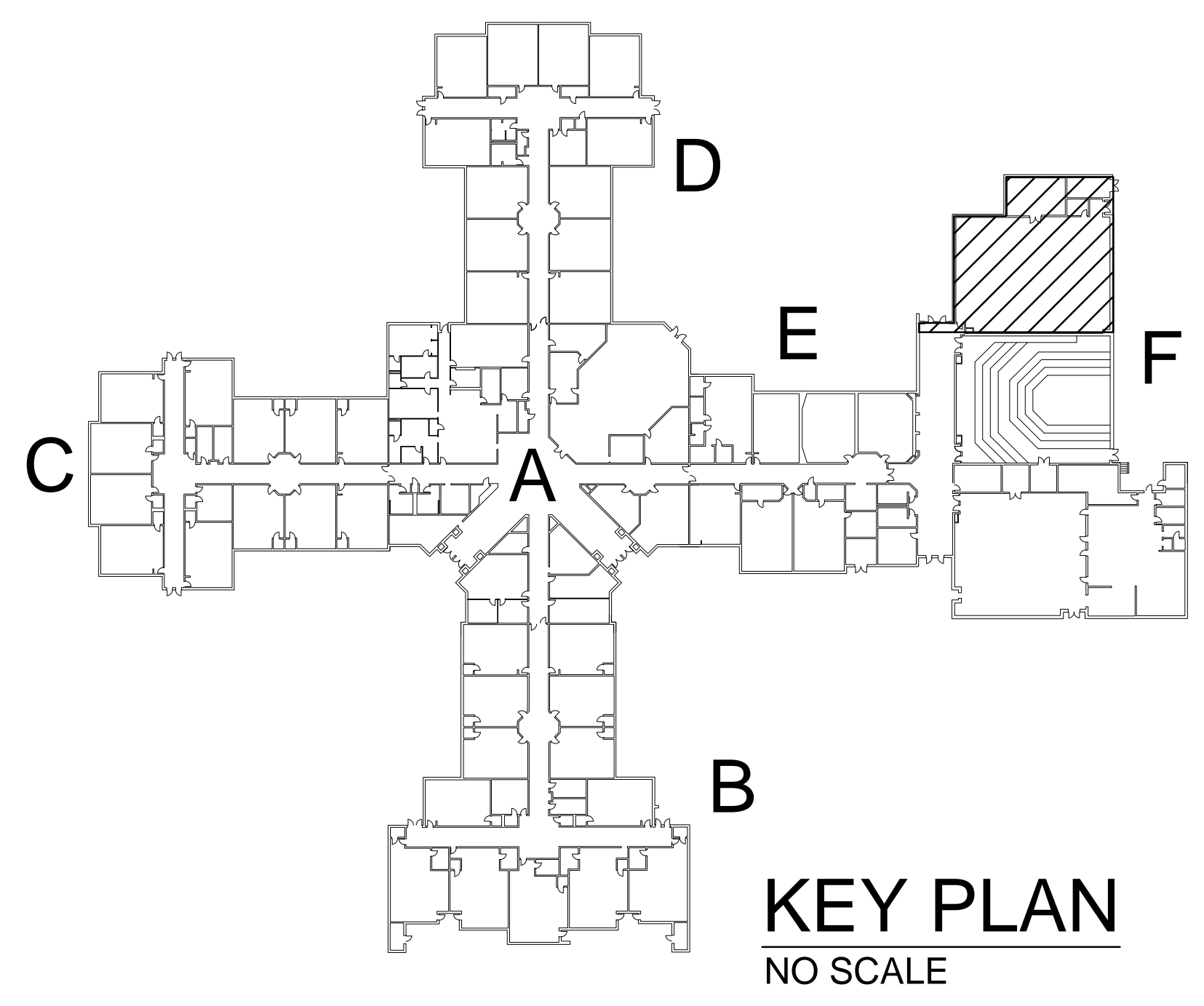
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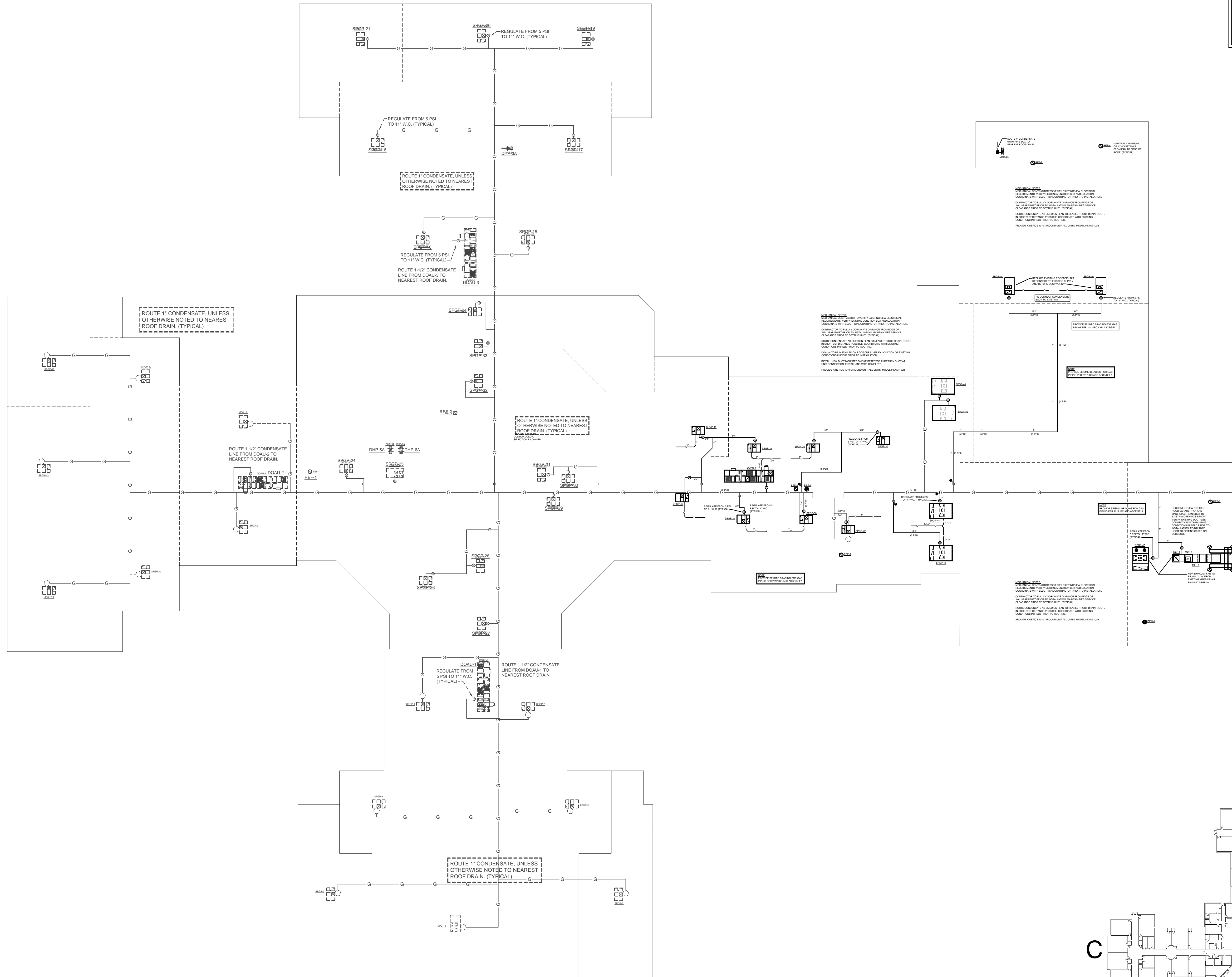
PARTIAL MECHANICAL RENOVATION PLAN - F
 SCALE: 1/8"=1'-0"



**LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III**

Sheet Title
PARTIAL MECHANICAL RENOVATION PLAN - F

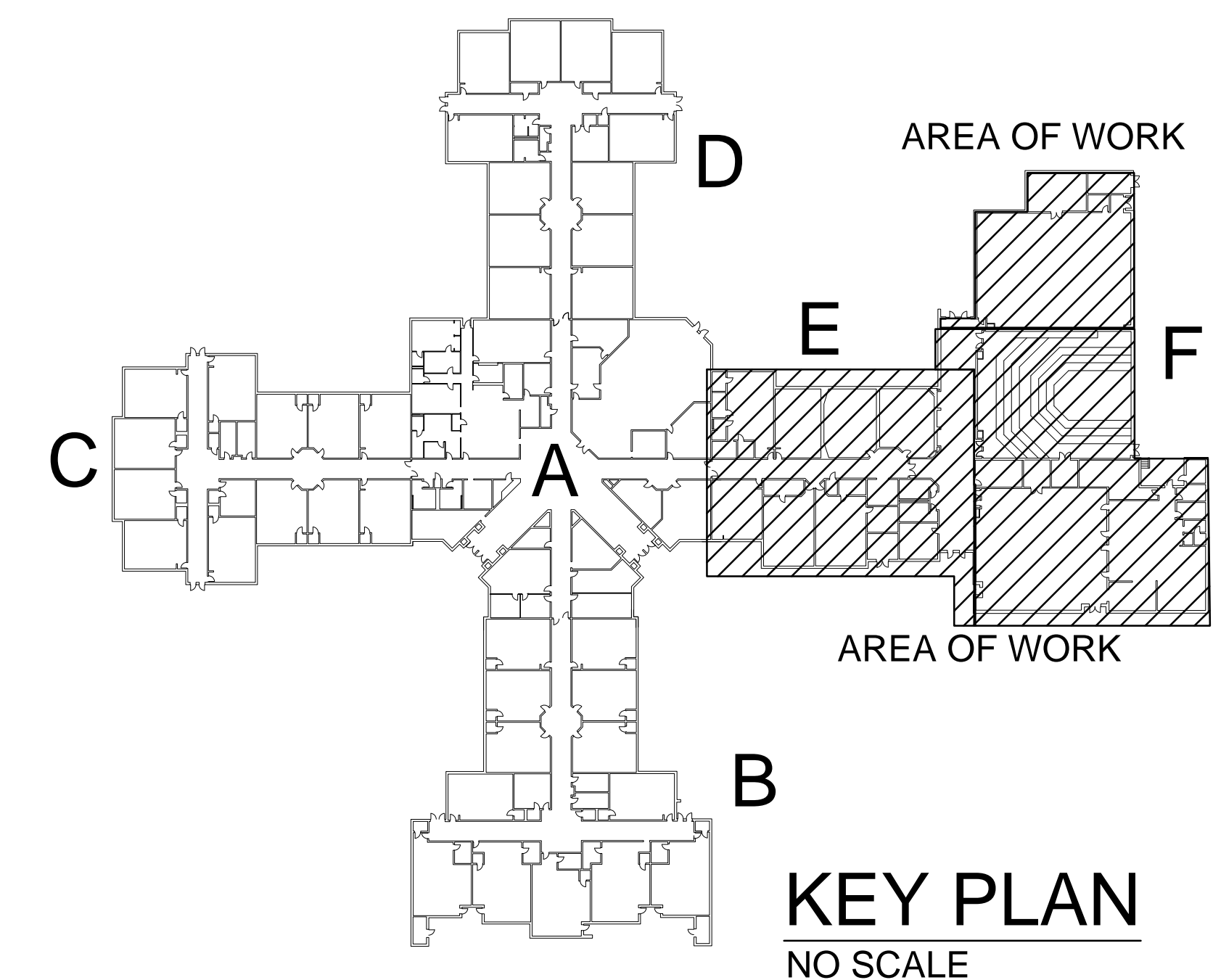
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OVERALL MECHANICAL ROOF PLAN
SCALE: 1"=20'-0"



KEY PLAN
NO SCALE

REVISIONS		
No.	Date	Description

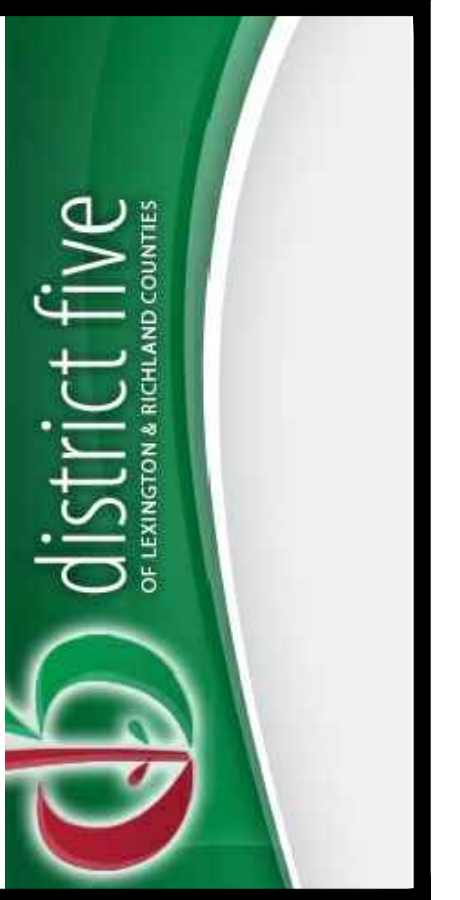
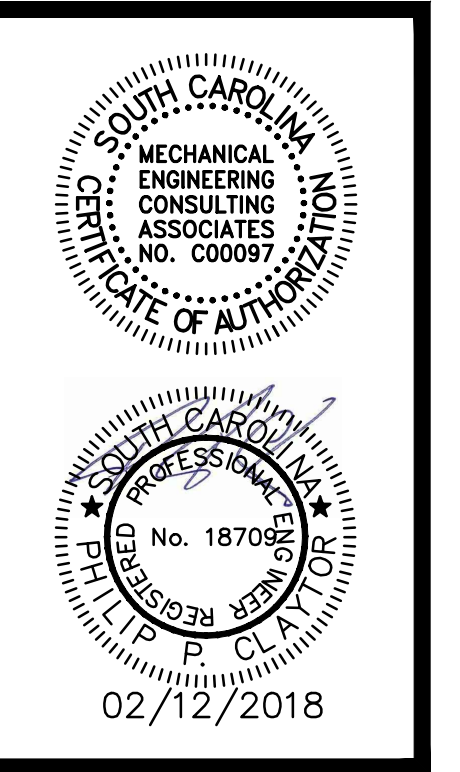
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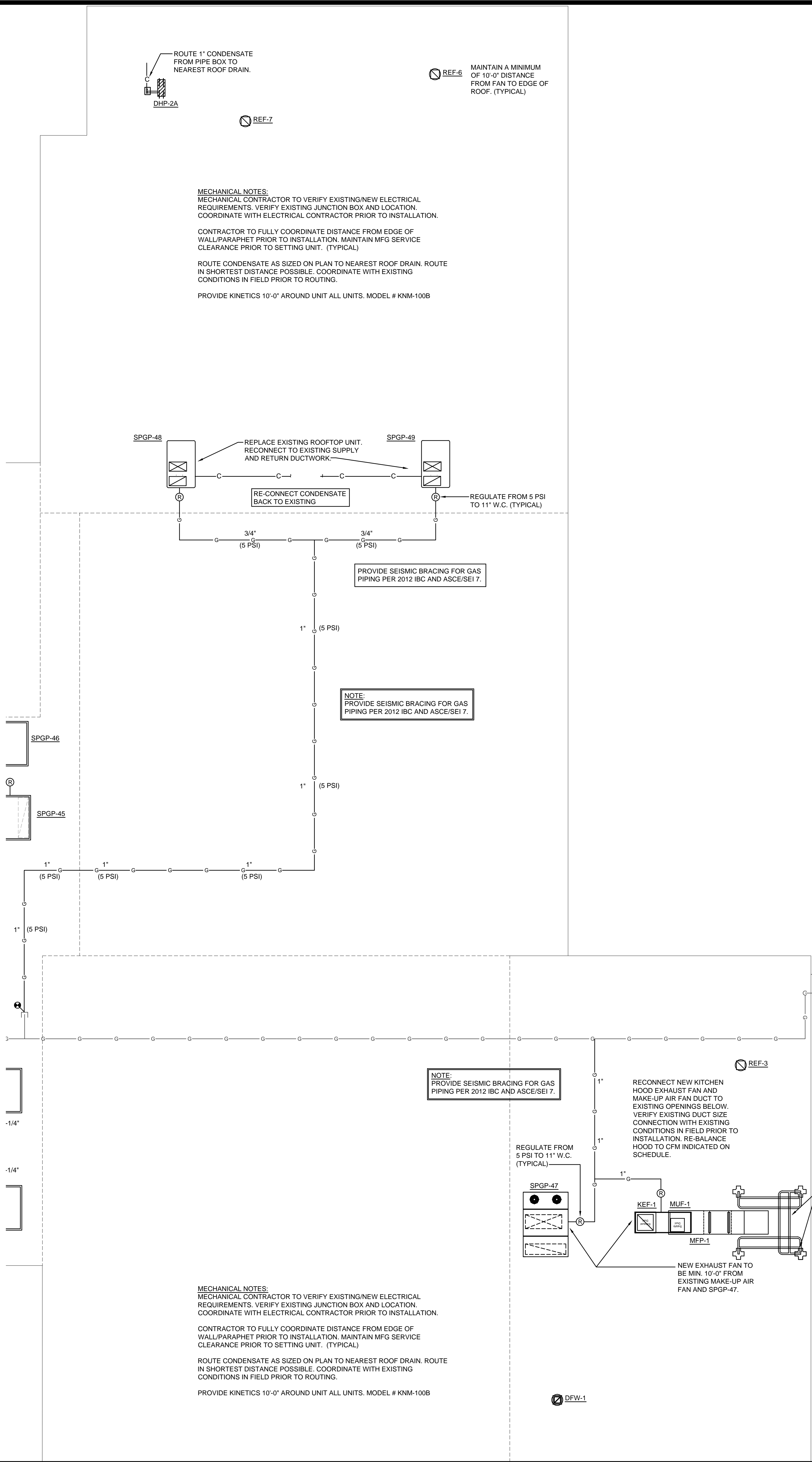
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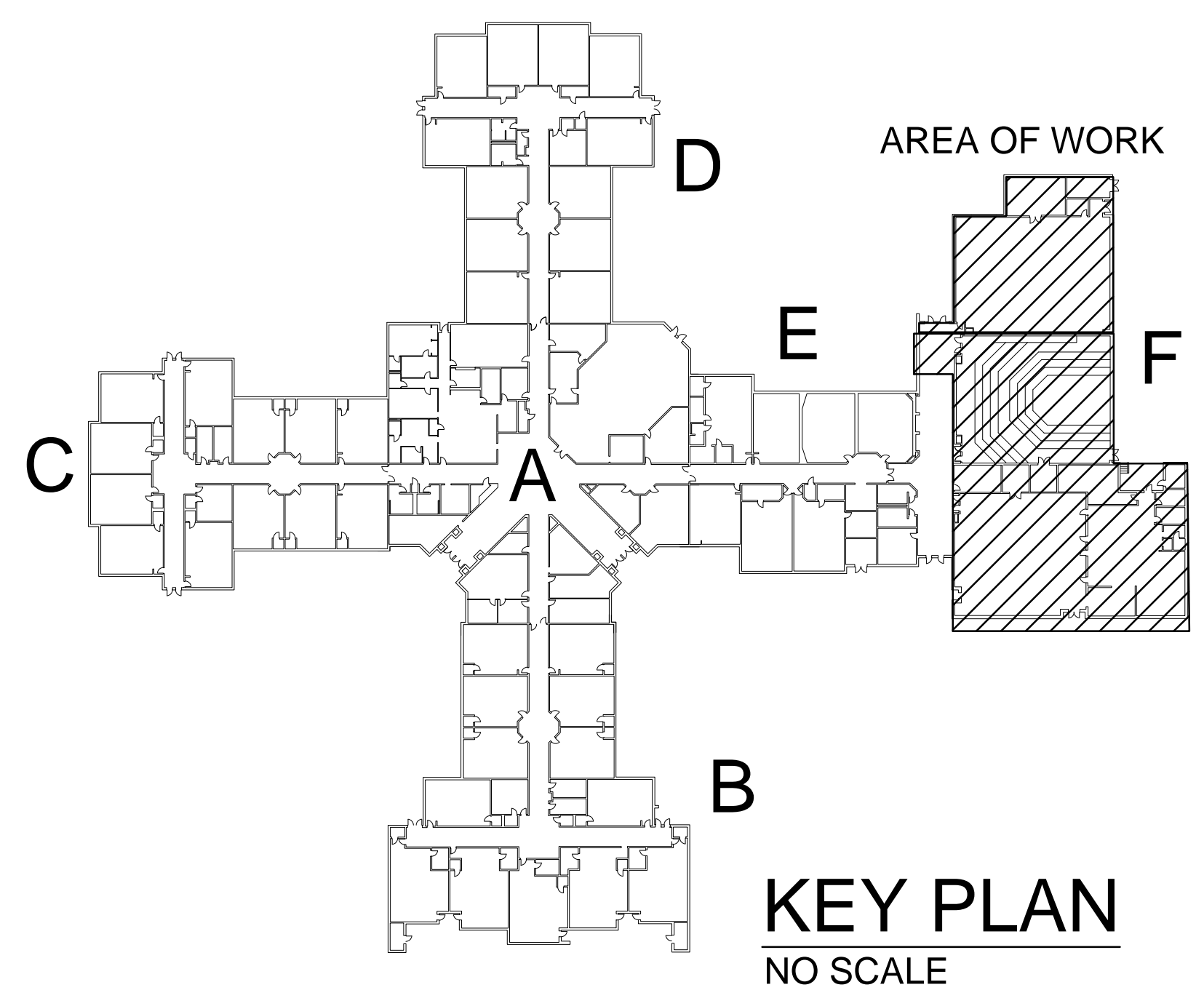
**LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III**
Sheet Title
OVERALL MECHANICAL ROOF PLAN

Sheet No. **M-400**
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ENLARGED MECHANICAL ROOF PLAN - F
SCALE: 1/8"=1'-0"



REVISIONS	
No.	Description

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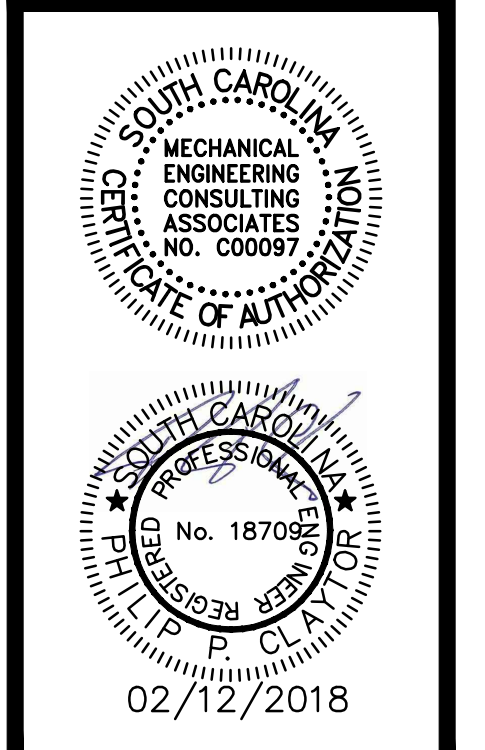
REVISIONS	
No.	Description

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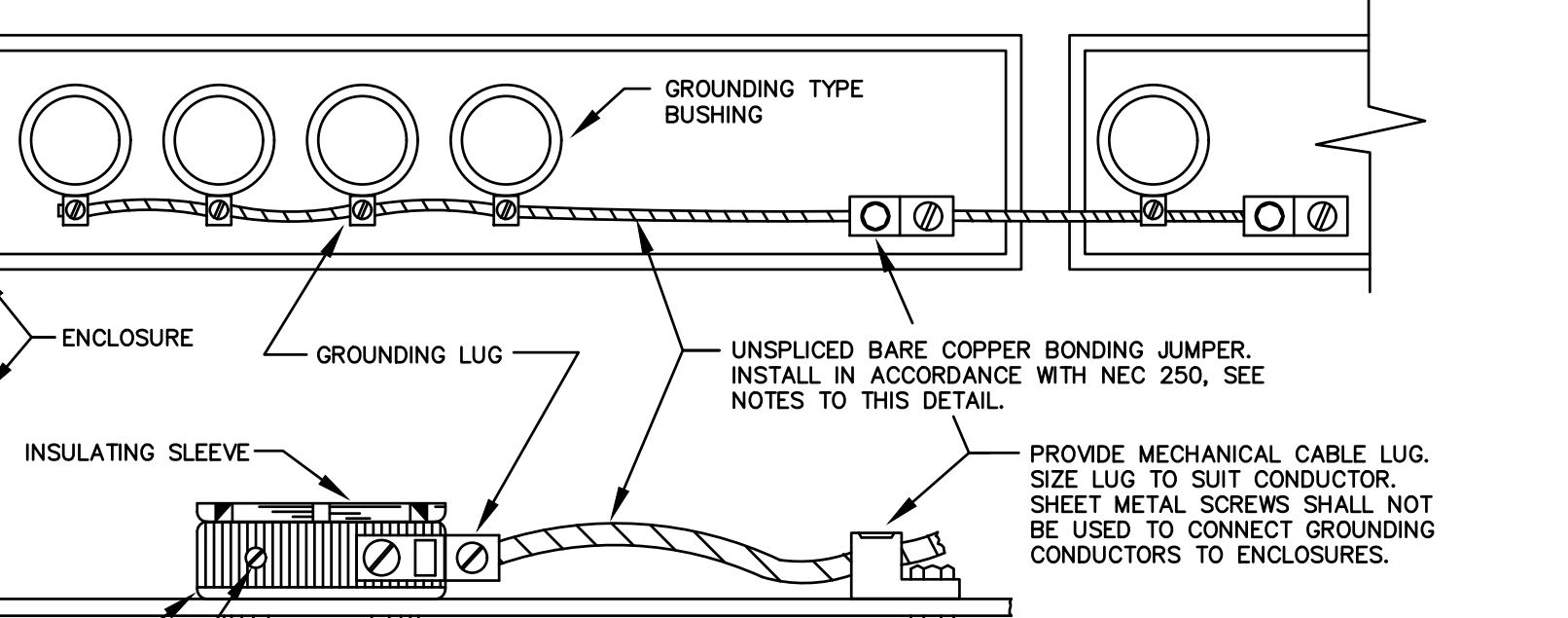
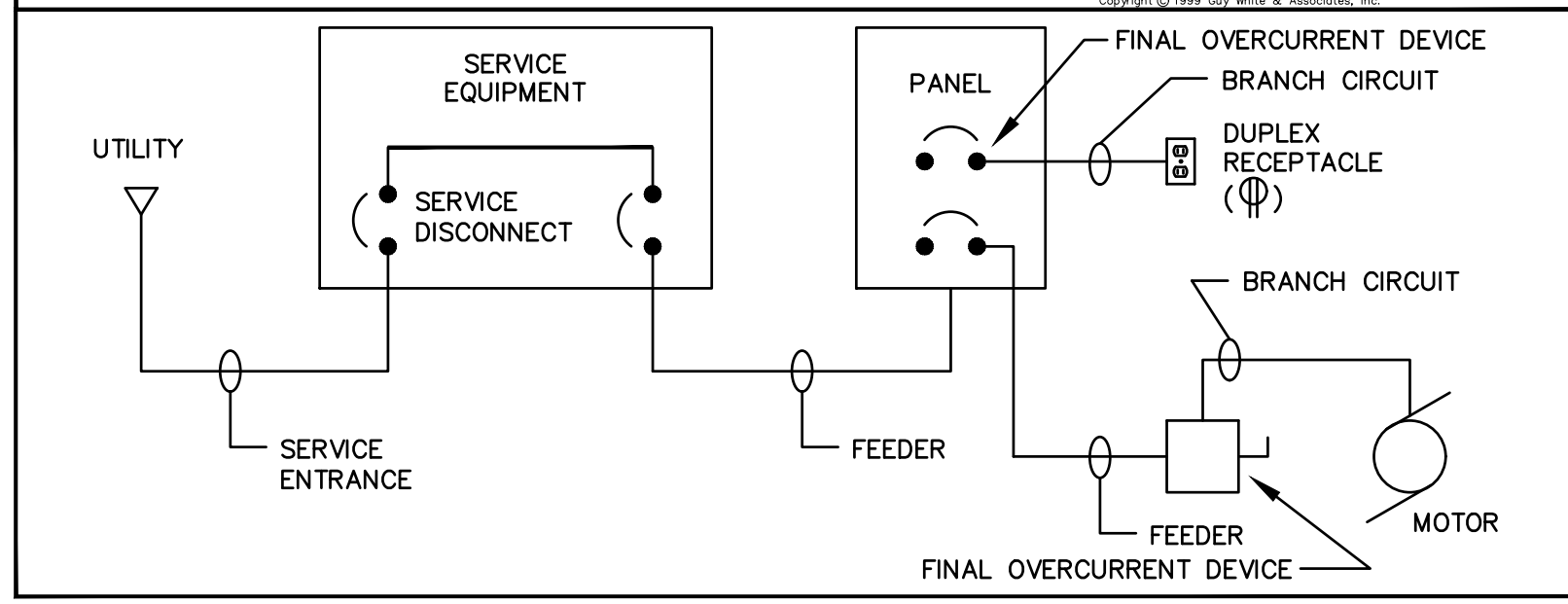
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ENLARGED MECHANICAL ROOF PLAN - F

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of
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RACEWAY MATERIAL USE TABLE

APPLICATION	RACEWAY MATERIAL					
	EMT	IMC	GRS	40 PVC	EMT	40 PVC
CONCEALED ABOVE CEILING	●	●	●	●	●	●
CONCEALED IN WALLS	●	●	●	●	●	●
EXPOSED FROM FLOOR TO 7'-0" A.F.F. (INTERIOR)	●	●	●	●	●	●
EXPOSED FROM 7'-0" A.F.F. AND ABOVE (INTERIOR)	●	●	●	●	●	●
IN OR UNDER CONCRETE FLOORS	●	●	●	●	●	●
OUTDOORS - BELOW GRADE	●	●	●	●	●	●
OUTDOORS - EXPOSED	●	●	●	●	●	●
STUB-UPS BELOW PANELS & ENCLOSURES	●	●	●	●	●	●
FEEDER CONDUITS	●	●	●	●	●	●
SERVICE ENTRANCE	●	●	●	●	●	●

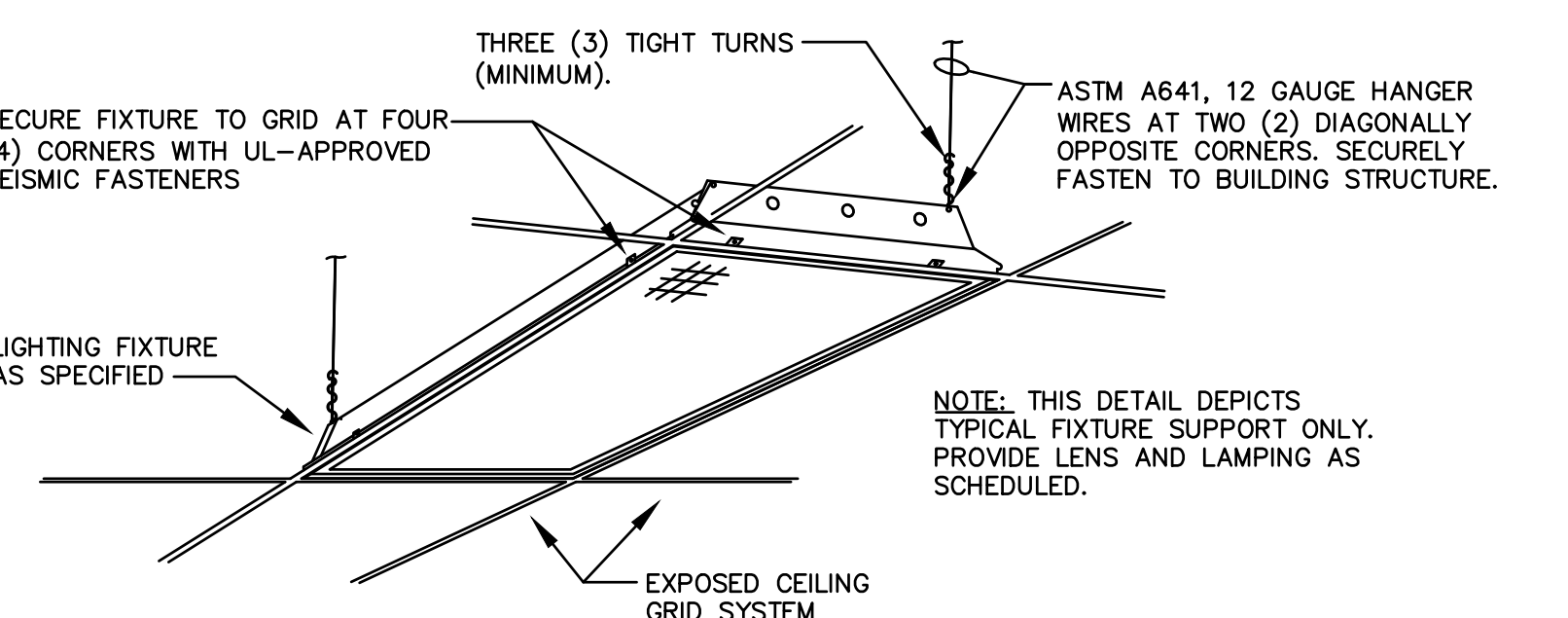
(1) WITH BITUMINOUS COATING. SEE SPEC. (2) CONVERT TO GRS/IMC PRIOR TO PENETRATING SLAB.



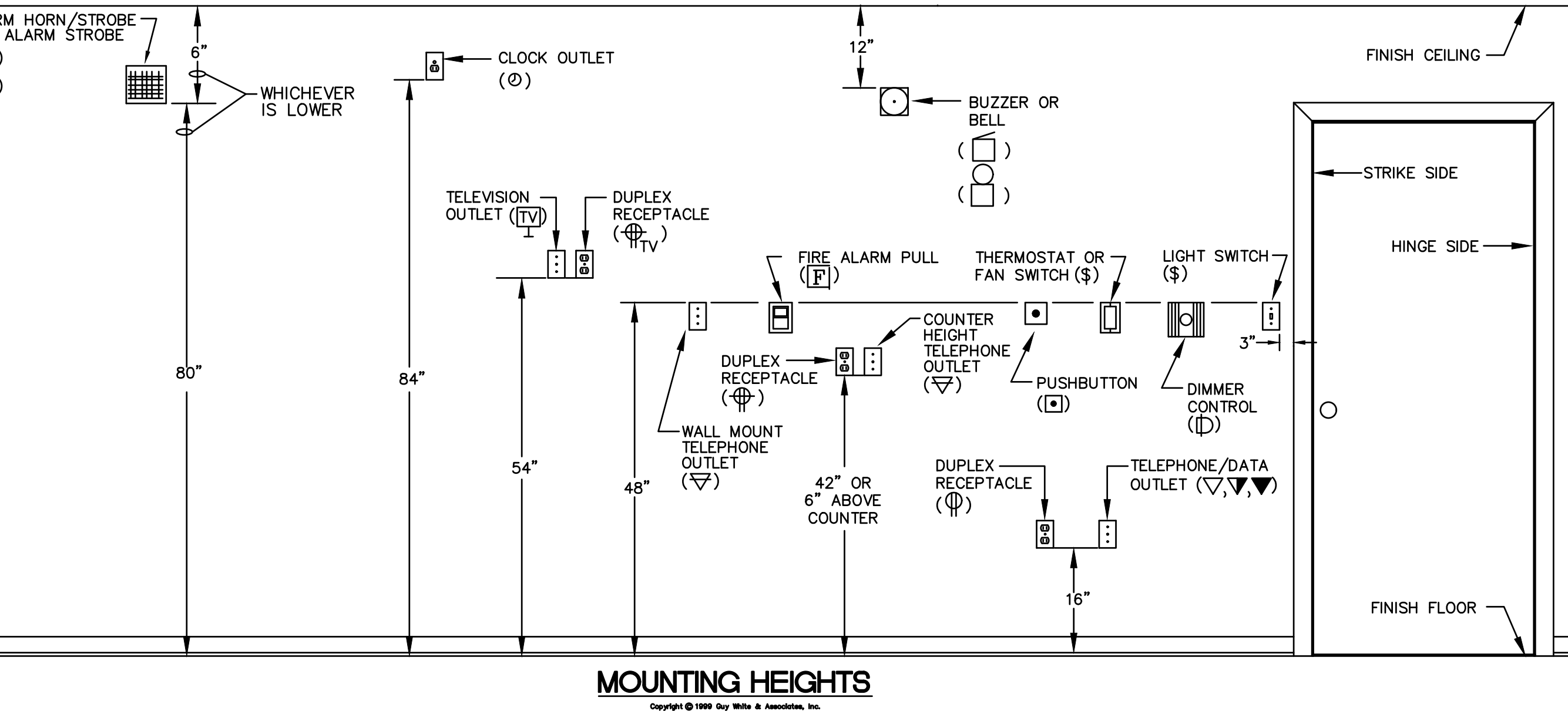
NOTES TO THIS DETAIL

- SIZE - EQUIPMENT BONDING JUMPER ON SUPPLY SIDE OF SERVICE: THE BONDING JUMPER SHALL NOT BE SMALLER THAN THE SIZES SHOWN IN TABLE 250.66 FOR GROUNDING ELECTRODE CONDUCTORS.
- SIZE - EQUIPMENT BONDING JUMPER ON LOAD SIDE OF SERVICE: THE BONDING JUMPER SHALL NOT BE SMALLER THAN THE SIZES SHOWN IN TABLE 250.122 FOR EQUIPMENT GROUNDING CONDUCTORS.
- FOR MORE THAN ONE RACEWAY IN ENCLOSURE, BOND ALL LUGS TOGETHER BEFORE TYING BONDING JUMPER TO ENCLOSURE.
- BOND BOTH ENDS OF EACH CONDUIT 1" C. AND LARGER.
- EXTEND BONDING JUMPER TO EACH PANEL INCLUDING TWO-SECTION PANELS WITH FEED-THRU NIPPLES.

GROUNDING OF CONDUITS 1" C. AND LARGER



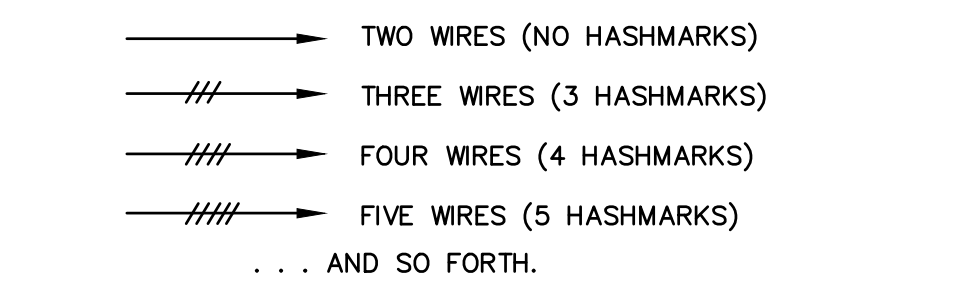
RECESSED FIXTURE - TYPICAL HANGER SUPPORT



MOUNTING HEIGHTS

BRANCH CIRCUIT WIRING - HASHMARK CODE

BRANCH CIRCUITS SHOWN ON THESE DRAWINGS MAY INCLUDE HASHMARKS WHICH INDICATE THE NUMBER OF WIRES TO BE PROVIDED IN A CONDUIT RUN BETWEEN OUTLETS OR JUNCTION BOXES. WIRE SIZES SHALL BE AS TABULATED IN PANELBOARD SCHEDULES UNLESS OTHERWISE INDICATED ON PLAN. SEE SYMBOL SCHEDULE FOR CONDUIT ROUTING NOTATION. HASHMARK CODE IS AS FOLLOWS:



NOTE: GROUND WIRES ARE NOT GENERALLY SHOWN. EXAMINE SPECIFICATIONS AND GENERAL NOTES TO DETERMINE REQUIREMENTS FOR GROUND WIRES AND WHERE SPECIFIED, PROVIDE IN ADDITION TO THE NUMBER OF WIRES INDICATED BY HASHMARK CODE.

NOTE: CONTRACTOR IS CAUTIONED THAT MULTIWIRE (LINE-TO-NEUTRAL) BRANCH CIRCUITS DO NOT INDICATE ALL REQUIRED NEUTRAL CONDUCTORS. PROVIDE SEPARATE NEUTRAL CONDUCTORS (WITH COLORED STRIPE TO MATCH PHASE CONDUCTOR) FOR EACH PHASE CONDUCTOR.

EMPTY CONDUITS ARE NOTED BY "EC" WITH TRADE SIZE.

ABBREVIATIONS

THE FOLLOWING STANDARD ABBREVIATIONS ARE USED IN THESE PLANS AND SPECIFICATIONS. CONTRACTOR IS CAUTIONED THAT ALL ABBREVIATIONS LISTED MAY NOT BE USED. CONSULT PLANS AND SPECIFICATIONS FOR ABBREVIATIONS APPLICABLE TO THIS PROJECT.

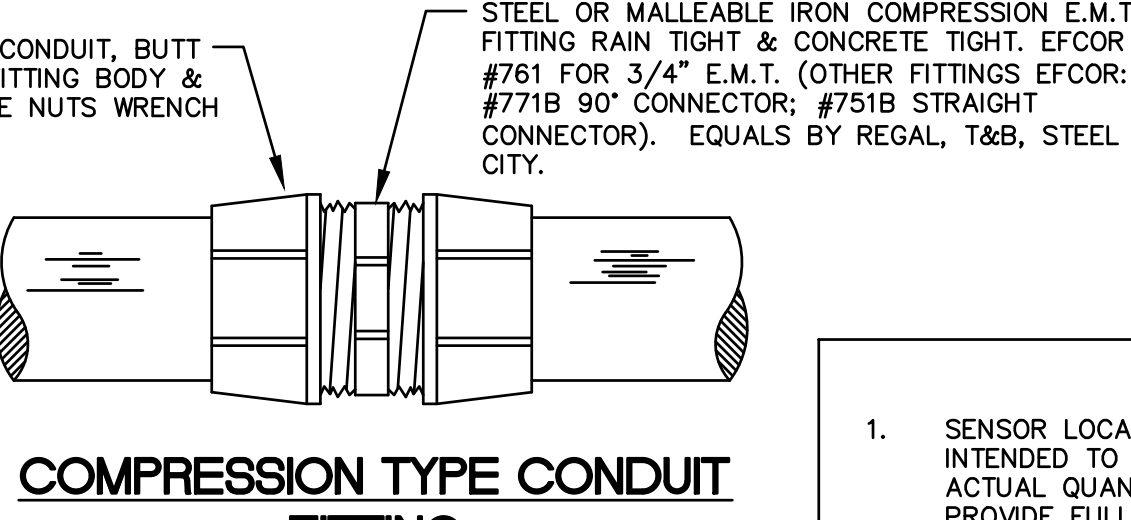
A.F.F.	ABOVE FINISHED FLOOR
B.F.F.	BELOW FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
B.F.G.	BELOW FINISHED GRADE
U.N.O.	UNLESS NOTED OTHERWISE
C.K.T.	CIRCUIT
CON.	CONDUIT
EMT	EMPTY CONDUIT
FLX.	FLEXIBLE CONDUIT
WFLX	WEATHERPROOF FLEXIBLE CONDUIT

PROJECT NOTES:

- THE SCOPE OF WORK FOR THIS PROJECT IS INDICATED IN THESE PLANS. KEY PLANS INDICATE THE AREAS OF WORK.
- THE INTENT OF THE WORK IS THE REMOVAL AND REPLACEMENT OF SELECTED HVAC UNITS, REMOVAL AND REPLACEMENT OF EXISTING LIGHTING FIXTURES, THE INSTALLATION OF AN OCCUPANCY SENSOR BASED LIGHTING CONTROL SYSTEM AND THE EXTENSION OF THE EMERGENCY POWER SYSTEM FOR LIFE SAFETY SYSTEMS.
- EXISTING LOCAL LIGHTING CONTROL SCHEMES (SWITCHING) SHALL BE MAINTAINED, WITH THE PROVISION OF NEW LOCAL SWITCHES TO MATCH EXISTING SWITCH TYPES (SPDT, 3-WAY, 4-WAY, ETC).
- IN THE EVENT OF UNFORESEEN CONDITIONS, THE CONTRACTOR SHALL PROVIDE A DESCRIPTION OF THE CONDITION TO THE ENGINEER FOR REVIEW AND DIRECTION. ALL WORK ASSOCIATED WITH UNFORESEEN CONDITIONS AND/OR DISCREPANCIES WITHIN THE DEFINED SCOPE SHALL BE PROVIDED AT NO ADDITIONAL COST.

LIGHTING CALCULATIONS TABLE

SPACE TYPE	WORKPLANE	LIGHT LOSS FACTOR	REFLECTANCES	ILLUMINATION	IES RECOMMENDATION
CLASSROOM	2.5 FEET	0.75	80-50-20	57FC	30FC
WORK ROOM	2.5 FEET	0.75	80-50-20	46FC	10FC
CORRIDOR	2.5 FEET	0.75	80-50-20	20FC	10FC
SINGLE TOILET	2.5 FEET	0.75	80-50-20	30FC	5FC



COMPRESSION TYPE CONDUIT FITTING

NOTES TO OCCUPANCY SENSORS

- SENSOR LOCATIONS ARE SCHEMATIC ONLY AND LOCATIONS SHOWN ARE INTENDED TO INDICATE AREA TO BE CONTROLLED BY SENSORS. PROVIDE ACTUAL QUANTITY, LOCATION AND TYPE OF SENSOR AS REQUIRED TO PROVIDE FULL COVERAGE FOR EACH SPACE INDICATED. SEE SPECIFICATIONS FOR SPECIFIC REQUIREMENTS.
- ALL LAYOUTS AND INSTALLATION SHALL BE BASED ON APPROVED VENDOR SHOP DRAWINGS. ROUGH ONLY FROM THESE SHOP DRAWINGS AND COMPLY WITH ALL MANUFACTURER INSTALLATION INSTRUCTIONS.
- AT CONTRACTOR'S OPTION, SYSTEM MAY BE DIGITAL OR LOW VOLTAGE TYPE AND MAY UTILIZE SELF-CONTAINED DEVICES OR SEPARATE POWER PACKS/RELAYS.
- RESTROOMS, STORAGE ROOMS, JANITOR CLOSETS, EQUIPMENT ROOMS AND SIMILAR SPACES SHALL BE CONFIGURED AS AUTOMATIC ON/OFF WITH MANUAL OVERRIDE FUNCTION (OCCUPANCY SETTINGS). ALL OTHER SPACES SHALL BE CONFIGURED AS MANUAL ON, AUTOMATIC OFF WITH MANUAL OVERRIDE FUNCTION (VACANCY SETTINGS).
- ROOMS INDICATED WITH BOTH OCCUPANCY SENSORS AND MULTI-LEVEL SWITCHING OR DIMMING SHALL MAINTAIN FULL MANUAL CONTROL ABILITY FOR ADJUSTING LIGHTING LEVELS.
- SENSORS MOUNTED OVER DOORWAYS SHALL BE PLACED A MINIMUM OF ONE FOOT INSIDE THRESHOLD.
- ULTRASONIC SENSORS SHALL BE LOCATED A MINIMUM OF SIX(6) FEET FROM HVAC SUPPLY/RETURN, CEILING FANS AND OTHER AIR MOVEMENT DEVICES.
- ADJUST SENSOR LOCATIONS IN FIELD AS REQUIRED TO AVOID LINE-OF-SIGHT CONFLICTS WITH STRUCTURE, SUSPENDED LIGHTING, MECHANICAL DUCTWORK, CASEWORK, BULKHEADS AND OTHER ARCHITECTURAL OR BUILDING FEATURES. SENSORS SHALL NOT FALSE TRIGGER FROM ADJACENT SPACES.
- SENSORS INSTALLED IN DAMP OR WET LOCATIONS SHALL BE UL LISTED FOR USE IN RESPECTIVE AREA.
- CONTRACTOR IS RESPONSIBLE FOR PROPER SENSITIVITY AND TIME DELAY SETTINGS FOR NON-ADAPTIVE PRODUCTS.
- IF MULTIPLE CIRCUITS ARE TO BE CONTROLLED BY A SINGLE SENSOR OR GROUP OF SENSORS, AUXILIARY RELAYS MAY BE UTILIZED IN CONJUNCTION WITH POWER PACKS.

GENERAL NOTES

- DO NOT SCALE DRAWINGS UNLESS DIMENSIONS ARE SHOWN. LOCATE OUTLETS AND EQUIPMENT AS OBVIOUSLY INDICATED AND COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS.
- MINIMUM SIZE CONDUCTOR FOR POWER SHALL BE NO. 12 AWG.
- ALL FUSES SHALL BE DUAL-ELEMENT TYPE, "FUSETRON" BY BUSSMAN, OR "TEC" BY ECONOMY.
- BRANCH CIRCUIT SIZES ARE AWG 12-1/2" C. UNLESS OTHERWISE NOTED IN PANELBOARD SCHEDULES.
- ALL BRANCH CIRCUIT LOADS SHALL BE BALANCED ACROSS PANELBOARD BUSES TO OBTAIN MINIMUM NEUTRAL CURRENT.
- ALL FLEXIBLE CONDUIT SHALL CONTAIN A GREEN WIRE BONDED TO RIGID RACEWAY, BOX OR FIXTURE AT EACH END OF FLEX. SIZE GROUND WIRE PER N.E.C. TABLE 250-122.
- ALL ELECTRICAL WORK ABOVE CEILINGS UTILIZED AS RETURN AIR FLEUNG SHALL COMPLY WITH N.E.C. AND LOCAL CODES FOR WIRING USED IN ENVIRONMENTAL AIR.
- PROVIDE PULL CORD IN ALL EMPTY RACEWAYS.
- DO NOT MOUNT FLUSH JUNCTION BOXES BACK TO BACK, STAGGER JUNCTION BOXES TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.
- CONTRACTOR SHALL MINIMIZE REMOVAL OF STRUCTURAL STEEL FIREPROOFING FOR INSTALLATION OF CONDUIT AND EQUIPMENT HANGERS. OBTAIN APPROVAL OF GENERAL CONTRACTOR PRIOR TO REMOVAL.
- COORDINATE WITH OTHER TRADES TO CONCEAL ELECTRICAL WORK AND PROVIDE OUTLETS IN CORRECT LOCATIONS FOR EACH PIECE OF MECHANICAL OR ELECTRICAL EQUIPMENT CONNECTED.
- CONCEAL OUTLETS FOR ALL EQUIPMENT IN FINISHED AREAS. OBTAIN ROUTING DIAGRAMS FOR ALL EQUIPMENT AND INSTALL ELECTRICAL WORK ACCORDING TO DIAGRAMS.
- MOUNT BRACKET TYPE LIGHTING FIXTURES AT HEIGHTS SHOWN OR SCHEDULED ON DRAWINGS OR AS DIRECTED ON JOB BY ARCHITECT, U.N.O.

ELECTRICAL SYMBOLS

○	LIGHTING FIXTURE, CEILING (○-WALL MOUNT)	⊞	TOGGLE SWITCH
⊞	FIXTURE INDICATED, CONNECTED TO EMERGENCY POWER SOURCE	⊞	THREE WAY TOGGLE SWITCH
⊞	LIGHTING FIXTURE, WALL WASHER	⊞	FOUR WAY TOGGLE SWITCH
⊞	LIGHTING FIXTURE	⊞	WEATHERPROOF TOGGLE SWITCH
⊞	LIGHTING FIXTURE, CONNECTED TO EMERGENCY POWER SOURCE	⊞	LIGHTED TOGGLE SWITCH
⊞	EXIT LIGHT	⊞	30A MANUAL CONTROLLER SWITCH (DPST)
⊞	TRANSFORMER	⊞	LOCK TOGGLE SWITCH (KEYED)
⊞	PANELBOARD	⊞	WALL SWITCH - OCCUPANCY SENSOR 48" UP
⊞	SAFETY SWITCH	⊞	DIMMING CONTROL FOR LIGHTING
⊞	ENCLOSED, MOLDED CASE CIRCUIT BREAKER	⊞	OMNI-DIRECTIONAL OCCUPANCY SENSOR
⊞	FLUSH JUNCTION BOX CEILING (○-WALL)	⊞	DUCT SMOKE DETECTOR WITH SAMPLING TUBE
⊞	FULL BOX OR JUNCTION BOX IN FLOOR	⊞	CONNECTION TO EXISTING CIRCUIT
⊞	ELECTRIC MOTOR	⊞	BRANCH CIRCUIT RACEWAY - CONCEALED IN WALL OR CEILING
⊞	CONDUIT STUB	⊞	BRANCH CIRCUIT RACEWAY - CONCEALED IN FLOOR OR UNDERGROUND
⊞	DUPLEX RECEPTACLE (⊞-HIGH MOUNT)	⊞	BRANCH CIRCUIT RACEWAY - EXPOSED
⊞	WEATHERPROOF DUPLEX RECEPTACLE, 16" UP	⊞	
⊞	GROUND FAULT INTERRUPTER RECEPTACLE	⊞	
⊞	EXISTING; TO REMAIN	⊞	
⊞	EXISTING; BEING RELOCATED	⊞	
⊞	EXISTING; NEW LOCATION	⊞	

NOTE: ALL DEVICES SHOWN ON THIS SCHEDULE ARE SYMBOLIC ONLY. SEE ELECTRICAL SPECIFICATIONS FOR EXACT DEVICE REQUIREMENTS AND PERFORMANCE CHARACTERISTICS.

LIGHTING FIXTURE SCHEDULE

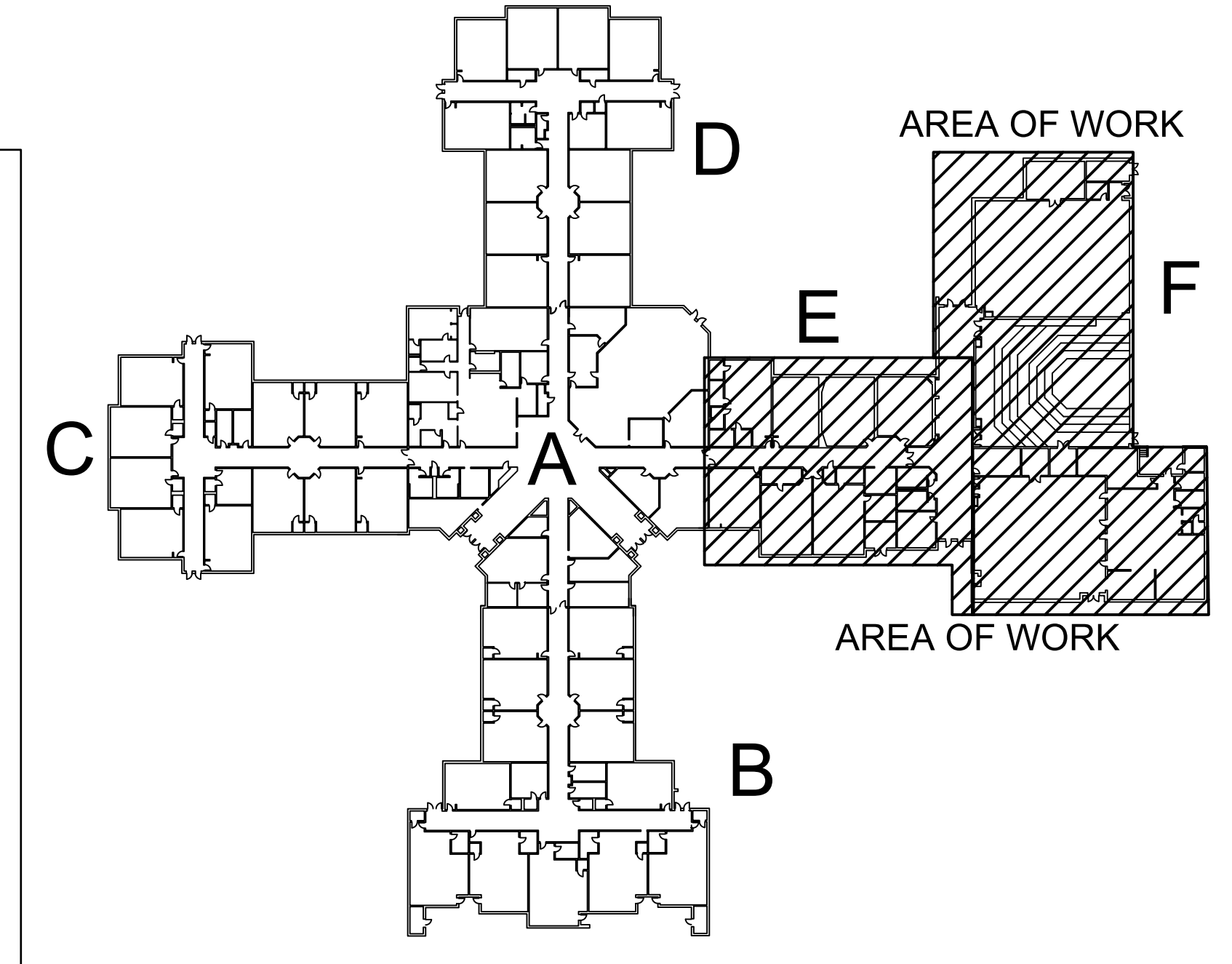
SYMBOL	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	VOLTAGE	LAMPS	BALLASTS	FIXTURE WATTAGE	NOTES
A	2' X 4' LAY-IN VOLUMETRIC TROFFER (LED - 6000 LUMENS)	LITHONIA	2BLT4-60L-ADP-SLD-LP835	277V	6000 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	53W	RECESSED CEILING.
B	2' X 4' LAY-IN VOLUMETRIC TROFFER (LED - 4800 LUMEN LED PACKAGE BY MFR)	LITHONIA	2BLT4-48L-ADP-SLD-LP835	277V	4800 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	45W	RECESSED CEILING.
C	2' X 2' LAY-IN VOLUMETRIC TROFFER (LED - 3300 LUMENS)	LITHONIA	2BLT2-33L-ADP-SLD-LP835	277V	3300 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	30W	RECESSED-CEILING.
D	4' LED UTILITY STRIP (LED - 3000 LUMENS)	LITHONIA	ZL1N-L48-3000LM-FST-35K-WH	277V	3000 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	32W	SURFACE-CEILING. PROVIDE WITH WIREGUARD. COORDINATE LOCATION WITH EQUIPMENT LAYOUTS FOR UNIFORM LIGHTING LEVELS.
F	6" LED DOWNLIGHT	LITHONIA	LDN6-35/20-L06-AR-LSS	277V	2000 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	22W	RECESSED-CEILING.
G	SURFACE MOUNT LED FIXTURE	LITHONIA	TLX4-48L-RW-A12-LP835	277V	2000 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	47W	SURFACE CEILING.
H	GYMNASIUM HI-BAY, LED	LITHONIA	JCBL-24000LM-ACFR-ARCON-35K-80CRI	277V	24000 LUMEN LED	DRIVER BY MFR	188W	PENDANT MOUNT SIMILAR TO EXISTING.
EXA	CAFETERIA DOWNLIGHT LAMP	GRCR	10.5PLH/930/DIR	277V	LED LAMP	N/A	10.5W	BASE BID LAMP REPLACEMENT
EXB	CAFETERIA LINEAR PENDANT LAMP	GRCR	10.5TB/4F/830/DIR	277V	LED LAMP	N/A	10.5W	BASE BID LAMP REPLACEMENT
EXC	THEATER DOWNLIGHT LAMP	GRCR	17PAR38DIM/930FL40	277V	LED LAMP	N/A	17W	BASE BID LAMP REPLACEMENT
EXD	THEATER LINEAR PENDANT LAMP	GRCR	10.5TB/4F/830/DIR	277V	LED LAMP	N/A	10.5W	BASE BID LAMP REPLACEMENT
EXF	6" LED DOWNLIGHT	LITHONIA	RV6-35/10-R06-AR-TRW	277V	1000 LUMEN LED PACKAGE BY MFR	DRIVER BY MFR	16W	RECESSED CEILING - ALTERNATE
EXG	LINEAR PENDANT, LED	LITHONIA	GRD-LSL-FT-MSL8/4-80CRI-35K-ID800LMF-20/80-MINI0-Z1-SCT-F2/48A-C210	277V	800 LUMEN/FT PACKAGE BY MFR	DRIVER BY MFR	25W/LF	LINEAR PENDANT - ALTERNATE
EXH	LED DOWNLIGHT	LITHONIA	EVO-R-35/20-BAR-MD-LSS-EZ1-NP80EZ	120V	2000 LUMEN PACKAGE BY MFR	DRIVER BY MFR	23W	RECESSED CEILING - ALTERNATE SEE NOTE LS.
EXK	LINEAR PENDANT, LED	LITHONIA	GRD-LSL-FT-MSL8/4-80CRI-35K-ID800LMF-20/80-MINI0-NLIGHT-SCT-F2/48A-C210	277V	800 LUMEN/FT PACKAGE BY MFR	DRIVER BY MFR	25W/LF	LINEAR PENDANT - ALTERNATE SEE NOTE LS.
K	EXTERIOR EGRESS FIXTURE, LED	LITHONIA	WSQ-LED-1-10A700/30K-SR3-PE-DBDXI	277V	2000 LUMEN LED	DRIVER BY MFR	24W	WALL MOUNT ABOVE EXTERIOR DOOR. INTEGRAL PHOTOCELL FOR DUSK-DAWN OPERATION.

NOTES TO LIGHTING FIXTURE SCHEDULE

- LOCATE ALL FIXTURES IN STRICT ACCORDANCE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- LOCATE ALL HALF-SHADED FIXTURES WITH GENERATOR TRANSFER DEVICE, BODINE #6TD OR APPROVED EQUAL. CONNECT TO ENERGIZE ENTIRE FIXTURE IN THE EVENT OF NORMAL POWER FAILURE. REGARDLESS OF LOCAL SWITCH POSITION.
- FIXTURES DENOTED WITH SYMBOL "NL" ARE NIGHT LIGHTING FIXTURES. CONNECT HOT FOR 24 HOUR (UNSWITCHED) OPERATION.
- ALL NEW FIXTURES SHALL MATCH EXISTING AREAS PREVIOUSLY REPLACED - NO SUBSTITUTIONS.
- FOR THEATER LIGHTING ALTERNATE: PROVIDE NIGHT CONTROLS, 1 - NPOD-SFX-WH, 2 - NPODM-45B-DX-WH, POWER PACK, NPP16D QUANTITY AS REQUIRED.

FIRE-STOPPING/THRU PENETRATION NOTES

- WHERE RACEWAYS PASS THRU FIRE-RATED WALLS, FLOORS, OR OTHER PARTITIONS, PROVIDE A UL-LISTED THROUGH PENETRATION SYSTEM WITH RATING EQUAL TO THAT OF THE CONSTRUCTION BEING PENETRATED.
- EACH ASSEMBLY SHALL BE SPECIFIC TO THE PENETRATING DEVICE (E.G., SINGLE CONDUIT, MULTIPLE CONDUITS, CABLE TRAY, ETC.). SHALL BE SPECIFIC TO THE CONSTRUCTION PENETRATED (E.G., CONCRETE, CONCRETE BLOCK, GYPSUM BOARD ON WALL STUDS, ETC.) AND SHALL BE A UL LISTED SYSTEM AS PUBLISHED IN UL FIRE RESISTANCE DIRECTORY, LATEST EDITION.
- FIRESTOP SYSTEMS SHALL MEET REQUIREMENTS OF ASTM E-814/UL 1479 TESTED ASSEMBLIES THAT PROVIDE A FIRE RATING EQUAL TO THAT OF CONSTRUCTION BEING PENETRATED.
- FOR THOSE FIRESTOP APPLICATIONS THAT EXIST FOR WHICH NO UL TESTED SYSTEM IS AVAILABLE THROUGH THE MANUFACTURER, A MANUFACTURER'S ENGINEERING JUDGEMENT DERIVED FROM SIMILAR UL SYSTEM DESIGNS OR OTHER TESTS SHALL BE SUBMITTED TO LOCAL AUTHORITY HAVING JURISDICTION FOR THEIR APPROVAL PRIOR TO INSTALLATION. ENGINEERING JUDGEMENT DRAWINGS SHALL FOLLOW REQUIREMENTS SET FORTH BY THE INTERNATIONAL FIRESTOP COUNCIL.
- INSTALLATION SHALL BE IN COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN ACCORDANCE WITH UL FIRE RESISTANCE DIRECTORY FOR EACH SYSTEM UTILIZED.
- FIRESTOP MATERIALS SHALL BE BY 3M COMPANY, HILTI USA, SPECIFIED TECHNOLOGIES INC (STI), METACAULK, TREMCO OR APPROVED EQUAL.
- SUBMIT UL SYSTEM DETAIL AND PRODUCT DATA FOR EACH FIRE STOP COMPONENT UTILIZED, INCLUDING DETAILED DRAWINGS, INSTALLATION INSTRUCTIONS, ASSEMBLY LISTING NUMBER, CERTIFICATES OF CONFORMANCE AND MATERIAL SAFETY DATA SHEETS. MAINTAIN A COPY OF APPROVED SHOP DRAWINGS ON SITE FOR REVIEW BY ENGINEER, THIRD PARTY INSPECTOR AND AIA.
- COORDINATE WITH OTHER TRADES AND CONTRACT REQUIREMENTS FOR ADDITIONAL FIRESTOPPING REQUIREMENTS. WHERE REQUIRED, ALL FIRESTOP MATERIAL SHALL BE BY SAME MANUFACTURER AND/OR SAME FIRESTOPPING SUB-CONTRACTOR.



KEY PLAN

REVISIONS

No.	Date	Description

Job Number: 114211.02
 Designed: 08/15/2017
 Print Date: 02/12/2018
 Drawn: DAR
 Approved By: SDO

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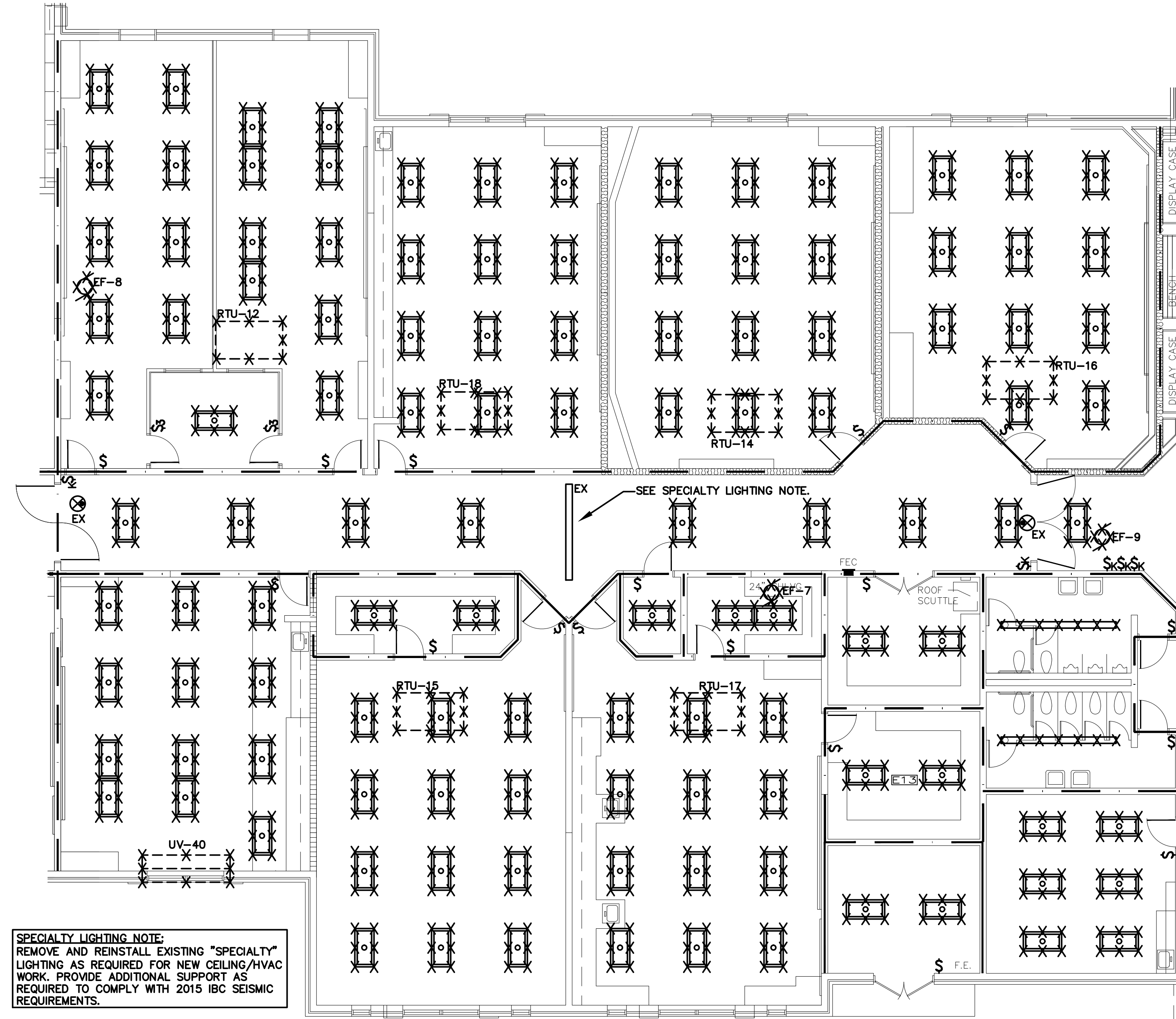
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LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 ELECTRICAL SCHEDULES, NOTES AND DETAILS

Sheet No.
E001
 Project No.
114211.02

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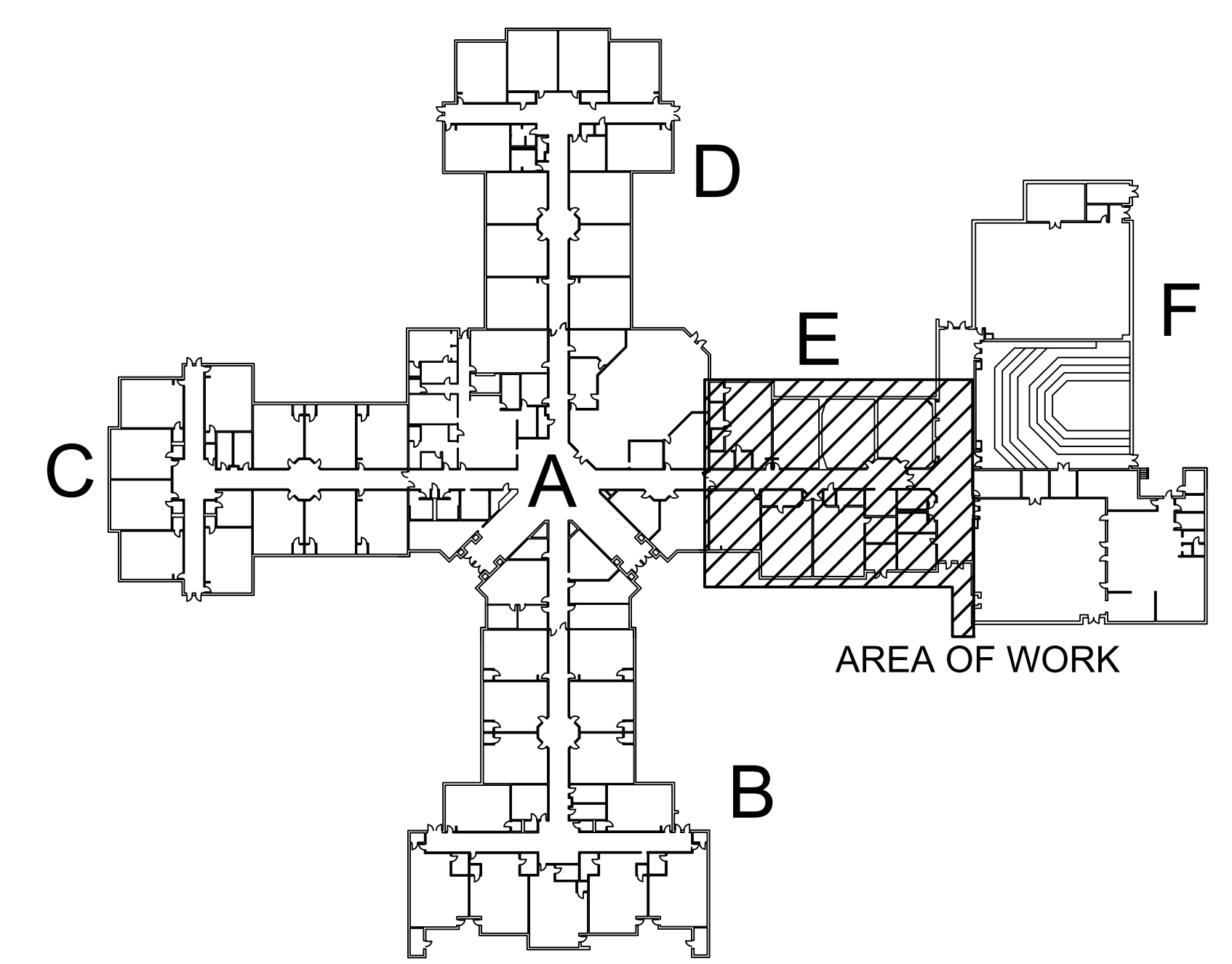
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SPECIALTY LIGHTING NOTE:
 REMOVE AND REINSTALL EXISTING "SPECIALTY" LIGHTING AS REQUIRED FOR NEW CEILING/HVAC WORK. PROVIDE ADDITIONAL SUPPORT AS REQUIRED TO COMPLY WITH 2015 IBC SEISMIC REQUIREMENTS.

ELECTRICAL DEMOLITION PLAN - PART E
 SCALE: 1/8" = 1'-0"

- DEMOLITION NOTES**
- D1. BIDDERS SHALL VISIT THE SITE OF THE WORK PRIOR TO BIDDING AND SHALL INCLUDE IN BID ALL WORK REQUIRED TO PROVIDE NEW WORK AND TO MODIFY EXISTING WORK AS REQUIRED TO CONTINUE IN OPERATION.
 - D2. CONTRACTOR IS CAUTIONED THAT DEMOLITION PLANS ARE BASED ON RECORD DRAWINGS AND VISUAL FIELD OBSERVATION AND ARE INTENDED TO COMMUNICATE INTENT OF DEMOLITION AND DO NOT INDICATE EVERY COMPONENT OF ELECTRICAL SYSTEMS.
 - D3. OWNER SHALL RETAIN FIRST RIGHT OF REFUSAL ON ELECTRICAL EQUIPMENT BEING DEMOLISHED. PRIOR TO BEGINNING DEMOLITION WORK, CONTRACTOR SHALL WALK THRU DEMOLITION AREA WITH OWNER REPRESENTATIVE AND IDENTIFY ITEMS TO BE REMOVED AND TURNED OVER TO OWNER.
 - D4. EXISTING RACEWAY AND WIRING SYSTEMS REUSED AS PART OF THIS CONTRACT SHALL BE REWORKED AS REQUIRED TO COMPLY WITH REQUIREMENTS FOR NEW WORK AND CURRENT CODES AND STANDARDS.
 - D5. CONTRACTOR SHALL EXAMINE NEW WORK PLANS FOR ALL TRADES AND INCLUDE IN BID ALL REWORK AND/OR RELOCATION OF EXISTING RACEWAY, JUNCTION BOXES, DEVICES, WIRING SYSTEMS, AND THE LIKE AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.
 - D6. SEE ARCHITECTURAL DRAWINGS FOR DEMOLITION FLOOR PLAN. EXAMINE WORK TO BE DONE AND PROVIDE ALL ELECTRICAL WORK REQUIRED FOR DEMOLITION.
 - D7. SEE MECHANICAL DRAWINGS FOR EXTENT OF DEMOLITION WORK REQUIRED. REMOVE ELECTRICAL WORK COMPLETE FOR MECHANICAL SYSTEMS BEING REMOVED BY OTHERS. CONTRACTOR IS CAUTIONED THAT THIS EQUIPMENT MAY BE LOCATED OUTSIDE OF GENERAL DEMOLITION AREA (SUCH AS IN MECHANICAL ROOMS, MEZZANINES, ROOFTOP OR SIMILAR LOCATIONS).
 - D8. INCLUDE IN BID ALL WORK REQUIRED FOR TEMPORARY WIRING AND ASSOCIATED ELECTRICAL WORK REQUIRED TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING DEMOLITION PHASE.
 - D9. WIRING SYSTEMS SHALL BE REMOVED BACK TO THE SOURCE OF SUPPLY UNLESS NOTED OTHERWISE. CIRCUIT BREAKERS, FUSIBLE SWITCHES, ETC. SUPPLYING LOADS DEMOLISHED AS PART OF THIS CONTRACT SHALL BE LABELED AS SPARE AND SET TO THE OEE POSITION.
 - D10. PROVIDE REVISED CIRCUIT DIRECTORIES IN ALL PANELBOARDS AFFECTED BY NEW OR DEMOLITION WORK. INDICATE ALL LOADS, NEW AND MODIFIED.
 - D11. INTERRUPTIONS IN ELECTRICAL SERVICE AS REQUIRED FOR THIS WORK SHALL BE COORDINATED WITH AND APPROVED BY OWNER A MINIMUM OF 48 HOURS PRIOR TO PERFORMING WORK.
 - D12. ELECTRICAL DEMOLITION GENERALLY INCLUDES REMOVAL OF EXISTING OUTLETS AND DEVICES. WHERE ALL CIRCUIT LOADS ARE REMOVED, DEMOLISH CIRCUITS BACK TO PANELBOARDS. WHERE ONLY PART OF CIRCUIT LOADS ARE REMOVED, REWORK CIRCUITS BY EXTENSION AND RECONNECTION TO CONTINUE REMAINING LOADS IN SERVICE BEYOND DEMOLITION AREA.
 - D13. EXISTING CEILING SYSTEMS ARE BEING REMOVED AND REPLACED IN SOME AREAS UNDER THIS CONTRACT. INCLUDE IN BID ALL WORK AS REQUIRED FOR RELOCATION OF ALL EXISTING CEILING MOUNTED ELECTRICAL DEVICES (FIRE ALARM DEVICES, SENSORS, CAMERAS, CLOCKS, SPEAKERS, ETC.) TO NEW CEILING SYSTEM. PROVIDE REMOVAL, PROTECTION OF, TEMPORARY SUPPORT AND REINSTALLATION COMPLETE.



KEY PLAN
 NO SCALE

REVISIONS		
No.	Date	Description

Job Number : 114211.02
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 Plot Date : 02/12/2018
 Drawn : DAR
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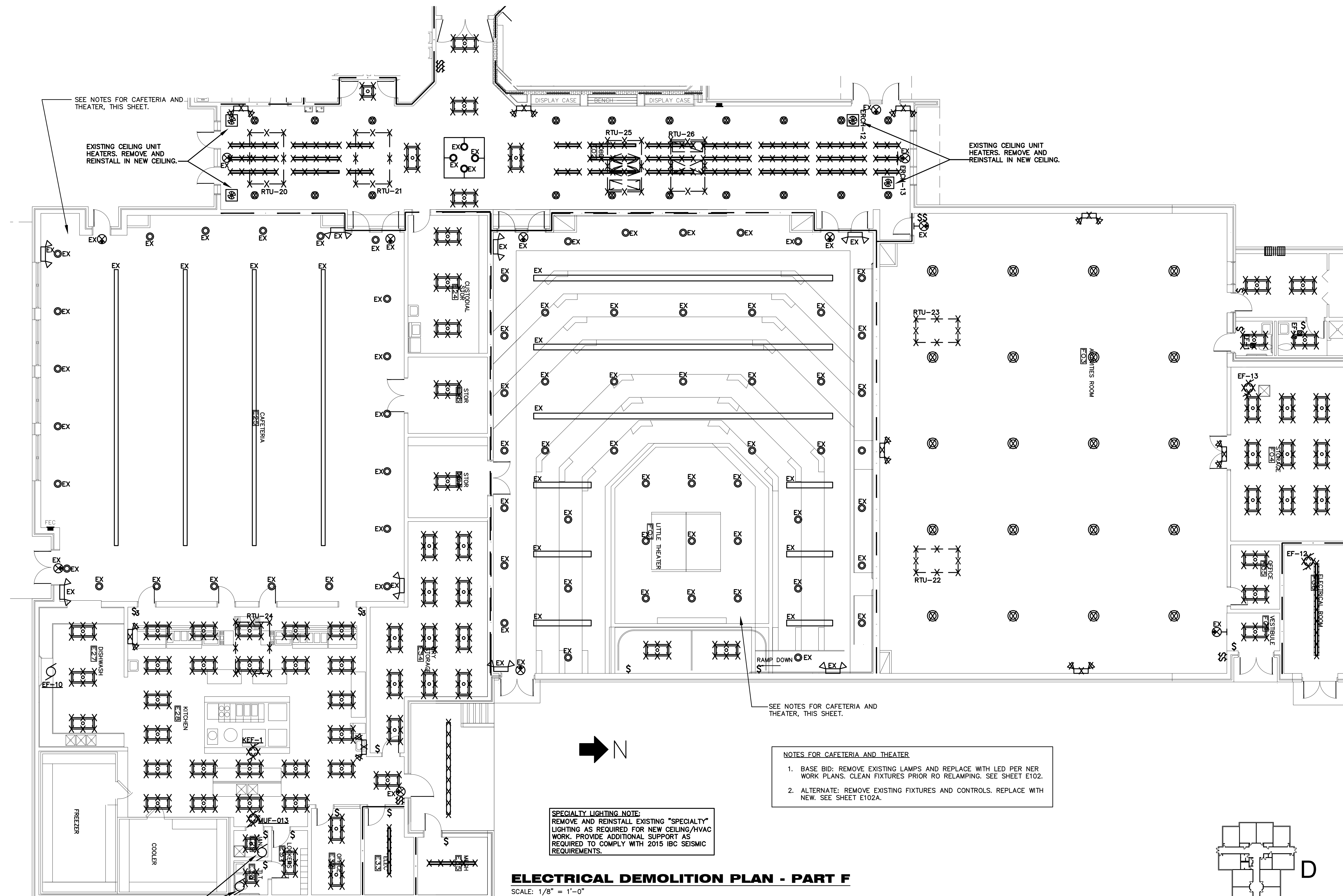
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 STATE OF SOUTH CAROLINA
 LICENSED BOARD OF AUTHORIZATION

**LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 ELECTRICAL DEMOLITION PLAN - PART E**

Sheet No.
ED01
 of
 Project No.
114211.02

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SEE NOTES FOR CAFETERIA AND THEATER, THIS SHEET.
EXISTING CEILING UNIT HEATERS, REMOVE AND REINSTALL IN NEW CEILING.

EXISTING CEILING UNIT HEATERS, REMOVE AND REINSTALL IN NEW CEILING.

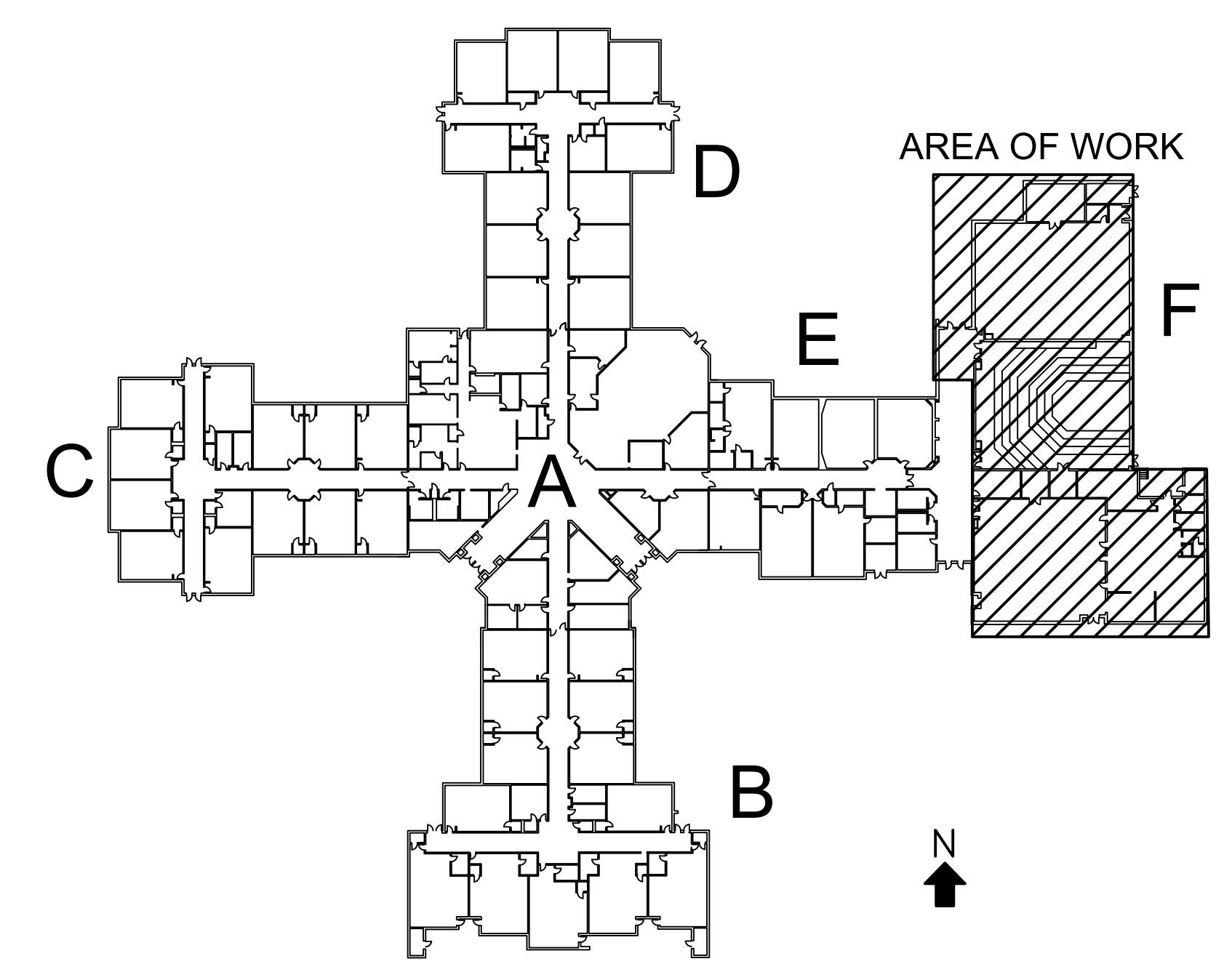
SEE NOTES FOR CAFETERIA AND THEATER, THIS SHEET.

- NOTES FOR CAFETERIA AND THEATER**
1. BASE BID: REMOVE EXISTING LAMPS AND REPLACE WITH LED PER NER WORK PLANS. CLEAN FIXTURES PRIOR TO RELAMPING. SEE SHEET E102.
 2. ALTERNATE: REMOVE EXISTING FIXTURES AND CONTROLS. REPLACE WITH NEW. SEE SHEET E102A.

SPECIALTY LIGHTING NOTE:
REMOVE AND REINSTALL EXISTING "SPECIALTY" LIGHTING AS REQUIRED FOR NEW CEILING/HVAC WORK. PROVIDE ADDITIONAL SUPPORT AS REQUIRED TO COMPLY WITH 2015 IBC SEISMIC REQUIREMENTS.

ELECTRICAL DEMOLITION PLAN - PART F
SCALE: 1/8" = 1'-0"

EXIST. EXHAUST FANS BEING REMOVED AND REINSTALLED. DISCONNECT AS REQUIRED AND RECONNECT COMPLETE AFTER NEW CEILING INSTALLATION.



KEY PLAN
NO SCALE

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district five
of Lexington and adjoining counties

Professional Engineer
No. 19845
S. JACKSON OBRILE
2/12/2018
SOUTH CAROLINA
GWA, INC.
ELECTRICAL ENGINEERS
No. 006625
STATE OF AUTHORIZATION

LAKE MURRAY ELEMENTARY SCHOOL
REPLACE HVAC, PHASE III
ELECTRICAL DEMOLITION PLAN - PART F
Sheet Title

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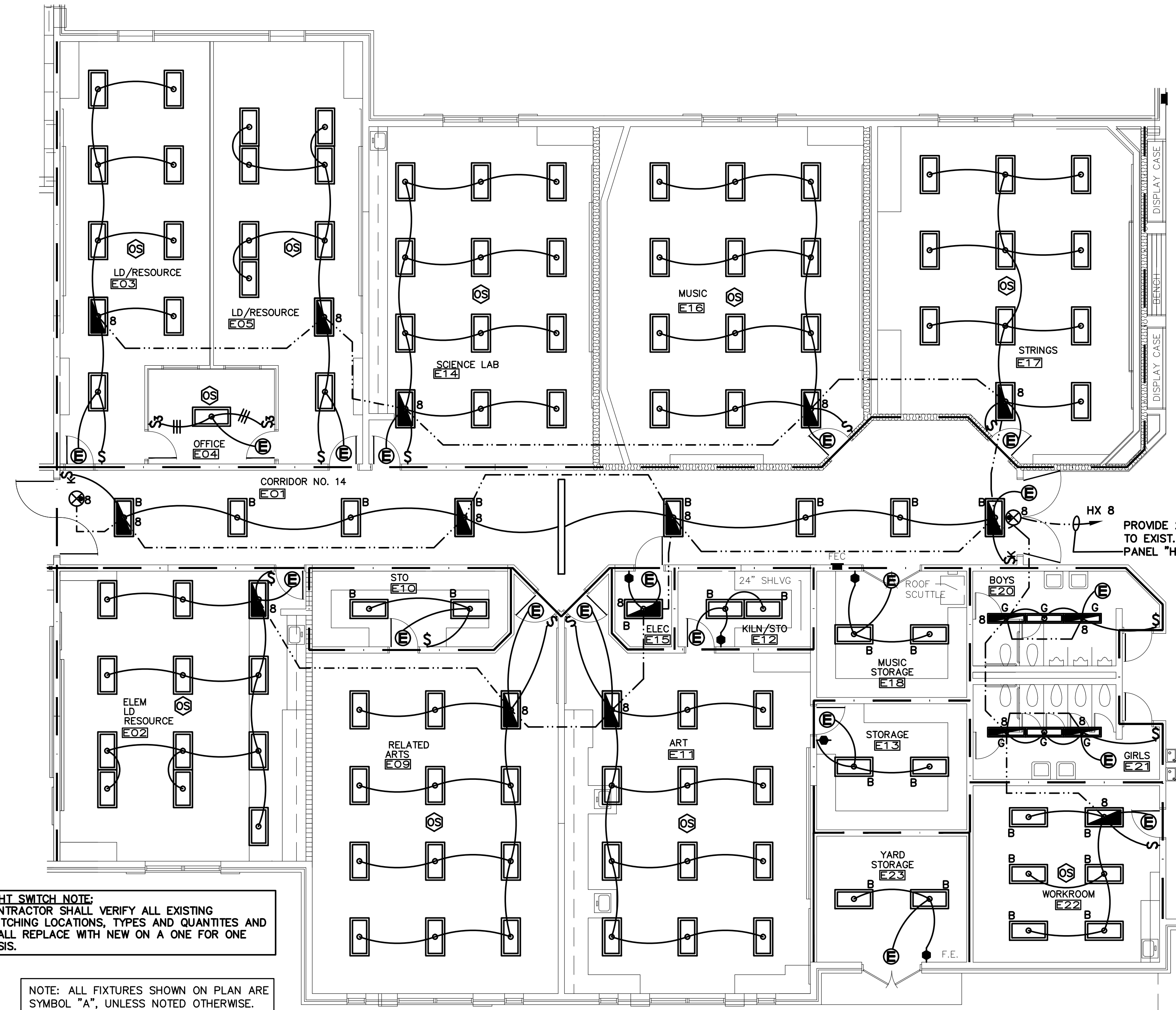
EXIST. PANEL

SCHEDULE - PANELBOARD HX TYPE: NQ00 I-LINE VOLTAGE 208/120V, 3ø, 4W, WYE MOUNTING: FLUSH SURFACE AIC RATING: 42K
 60 AMP MLO MCB NF LDCTR 480/277V, 3ø, 4W, WYE ACCESSORY: FEED-THRU LUGS TOTAL SPACES: 24

NO.	LOAD DESCRIPTION	REMARK	BRKR	CIRCUIT	LOAD KVA	BUSSING			CIRCUIT	BRKR	REMARK	LOAD DESCRIPTION	NO.
						A	B	C					
1	EXIST. LOAD		20	1					1	20		EXIST. LOAD	1
2	EXIST. LOAD		20	1					1	20		EXIST. LOAD	2
3	EXIST. LOAD		20	1					1	20		EXIST. LOAD	3
4	EXPRESS LIG	EX. BRKR	20	10	1/2	1.5			1	20	EX BRKR	EXPRESS LIG	4
5	SEPAR		20	1					1	20		SEPAR	5
6	SEPAR		20	1					1	20		SEPAR	6
7	SEPAR		20	1					1	20		SEPAR	7
8	SEPAR		20	1					1	20		SEPAR	8
9	SEPAR		20	1					1	20		SEPAR	9
10	SEPAR		20	1					1	20		SEPAR	10
11	SEPAR		20	1					1	20		SEPAR	11
12	SEPAR		20	1					1	20		SEPAR	12
13	SEPAR		20	1					1	20		SEPAR	13
14	SEPAR		20	1					1	20		SEPAR	14
15	SEPAR		20	1					1	20		SEPAR	15
16	SEPAR		20	1					1	20		SEPAR	16
17	SEPAR		20	1					1	20		SEPAR	17
18	SEPAR		20	1					1	20		SEPAR	18
19	SEPAR		20	1					1	20		SEPAR	19
20	SEPAR		20	1					1	20		SEPAR	20
21	SEPAR		20	1					1	20		SEPAR	21
22	SEPAR		20	1					1	20		SEPAR	22

CONNECTED LOAD, KVA: A_1.5 B_### C_### NEUTRAL A_1.5 B_1.5 C_1.5 CONNECTED LOAD, KVA:

PANEL SECTIONS: SECT. 1 OF 2-SECT. PANEL KVA, THIS SECTION: A_3.0 B_1.5 C_1.5 REMARK: ABBREVIATION LEGEND: STB = SHUNT TRIP BRKR. GFI = GFI BRKR.
 SECT. 2 OF 2-SECT. PANEL KVA, BOTH SECTIONS: A_ B_ C_ SFB = SUB-FEED BRKR. VFY = VERIFY LOAD



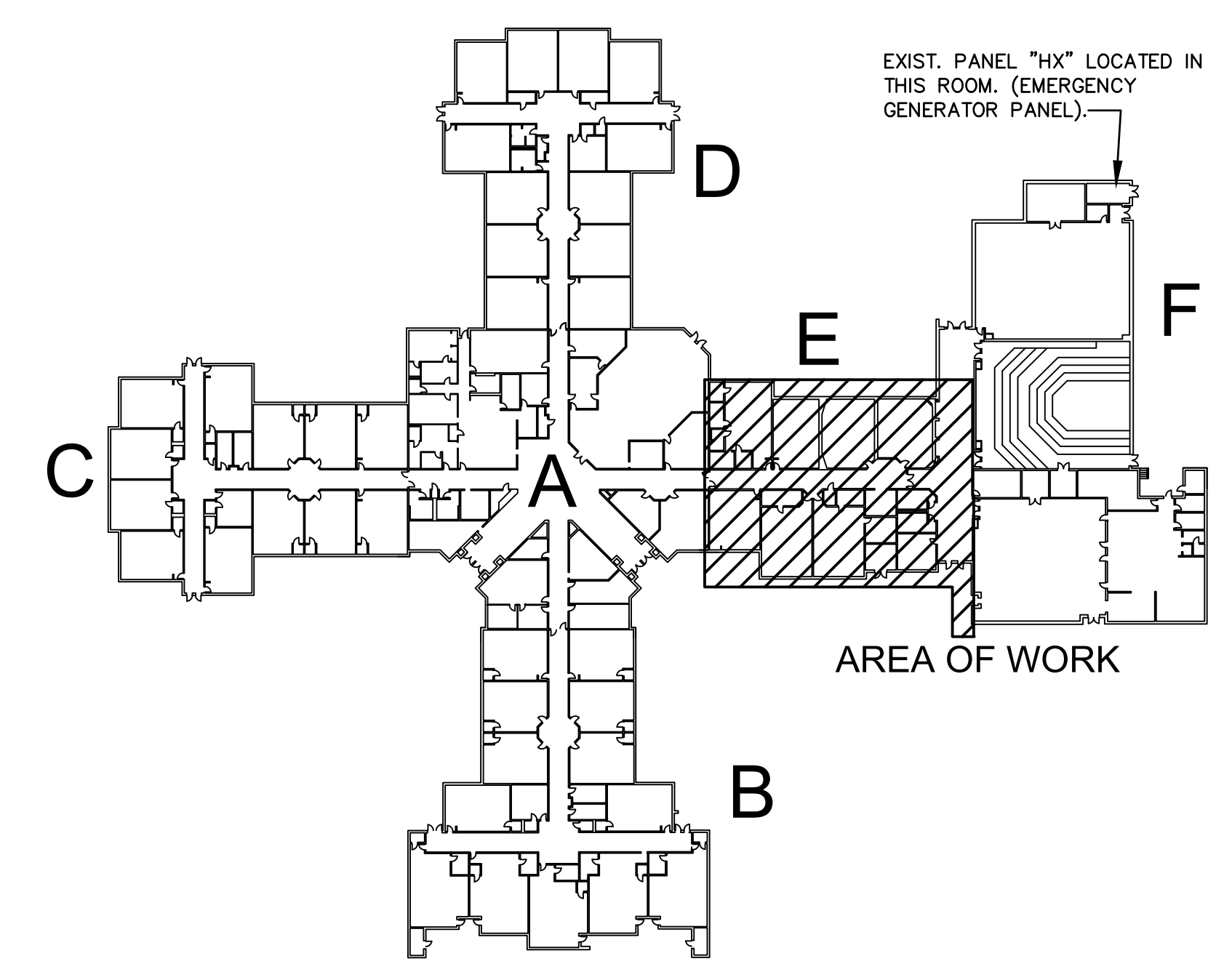
LIGHT SWITCH NOTE:
CONTRACTOR SHALL VERIFY ALL EXISTING SWITCHING LOCATIONS, TYPES AND QUANTITIES AND SHALL REPLACE WITH NEW ON A ONE FOR ONE BASIS.

NOTE: ALL FIXTURES SHOWN ON PLAN ARE SYMBOL "A", UNLESS NOTED OTHERWISE.

PART "E" LIGHTING PLAN - NEW WORK
SCALE: 1/8" = 1'-0"

SPECIALTY LIGHTING NOTE:
REMOVE AND REINSTALL EXISTING "SPECIALTY" LIGHTING AS REQUIRED FOR NEW CEILING/HVAC WORK. PROVIDE ADDITIONAL SUPPORT AS REQUIRED TO COMPLY WITH 2015 IBC SEISMIC REQUIREMENTS.

HX B
PROVIDE 2 #12, #12 GRD., 1/2" C.
TO EXIST, 20/1 BRKR. IN EXIST.
PANEL "HX", SPACE INDICATED.



KEY PLAN
NO SCALE

REVISIONS		
No.	Date	Description

Job Number : 114211.02
 Designed : 08/15/2017
 Plot Date : 02/12/2018
 Drawn by : DAR
 Approved By : SDO

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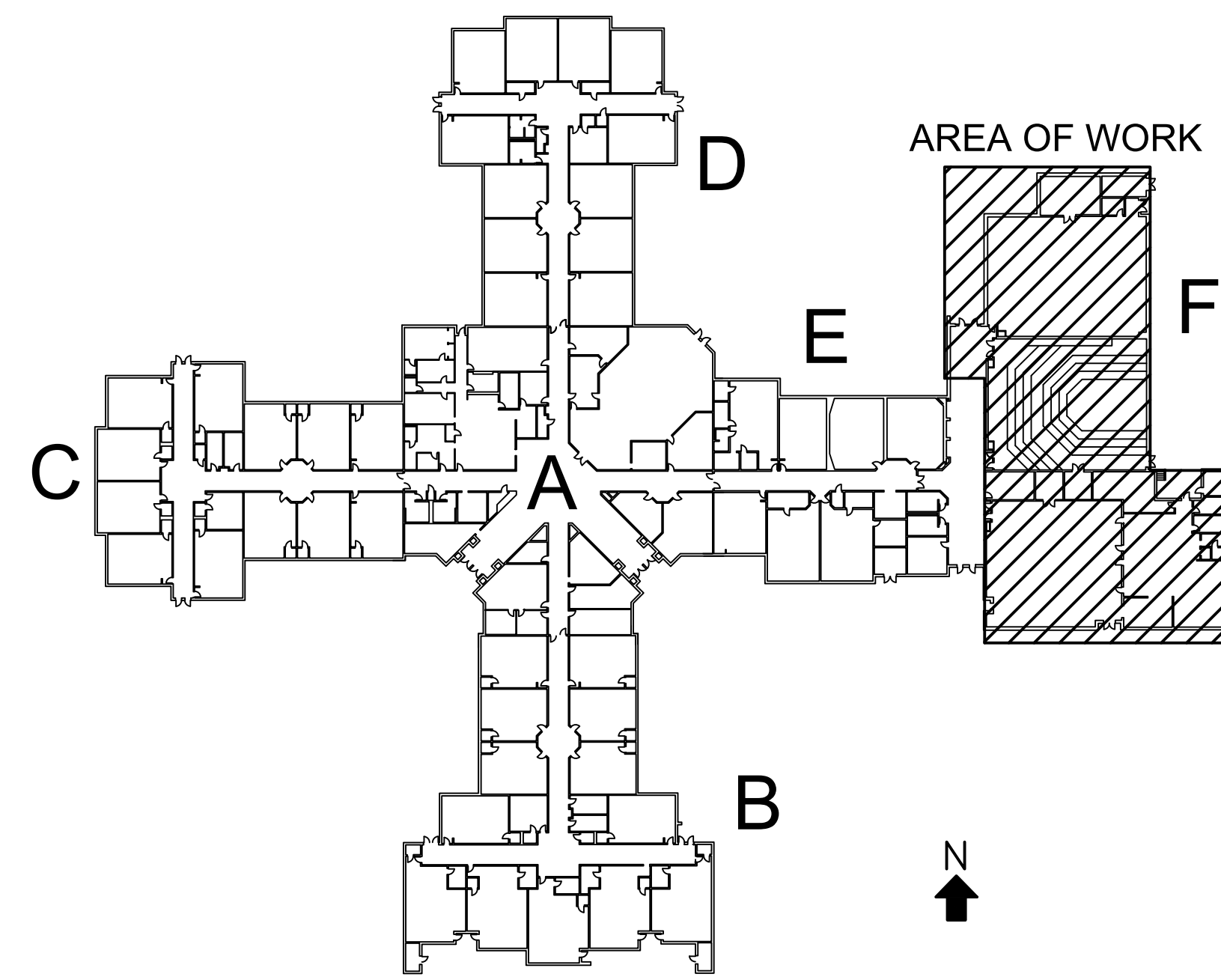
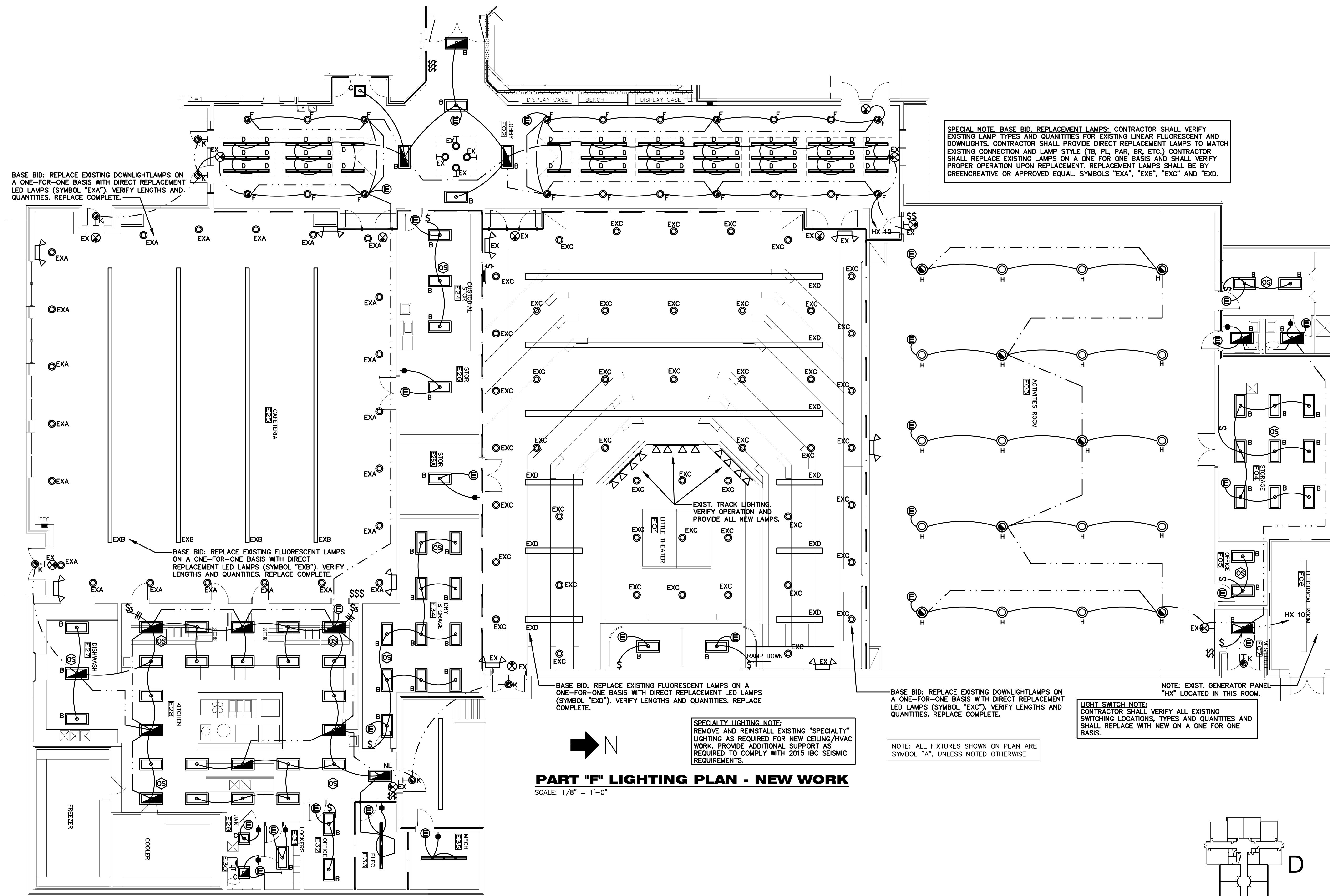
district five
 of Lake Murray Elementary School

Professional Engineer
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 S. JACKSON OBRILE
 2/12/2018

South Carolina
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 ELECTRICAL ENGINEERS
 No. 006825
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LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 LIGHTING PLAN - PART E

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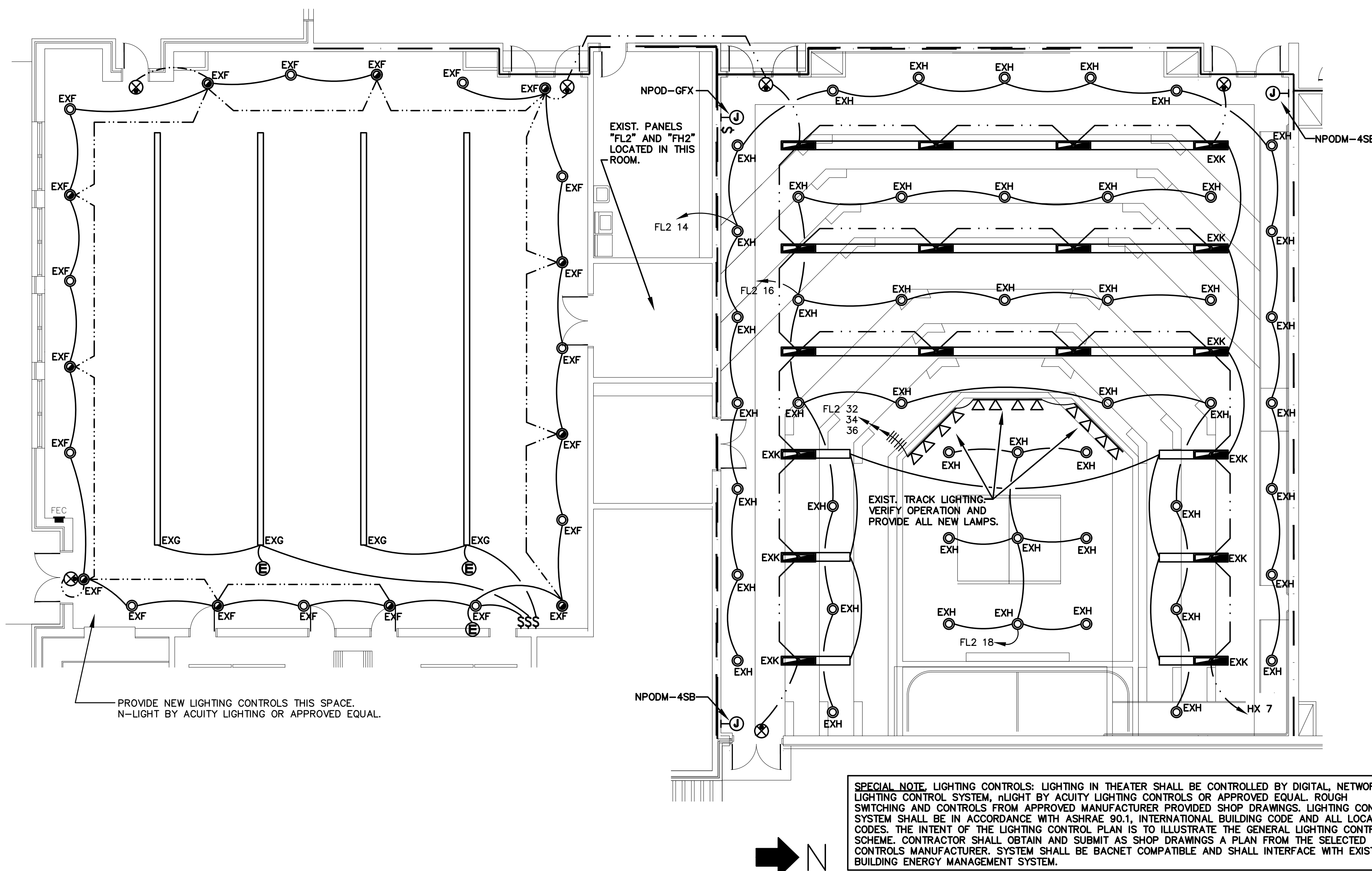
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 STATE OF SOUTH CAROLINA

LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 SHEET TITLE
 LIGHTING PLAN - PART F

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PART "F" LIGHTING PLAN - ALTERNATE

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

EXIST. PANEL

SCHEDULE - PANELBOARD EL2 TYPE: GE □ I-LINE VOLTAGE ■ 208/120V, 3Ø, 4W, WYE MOUNTING: □ FLUSH ■ SURFACE AIC RATING _____

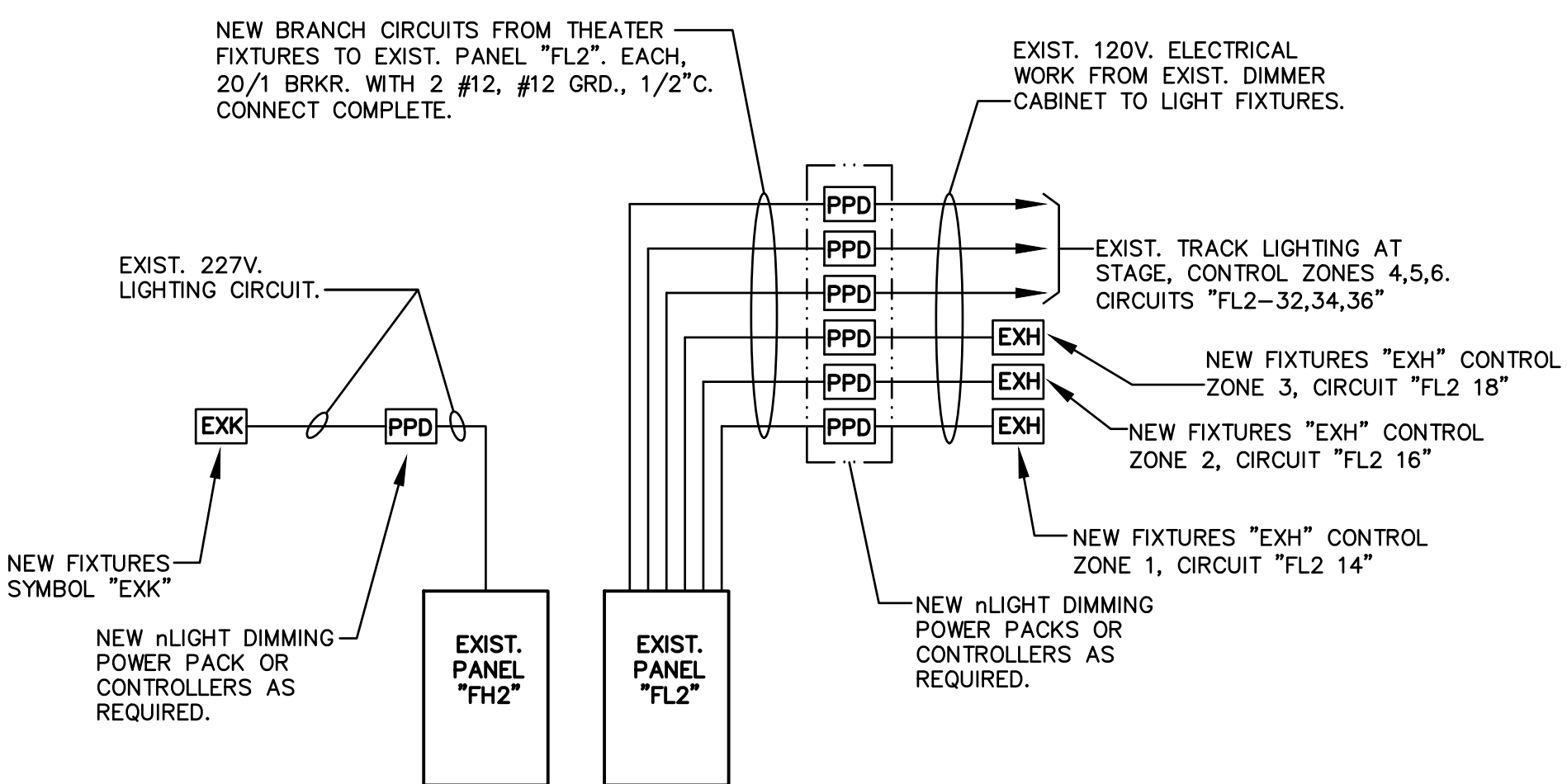
125 AMP □ MCO □ MCB □ NF □ LDCTR □ 480/277V, 3Ø, 4W, WYE ACCESSORY: □ FEED-THRU LUGS TOTAL SPACES 36

NO.	LOAD DESCRIPTION	REMARK	BRKR AMP	WIRE COND	LOAD KVA			BUSSING A B C	LOAD KVA			CIRCUIT COND WIRE	BRKR AMP	REMARK	LOAD DESCRIPTION	NO.
					A	B	C		A	B	C					
1	EXIST. LOAD		20	1										EXIST. LOAD	1	
2															2	
3															3	
4															4	
5															5	
6															6	
7															7	
8															8	
9															9	
10															10	
11															11	
12															12	
13															13	
14															14	
15															15	
16															16	
17															17	
18															18	
19															19	
20															20	
21	EXIST. LOAD		30	1										EXIST. LOAD	21	
22	EXIST. LOAD		30	1										EXIST. LOAD	22	
23	EXIST. LOAD		30	2										EXIST. LOAD	23	
24															24	
25															25	
26															26	
27															27	
28															28	
29															29	
30															30	
31	EXIST. DIMMER		40	3										EXIST. DIMMER	31	
32															32	
33															33	
34															34	
35															35	
36															36	

CONNECTED LOAD, KVA: A _____ B _____ C _____ NEUTRAL _____

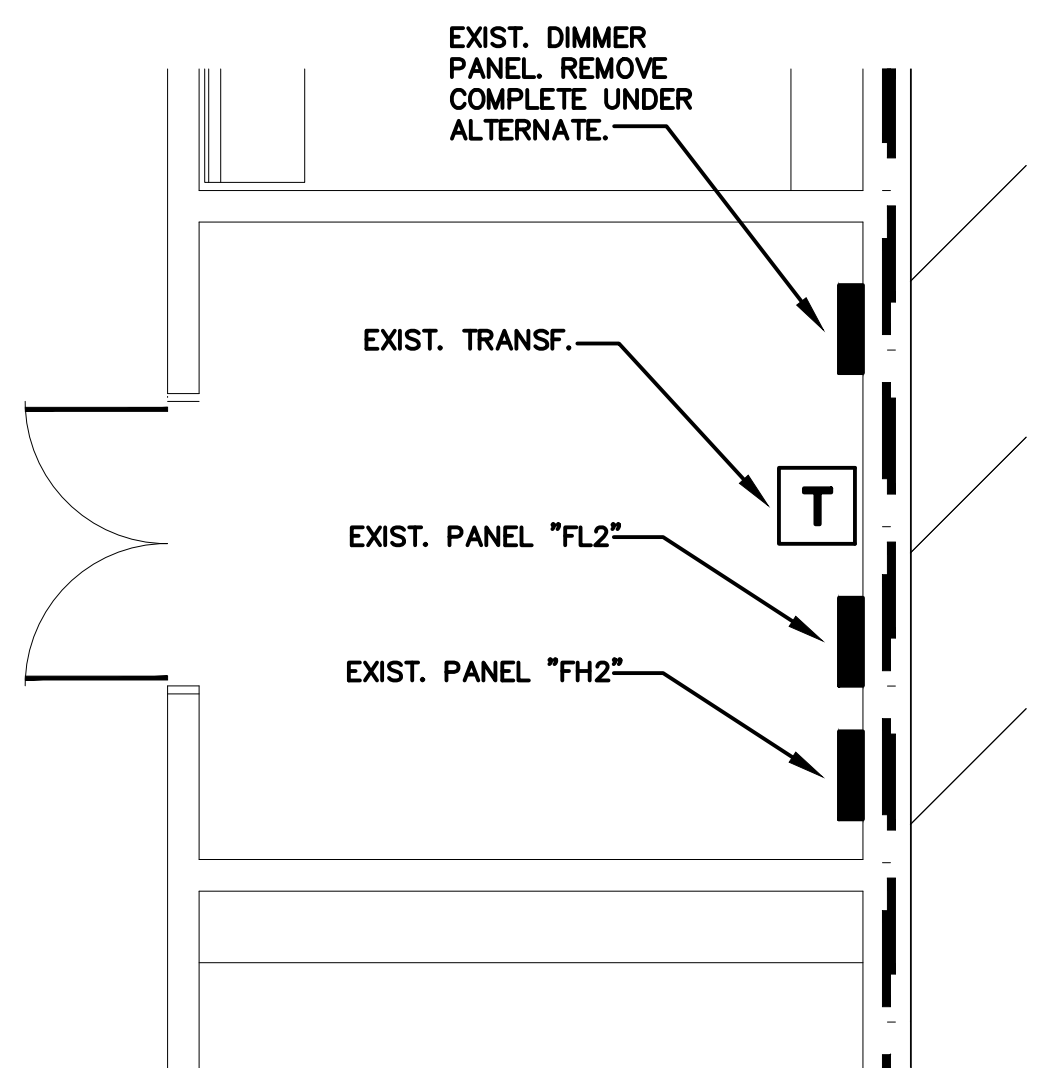
PANEL SECTIONS: KVA, THIS SECTION: A _____ B _____ C _____ REMARK ABBREVIATION LEGEND: STB = SHUNT TRIP BRKR, GFI = GFI BRKR, □ SECT. 1 OF 2-SECT. PANEL KVA, BOTH SECTIONS: A _____ B _____ C _____ SFB = SUB-FEED BRKR, VFY = VERIFY LOAD □ SECT. 2 OF 2-SECT. PANEL

EXIST. SPARE 20/1 CIRCUIT BREAKERS. USE FOR NEW LIGHTING CIRCUITS. SEE ALTERNATE PLAN AND DETAILS.



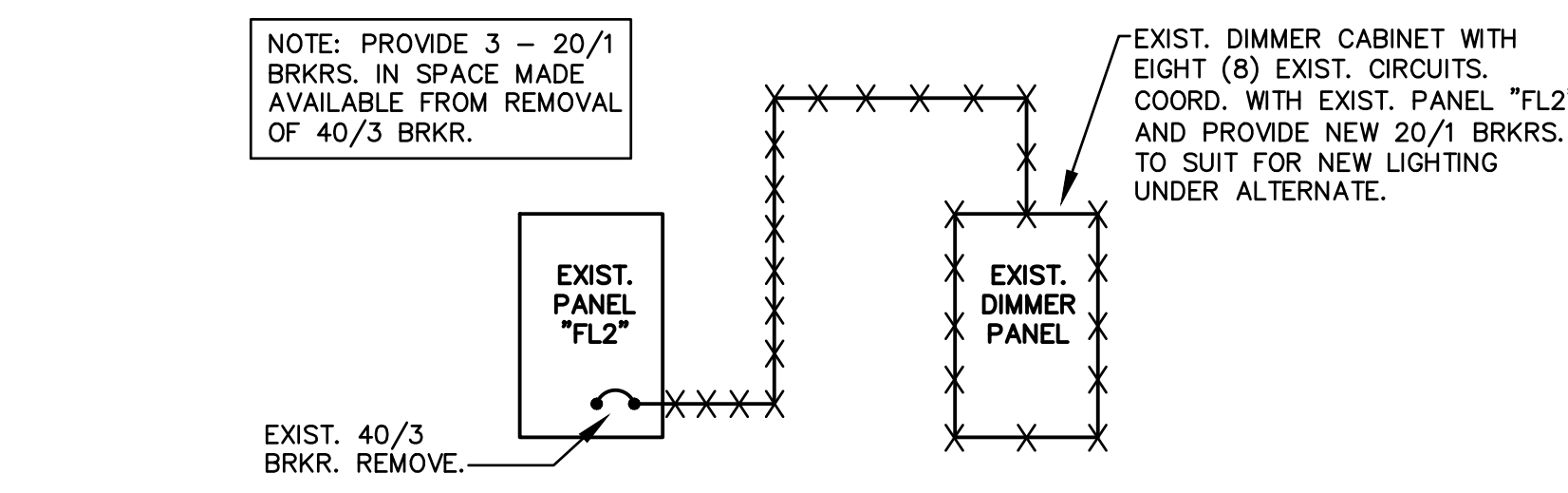
ALTERNATE THEATER LIGHTING RISER/CONTROL SCHEMATIC

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



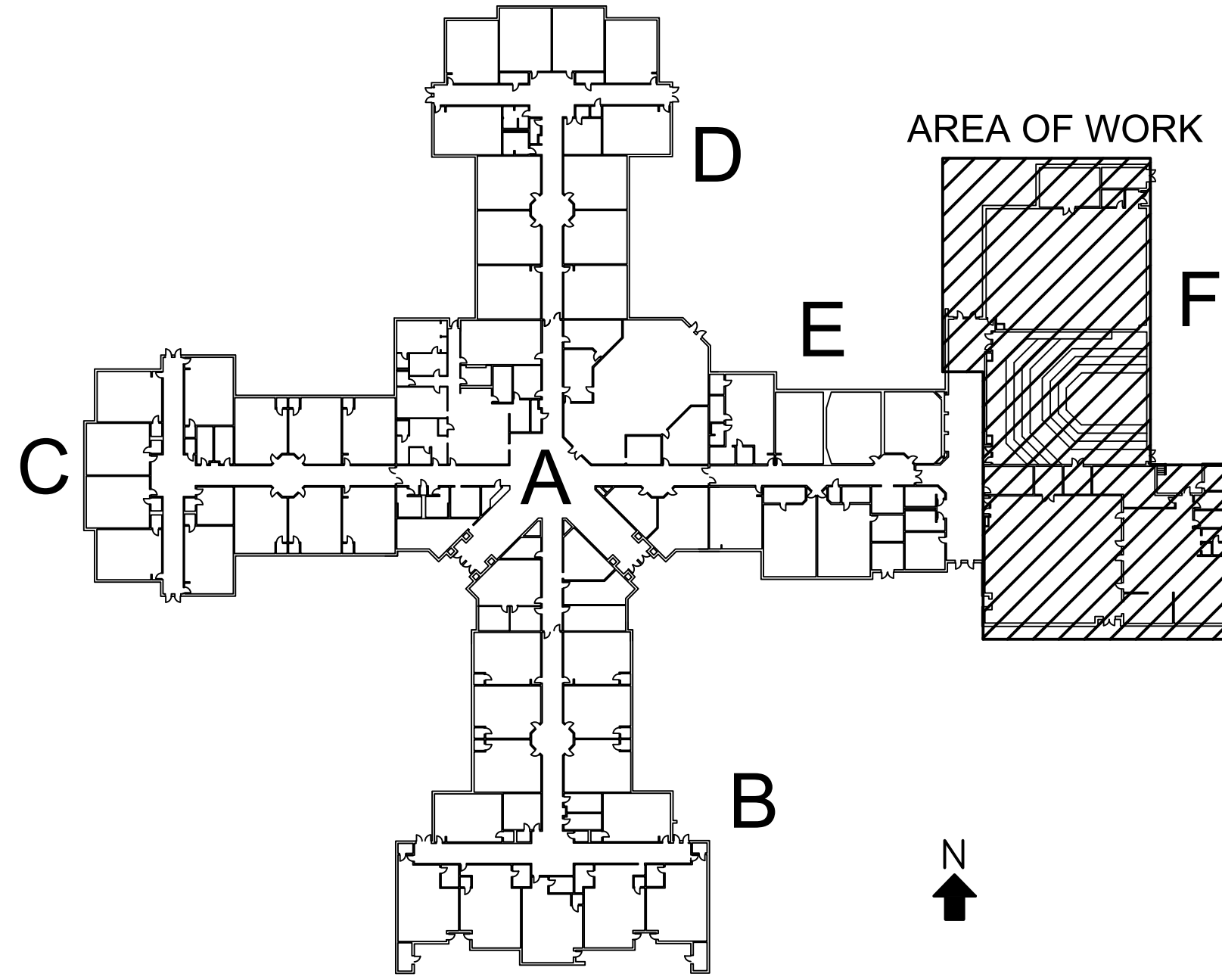
EXISTING ELECTRICAL ROOM, AREA "F"

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



PARTIAL POWER RISER DIAGRAM - ALTERNATE

NO SCALE



KEY PLAN

NO SCALE

REVISIONS		
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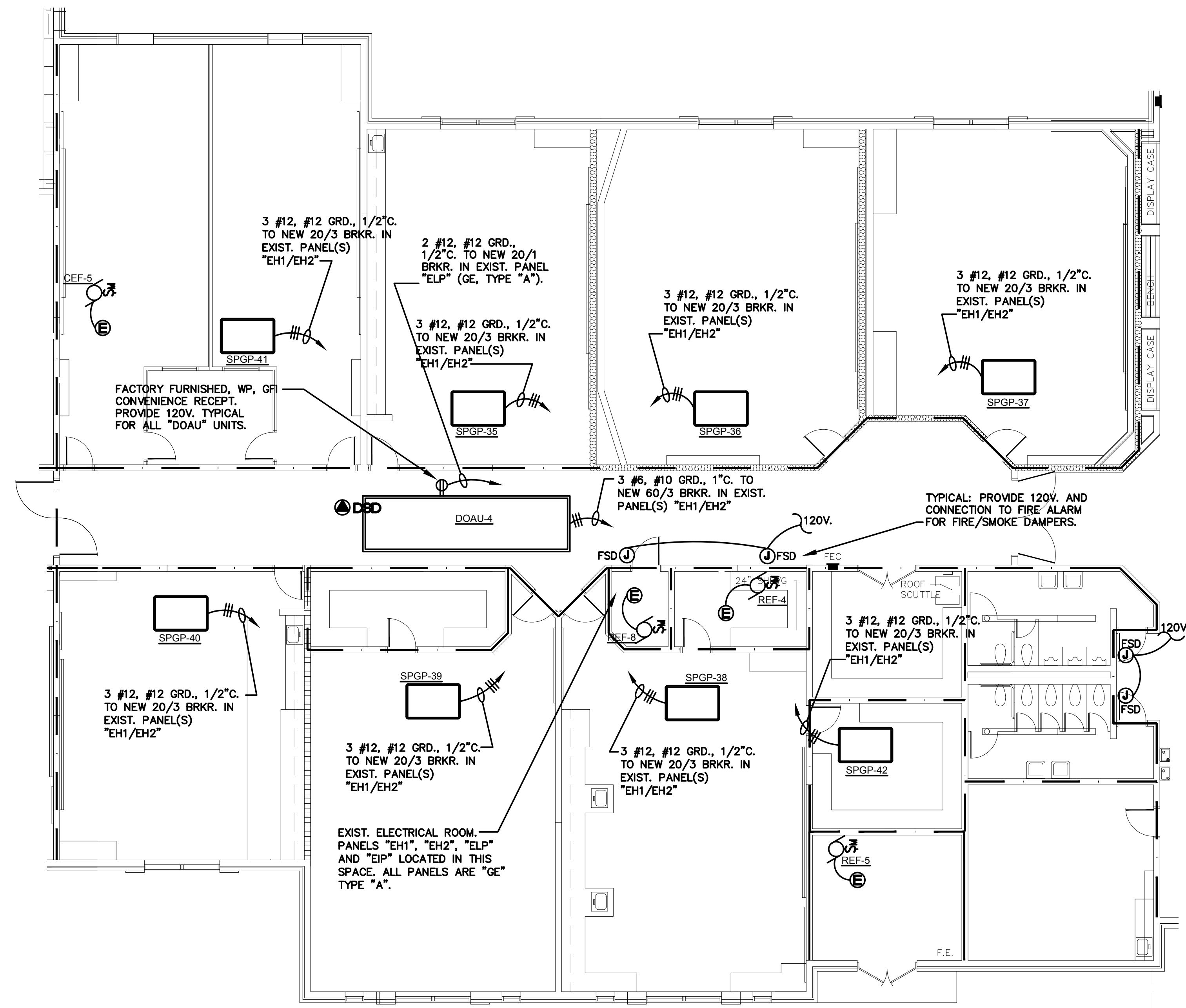
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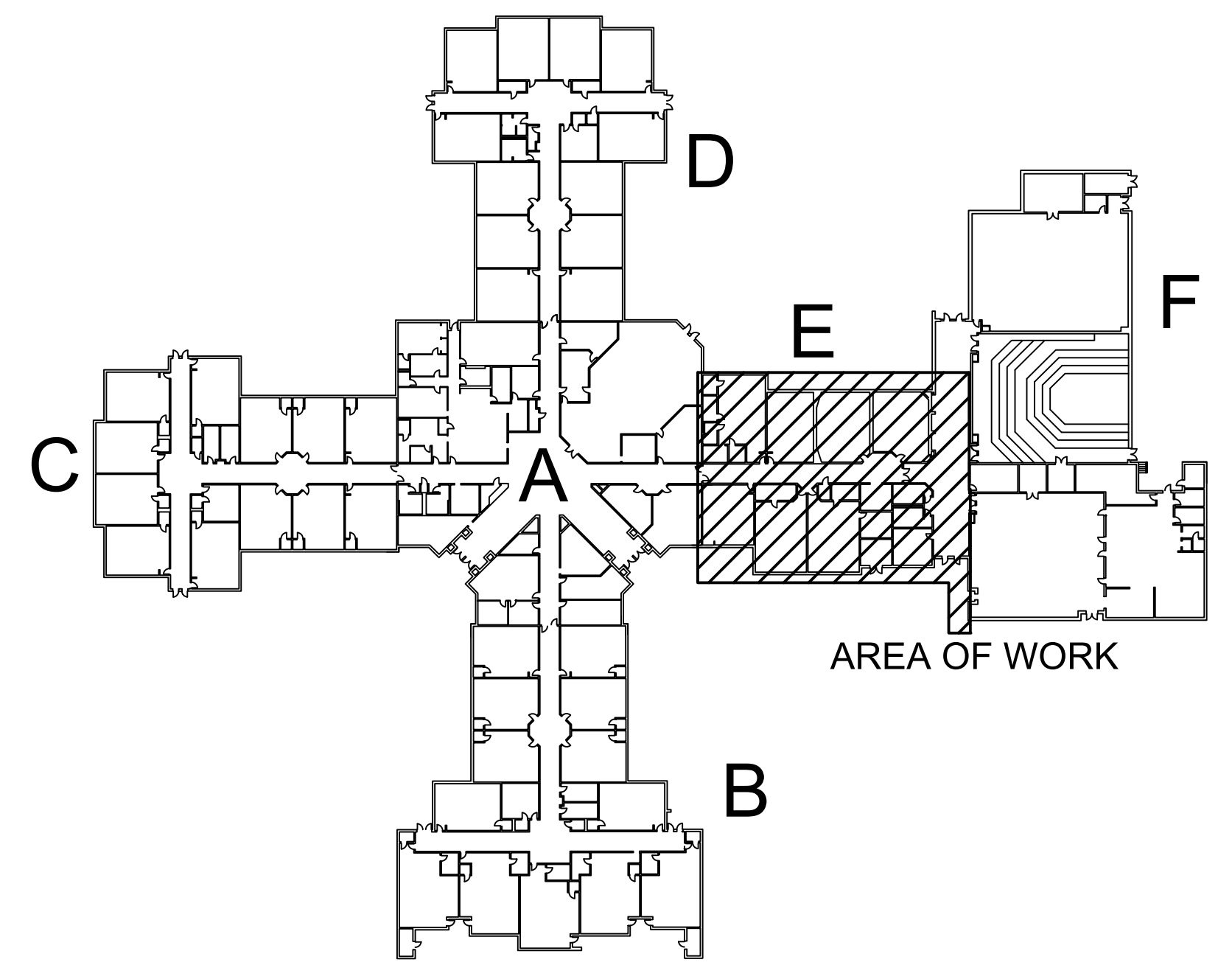
LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 ALTERNATE LIGHTING PLAN - THEATER, CAFETERIA
 Sheet Title

Sheet No.
E102A
 of
 Project No.
114211.02

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MECHANICAL CIRCUIT PLAN - PART E
SCALE: 1/8" = 1'-0"



KEY PLAN
NO SCALE

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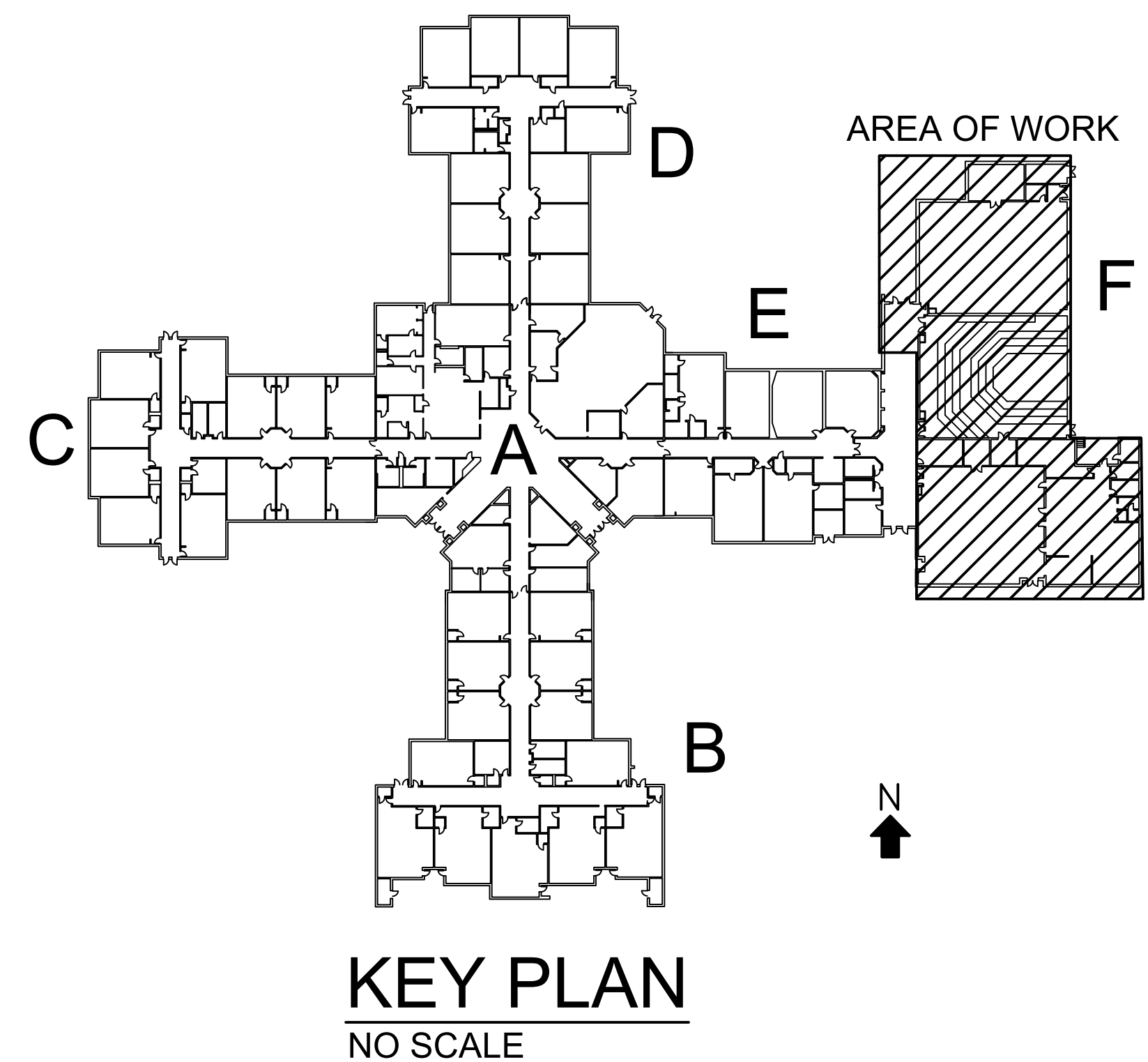
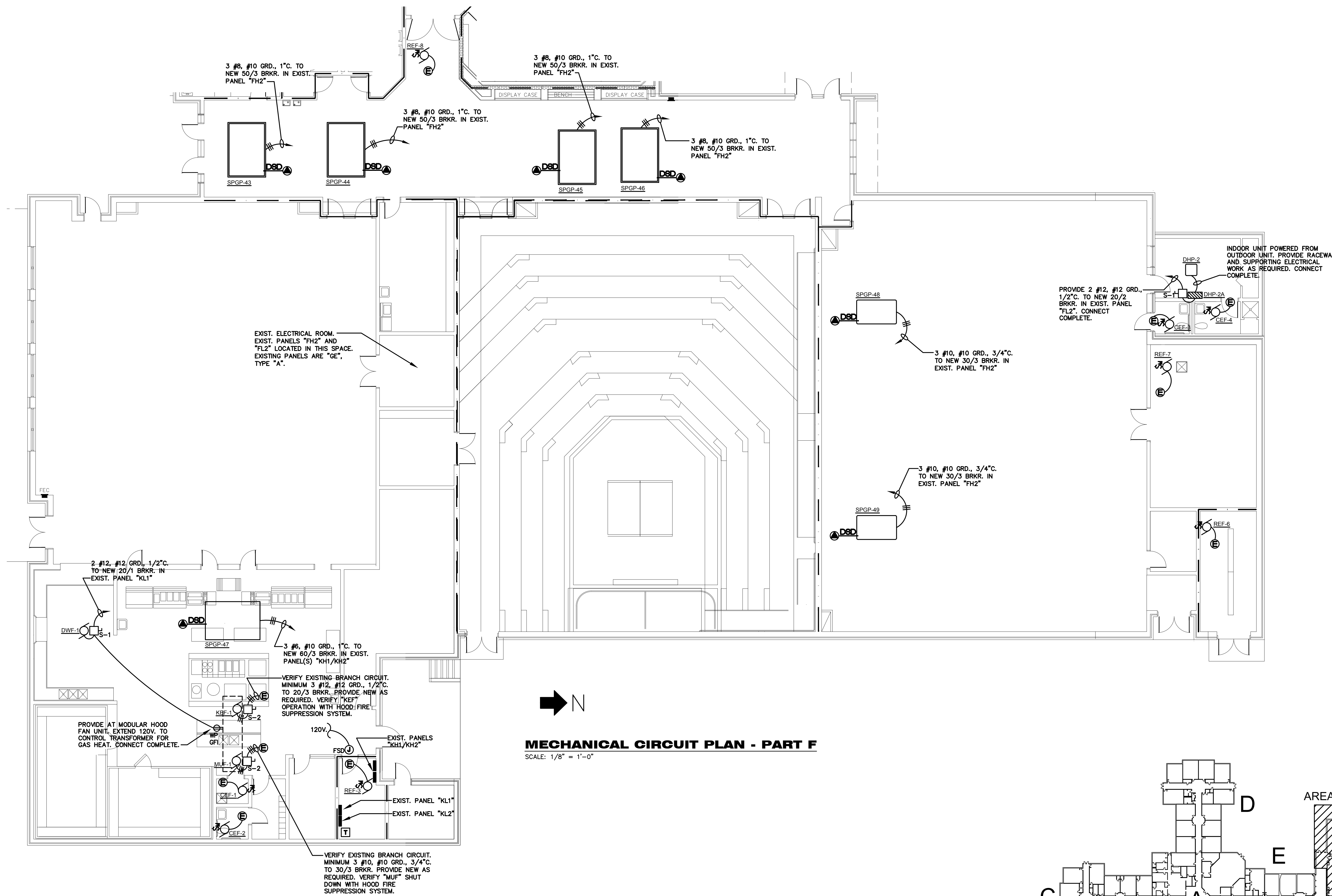
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LAKE MURRAY ELEMENTARY SCHOOL
 REPLACE HVAC, PHASE III
 MECHANICAL CIRCUIT PLAN - PART E

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LAKE MURRAY ELEMENTARY SCHOOL
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 MECHANICAL CIRCUIT PLAN - PART F