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MYRTLE BEACH EARLY CHILDHOOD SCHOOL MECHANICAL RENOVATIONS

HORRY COUNTY SCHOOL DISTRICT
Myrtle Beach, South Carolina

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- M105 - MECHANICAL AND ELECTRICAL SCHEDULES AND DETAILS

COVER

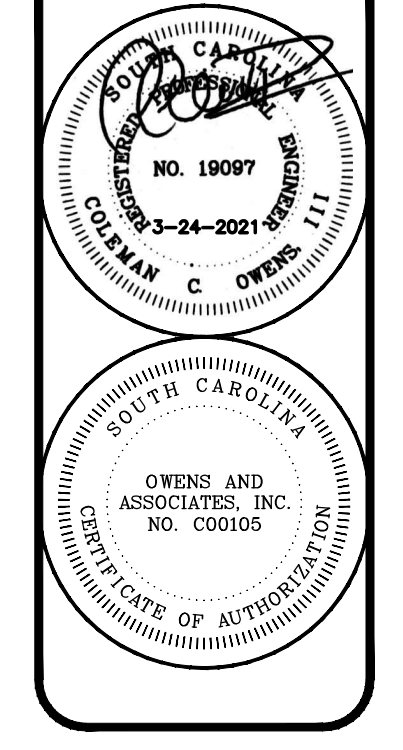
comm: 2103
date: 3-24-2021

revisions

project:
MYRTLE BEACH ECS
MECHANICAL RENOVATIONS
MYRTLE BEACH, SC

Owens and Associates Inc.
inc., consulting engineers
Mt. Pleasant, South Carolina

OWENS AND ASSOCIATES, INC.
CONSULTING ENGINEERS



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EW ELEMENTARY SCHOOL

ALTERNATE #1

BASE BID SECTION A

BASE BID SECTION B

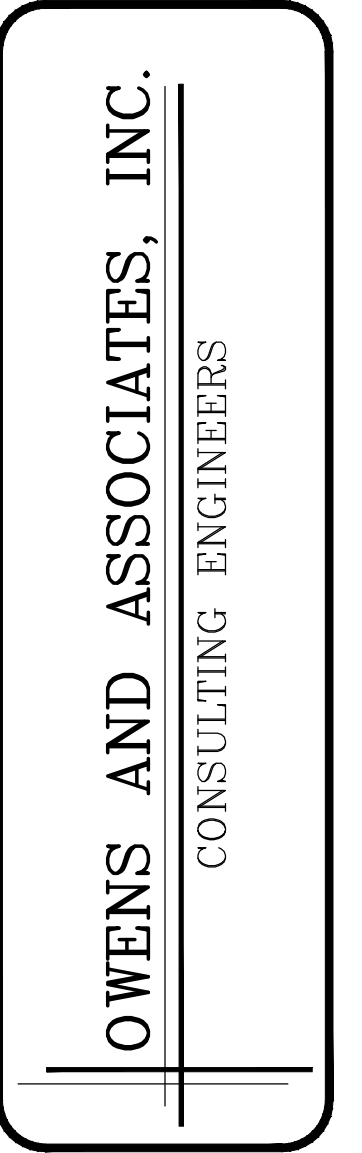
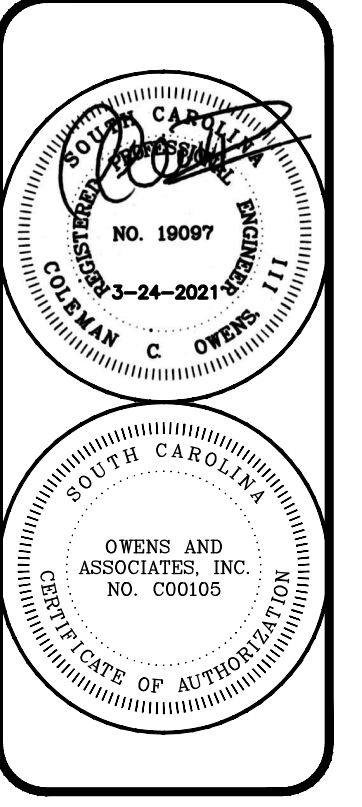
OVERALL MECHANICAL FLOOR PLAN
SCALE: 1"=20'-0"

ALTERNATE #2

ALTERNATE #3

TRUE NORTH
PLAN NORTH

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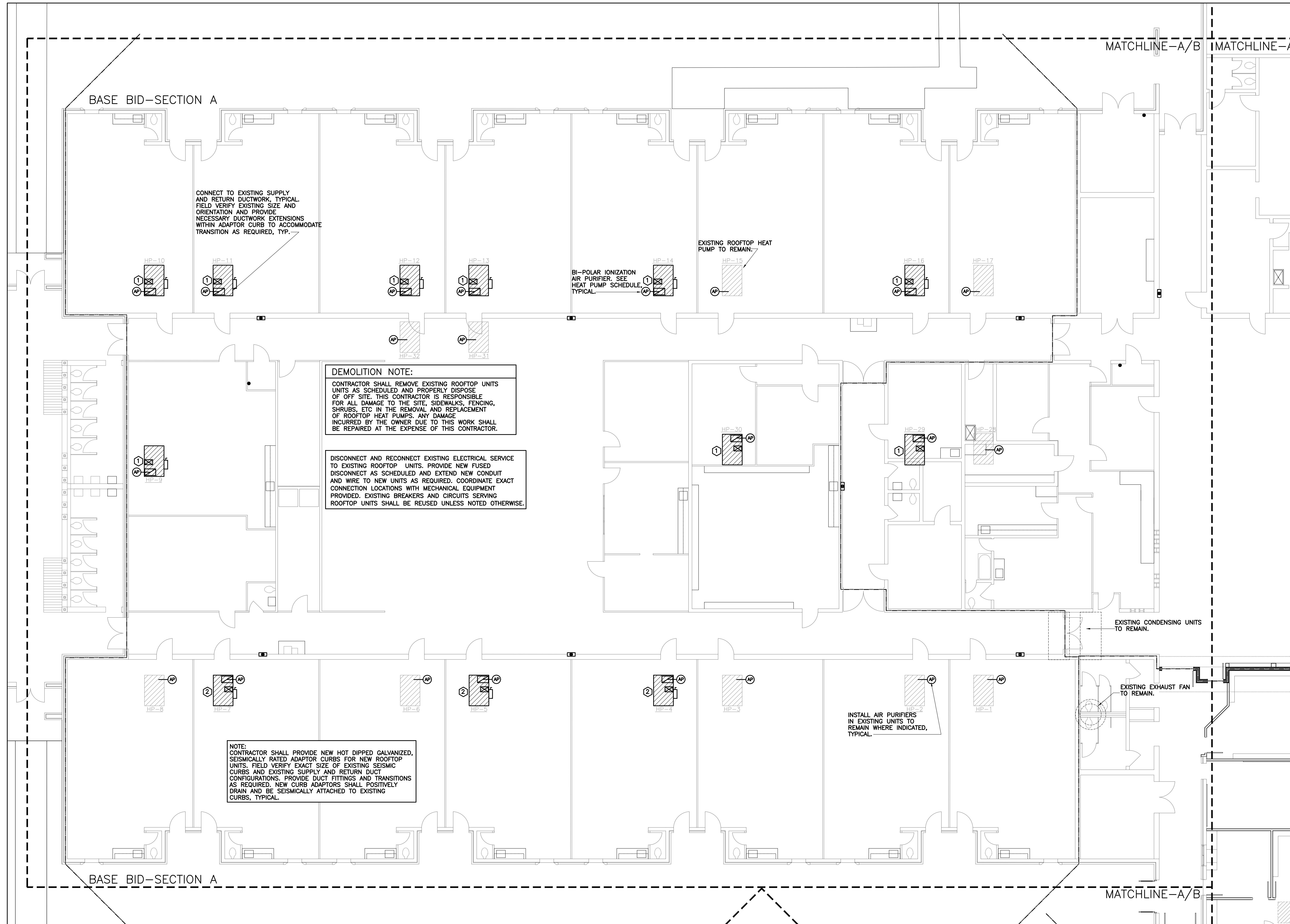
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M101

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FIREWALL INDICATIONS	
	1 HOUR WALL
	2 HOUR WALL
	4 HOUR WALL
	SMOKE WALL



DEMOLITION NOTE:
 CONTRACTOR SHALL REMOVE EXISTING ROOFTOP UNITS AS SCHEDULED AND PROPERLY DISPOSE OF OFF SITE. THIS CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO THE SITE, SIDEWALKS, FENCING, SHRUBS, ETC IN THE REMOVAL AND REPLACEMENT OF ROOFTOP HEAT PUMPS. ANY DAMAGE INCURRED BY THE OWNER DUE TO THIS WORK SHALL BE REPAIRED AT THE EXPENSE OF THIS CONTRACTOR.

DISCONNECT AND RECONNECT EXISTING ELECTRICAL SERVICE TO EXISTING ROOFTOP UNITS. PROVIDE NEW FUSED DISCONNECT AS SCHEDULED AND EXTEND NEW CONDUIT AND WIRE TO NEW UNITS AS REQUIRED. COORDINATE EXACT CONNECTION LOCATIONS WITH MECHANICAL EQUIPMENT PROVIDED. EXISTING BREAKERS AND CIRCUITS SERVING ROOFTOP UNITS SHALL BE REUSED UNLESS NOTED OTHERWISE.

NOTE:
 CONTRACTOR SHALL PROVIDE NEW HOT DIPPED GALVANIZED, SEISMICALLY RATED ADAPTOR CURBS FOR NEW ROOFTOP UNITS. FIELD VERIFY EXACT SIZE OF EXISTING SEISMIC CURBS AND EXISTING SUPPLY AND RETURN DUCT CONFIGURATIONS. PROVIDE DUCT FITTINGS AND TRANSITIONS AS REQUIRED. NEW CURB ADAPTOR SHALL POSITIVELY DRAIN AND BE SEISMICALLY ATTACHED TO EXISTING CURBS, TYPICAL.

CONNECT TO EXISTING SUPPLY AND RETURN DUCTWORK, TYPICAL. FIELD VERIFY EXISTING SIZE AND ORIENTATION AND PROVIDE NECESSARY DUCTWORK EXTENSIONS WITHIN ADAPTOR CURB TO ACCOMMODATE TRANSITION AS REQUIRED, TYP.

BI-POLAR IONIZATION AIR PURIFIER. SEE HEAT PUMP SCHEDULE, TYPICAL.

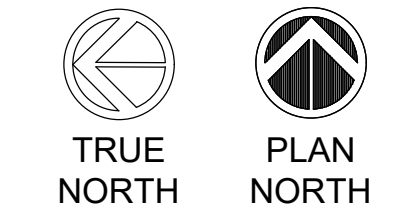
EXISTING ROOFTOP HEAT PUMP TO REMAIN.

INSTALL AIR PURIFIERS IN EXISTING UNITS TO REMAIN WHERE INDICATED, TYPICAL.

EXISTING CONDENSING UNITS TO REMAIN.

EXISTING EXHAUST FAN TO REMAIN.

MECHANICAL FLOOR PLAN-BASE BID SECTION A
 SCALE: 1/8"=1'-0"



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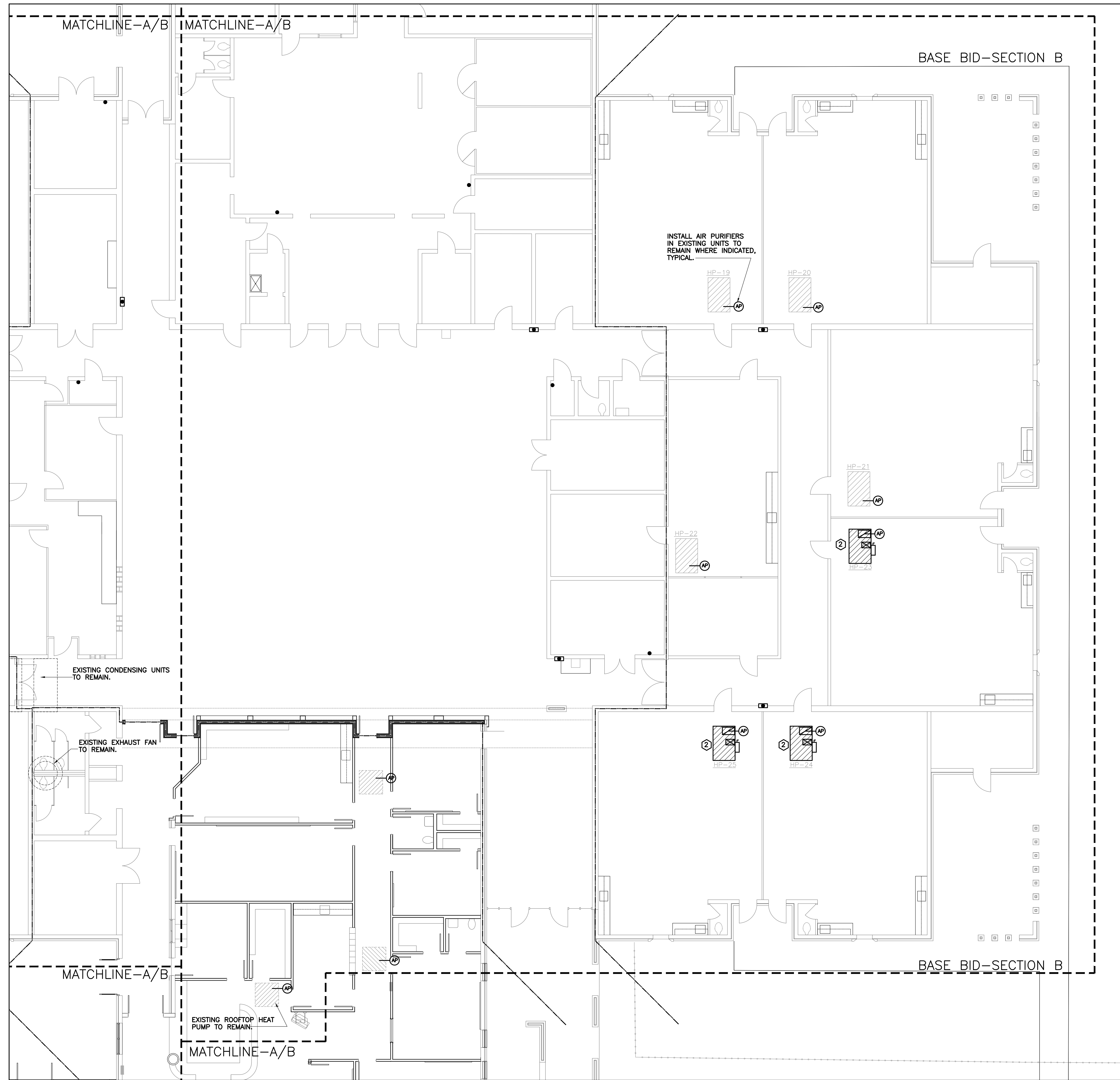
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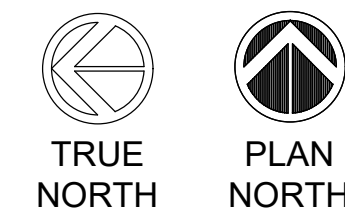
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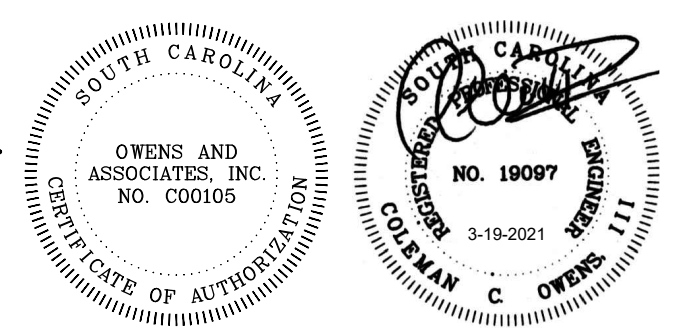


MECHANICAL FLOOR PLAN-BASE BID SECTION B
SCALE: 1/8"=1'-0"

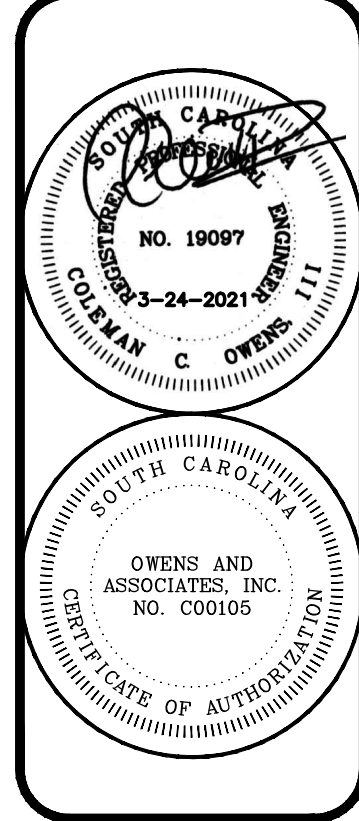


FIREWALL INDICATIONS	
	1 HOUR WALL
	2 HOUR WALL
	4 HOUR WALL
	SMOKE WALL

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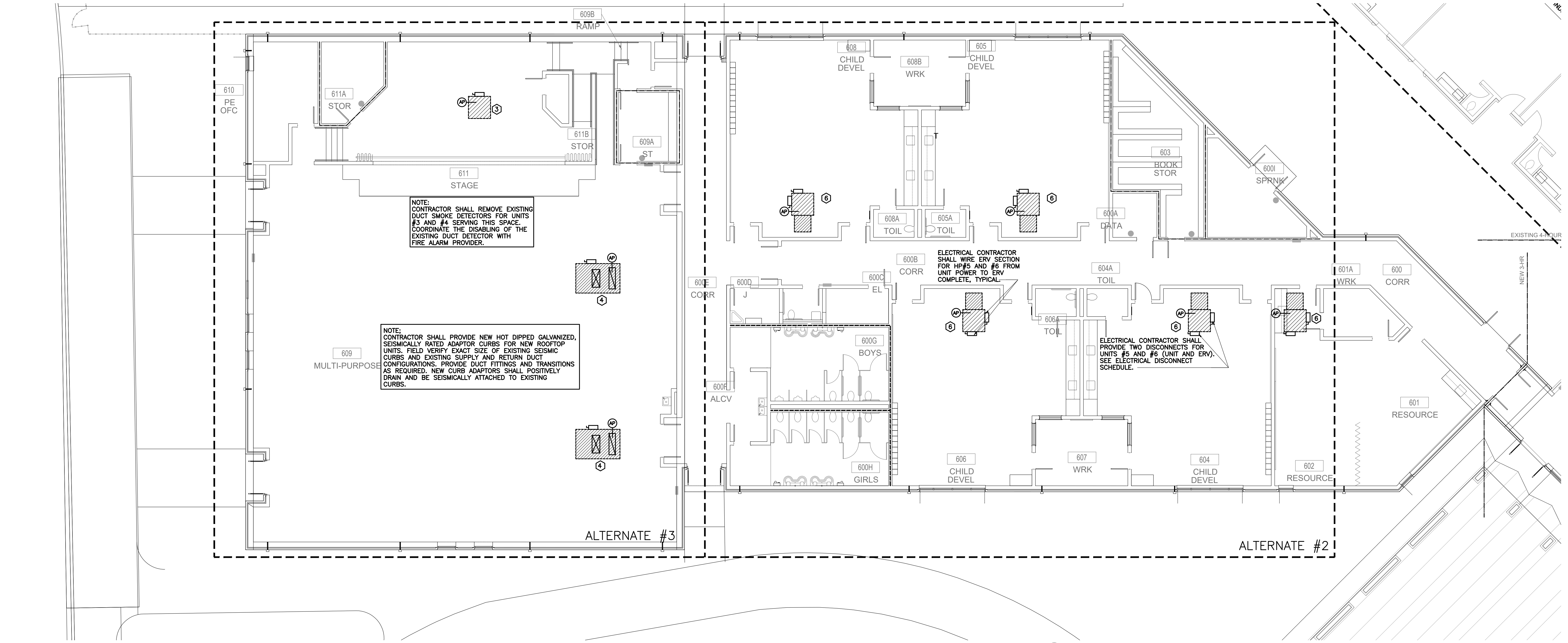
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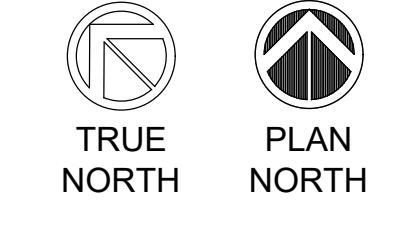
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M103

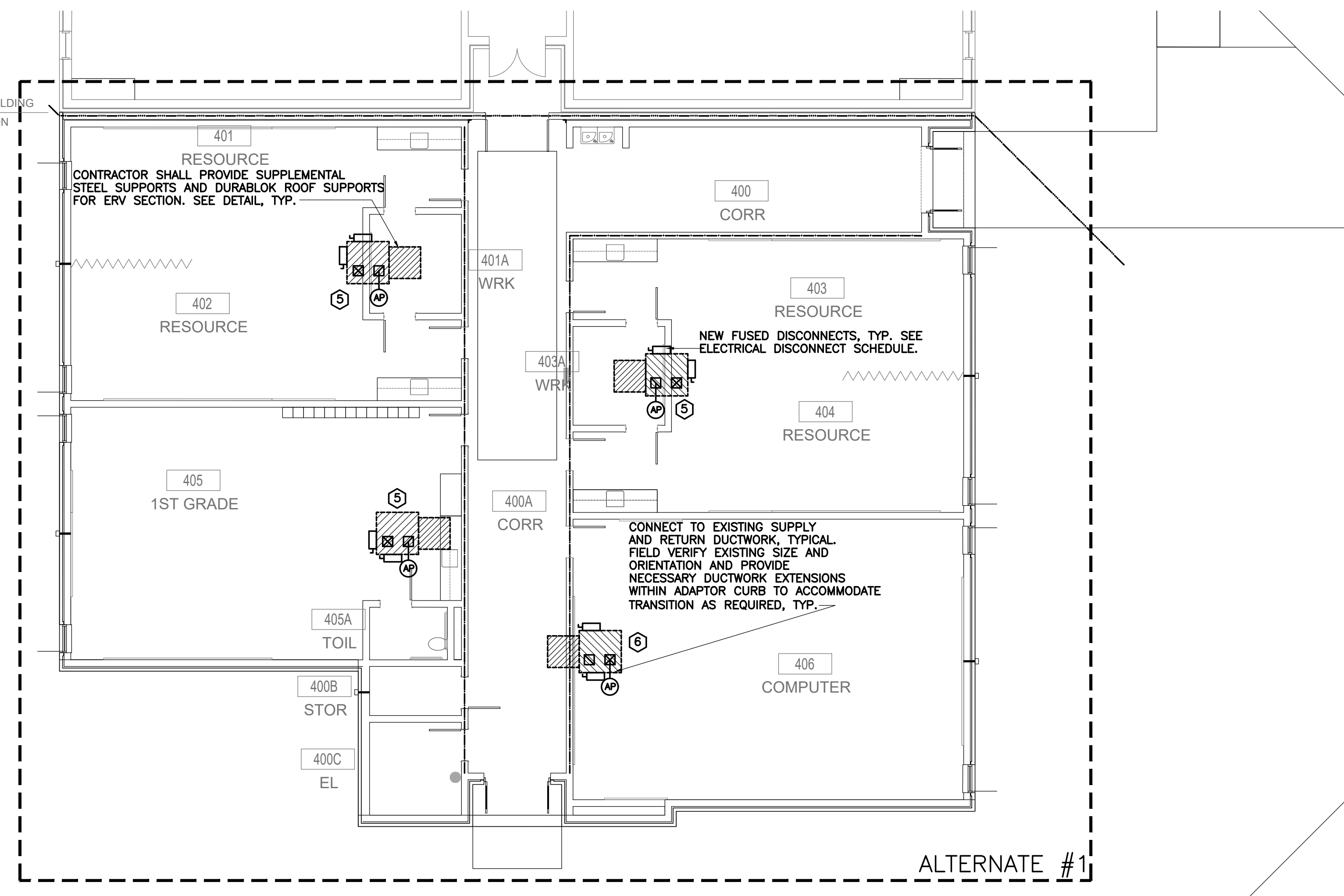
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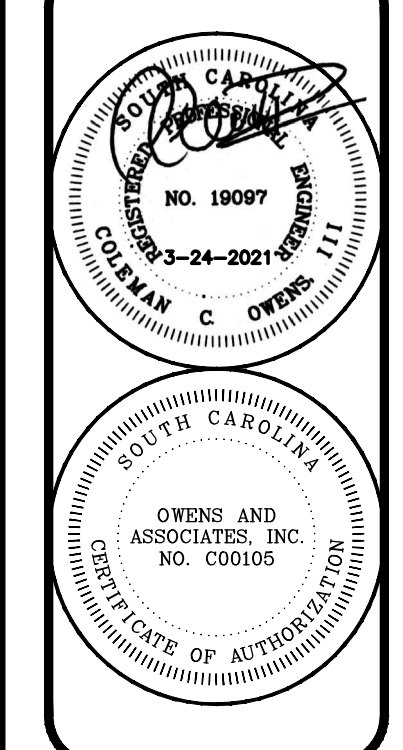
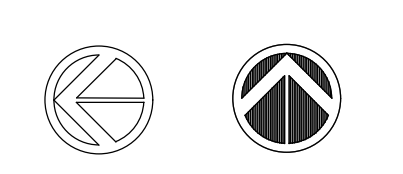
MECHANICAL FLOOR PLAN ALTERNATES #2 AND #3
SCALE: 1/8"=1'-0"



FIREWALL INDICATIONS	
	1 HOUR WALL
	2 HOUR WALL
	4 HOUR WALL
	SMOKE WALL



MECHANICAL FLOOR PLAN ALTERNATE #1
SCALE: 1/8"=1'-0"



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GENERAL MECHANICAL NOTES:

- CONTRACTOR SHALL FIELD VERIFY EXACT DIMENSIONS OF EXISTING ROOFTOP UNITS TO BE REPLACED. NEW CURB ADAPTORS SHALL BE SEISMICALLY RATED AND FIT EXISTING DUCT CONFIGURATIONS OF EXISTING DOWNFLOW ROOFTOP GAS PACKS/VAV RTUS. ADAPTORS SHALL BE HOT DIPPED GALVANIZED AFTER FABRICATION AND POSITIVELY SLOPED FOR DRAINAGE.
- REFER TO ROOF PLANS. COORDINATE EXACT LOCATIONS FOR ROOF-TOP EQUIPMENT WITH STRUCTURAL PLANS AND GENERAL CONTRACTOR. HEIGHT OF ALL MECHANICAL ROOF CURB ADAPTORS SHALL BE COORDINATED WITH THE MINIMUM HEIGHT REQUIREMENTS OF THE ROOFING BOND.
- CONTRACTOR SHALL FURNISH TO OWNER AT COMPLETION OF PROJECT, A COMPLETE SET OF WRITTEN OPERATING INSTRUCTIONS FOR ALL SYSTEMS. IN AREAS WHERE WORK IS TO OCCUR ABOVE EXISTING CEILING, CONTRACTOR SHALL REMOVE EXISTING CEILING, TILES AND LIGHT FIXTURES IN ORDER TO INSTALL NEW UNITS, PIPING, ETC. AT COMPLETION OF WORK, CONTRACTOR SHALL REINSTALL CEILING TRACK, TILES LIGHT FIXTURES AND ALL APPURTENANCES TO ORIGINAL CONDITION. ANY ITEMS DAMAGED DURING CONSTRUCTION SHALL BE REPLACED NEW BY THIS CONTRACTOR.
- PROVIDE 2-1/2"x2-1/2"x1/4" GALVANIZED STEEL ANGLES, 3/8" THREADED HANGER ROD, AND OTHER SUPPLEMENTAL STEEL AS REQUIRED TO SUPPORT MECHANICAL EQUIPMENT FROM THE STRUCTURE, AHU'S, DUCTWORK, ETC. ALL RETURN DUCT CONNECTIONS TO AIR DEVICES SHALL BE RECTANGULAR UNLESS OTHERWISE INDICATED ON PLANS. USE OF FLEXIBLE DUCT FOR RETURN IS NOT PERMISSIBLE.
- REFER TO FLOOR PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES. CONTRACTOR SHALL COMPLETELY FILL AROUND ALL OPENINGS REQUIRED FOR HIS WORK IN ACCORDANCE WITH DETAILS WITH APPROVED FIRE-PROOF MATERIALS.
- CEILING AIR DEVICE INSTALLATIONS SHALL CONFORM TO THE APPROPRIATE UL ASSEMBLY NUMBER PER THE CODE ANALYSIS DATA FOR THIS PROJECT. CONTRACTOR SHALL SEAL ALL DUCTWORK WITH DUCT SEALANT PER SPECIFICATIONS. DUCT TAPE SHALL NOT BE USED TO SEAL DUCTWORK.
- THE CONTRACTOR IS INSTRUCTED TO VISIT THE SITE PRIOR TO SUBMITTING A BID TO FAMILIARIZE HIMSELF WITH ALL WORK TO BE ENCOUNTERED. NO EXTRA CHARGE WILL BE APPROVED AFTER START OF CONSTRUCTION FOR FAILURE TO FOLLOW THESE INSTRUCTIONS.
- CONTRACTOR SHALL PROVIDE THREADED RODS, 1/4", OR OTHER APPROVED MEANS TO LATERALLY SUPPORT ALL SUSPENDED MECHANICAL EQUIPMENT, DUCTS, ETC. IN ACCORDANCE WITH THE SEISMIC DESIGN REQUIREMENTS IN CHAPTER 16 OF THE INTERNATIONAL BUILDING CODE, LATEST EDITION.

DESIGN CONDITIONS		
	COOLING	HEATING
OUTSIDE	95F DB,80F WB	27F DB
INSIDE	78F DB,65F WB	72F DB

SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
Ⓚ	THERMOSTAT WITH LOCK COVER
Ⓜ	HUMIDISTAT WITH LOCK COVER
Ⓢ	CO2 SENSOR WITH LOCK COVER
Ⓢ	CARBON MONOXIDE SENSOR (FACTORY PROVIDED)
Ⓢ	AIR PURIFIER (GPS, IWAIVE-R, OR PRIOR EQUAL) BI-POLAR IONIZATION TYPE
Ⓢ	EXHAUST FAN
TR GR/EX GR	TRANSFER GRILLE / EXHAUST GRILLE
→	AIR TURNING VANE
→ S	SPLITTER DAMPER
FD/-	FIRE DAMPER / HOUR RATING
SD	SMOKE DAMPER
FSD	COMBINATION FIRE/SMOKE DAMPER
▨	INDICATION OF ROOF MOUNTED EQUIPMENT
Ⓜ	MANUAL DAMPER (O.B.M.D.)

HEAT PUMP SCHEDULE						
SYMBOL	①	②	③	④	⑤	⑥
COOLING CAP.(AR)	36000	48000	60000	120000	36000	48000
HEATING CAP.(17F)	19300	24900	31600	62000	19300	24900
SUP. HTR.(KW)	10	10	17	36	12	17
CFM	1200	1600	2000	4000	1200	1600
EXT. SP. IN. H2O	0.7	0.8	0.8	1.0	0.7	0.8
FAN HP	1/2	3/4	1	3	1/2	3/4
VOLTS	480					
PHASE	3					
HERTZ	60					
MOCP(AMPS)	30	30	45	90	45	50
REMARKS	SEE DETAILS					
MANUFACTURER	SEE SPECIFICATIONS					
MODEL	PACKAGED ROOF-TOP RTHP W/ HGR AND ERV#					
VENT. AIR (CFM)	125	150	200	400	450	450

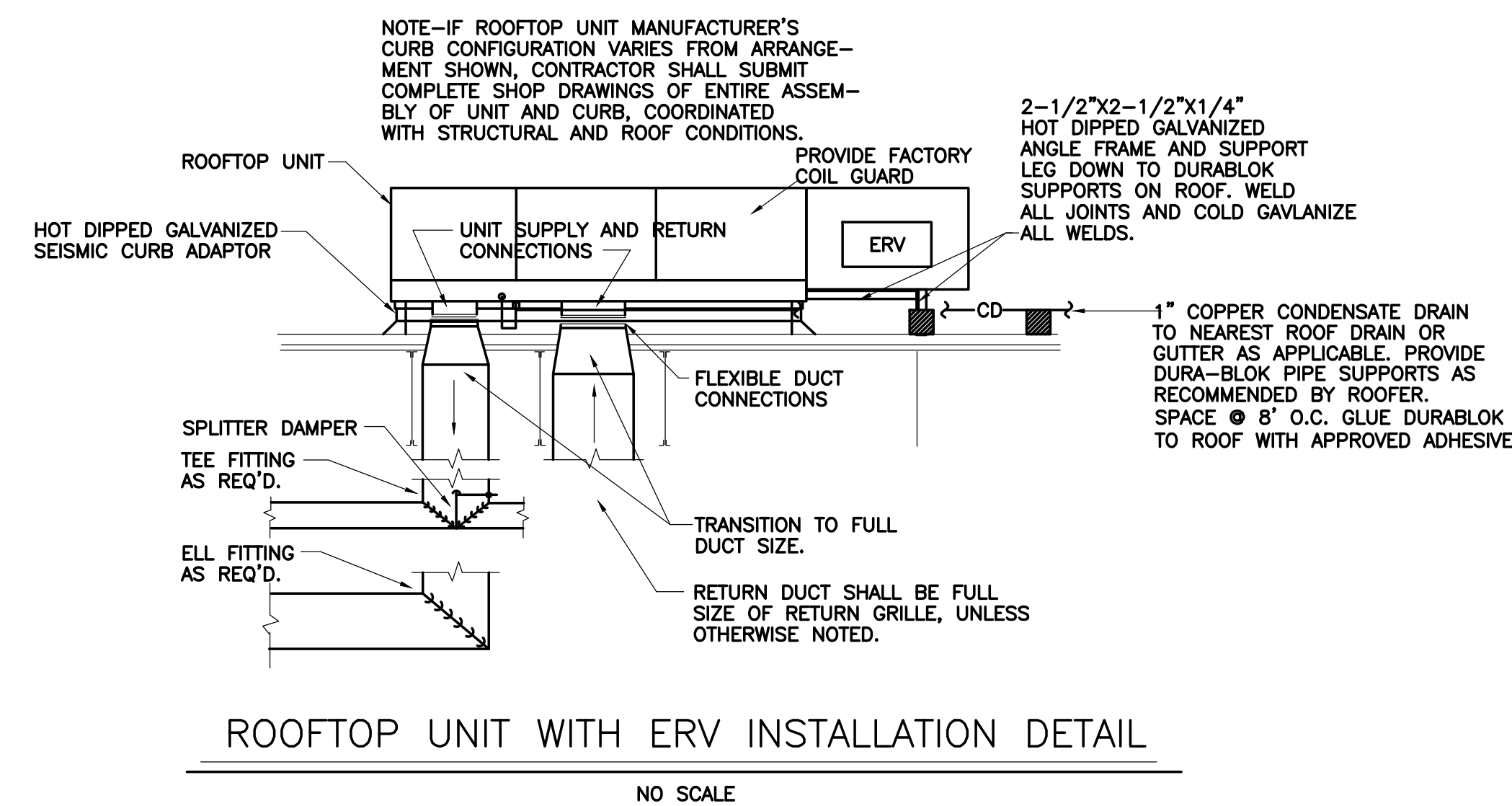
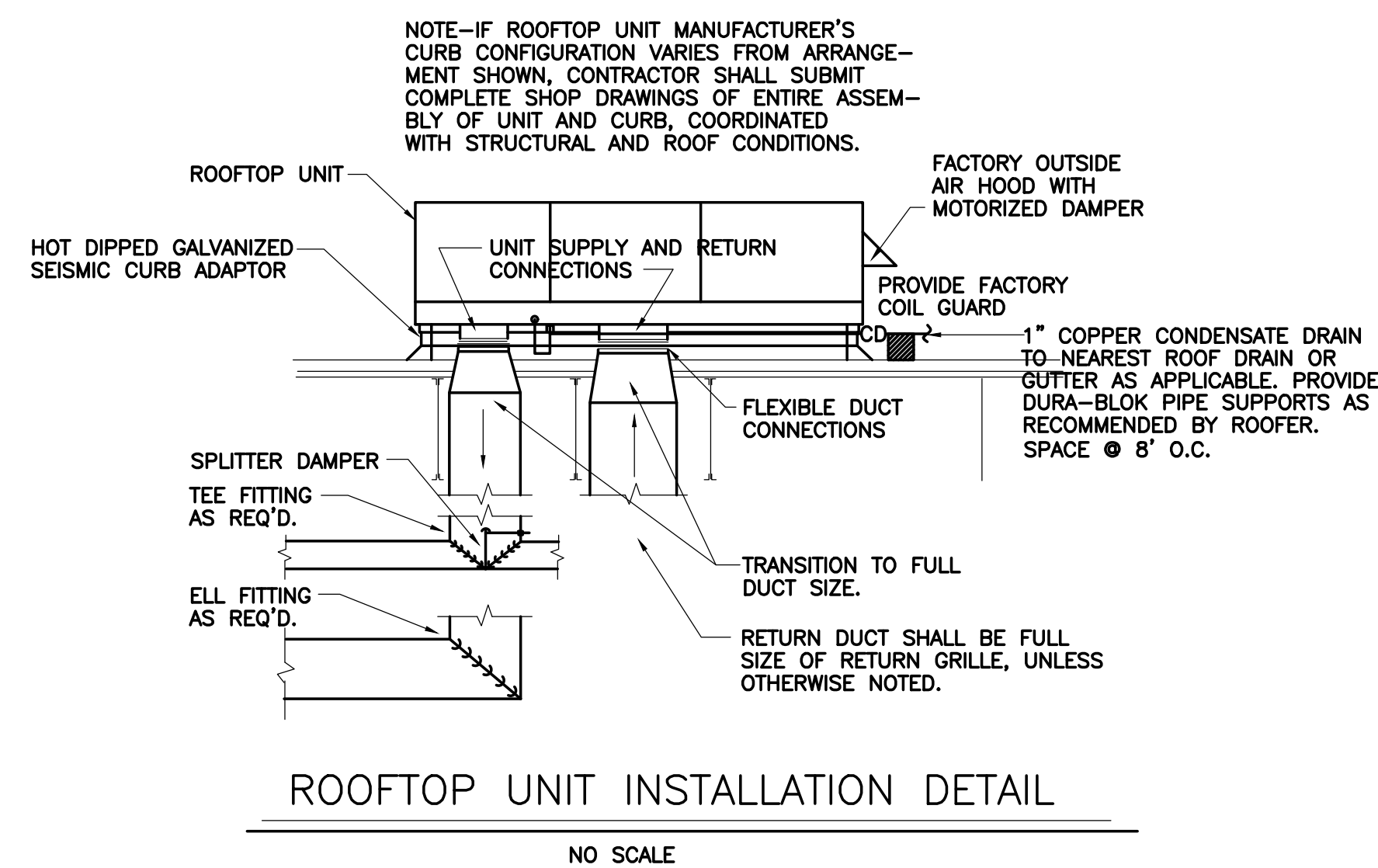
UNITS 5 AND 6 SHALL BE PROVIDED WITH ENERGY RECOVERY VENTILATION SECTION AND HOT GAS REHEAT HUMIDITY CONTROL PER SPECIFICATIONS.
 + BASIS OF EQUIPMENT DESIGN IS TRANE OR PRIOR APPROVED EQUAL. ANY ADDITIONAL REQUIREMENTS ELECTRICAL OR OTHERWISE TO USE OTHER APPROVED EQUIPMENT ARE THE RESPONSIBILITY OF THIS CONTRACTOR.
 ++ ELECTRICAL CONTRACTOR SHALL CONNECT POWER SUPPLY FROM UNIT DISCONNECT TO ENERGY RECOVERY SECTION. REFER TO MANUFACTURER'S LITERATURE.
 +++ UNITS SHALL BE PROVIDED WITH GPS-FC-1/GPS-FC-2 BI-POLAR IONIZATION DEVICES AS MANUFACTURED BY GLOBAL PLASMA SOLUTIONS, IWAIVE-R PLASMA AIR OR P/A EQUAL. UNITS SHALL BE EQUIPPED WITH SELF CLEANING CARBON FIBER BRUSHES. LED OPERATION STATUS AND CONNECTED TO THE SUPPLY FAN POWER FEED. AIR PURIFIERS SHALL BE MONITORED BY THE BUILDING CONTROLS SYSTEM. COORDINATE 120V/208 VOLT REQUIREMENT WITH SUPPLY FAN VOLTAGE OF UNIT SUPPLIED. FOR UNITS FOR UNITS GREATER THAN 1200 CFM, PROVIDE MULTIPLE MODULES. PURIFIERS SHALL BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. MOUNT IN RETURN AIRSTREAM UPSTREAM OF EVAPORATOR COIL.

ROOFTOP UNIT ELECTRICAL DISCONNECT SCHEDULE						
SYM.	DISCONNECT (AMPS)	M.O.C.P. (AMPS)	VOLTAGE	PHASE	REQUIREMENTS	
①	30	30	480	3	1/2" C.-3#10 AND 1#10 GROUND	
②	30	30			1/2" C.-3#10 AND 1#10 GROUND	
③	60	45			3/4" C.-3#6 AND 1#8 GROUND	
④	100	90			1-1/4" C.-3#3 AND 1#8 GROUND	
⑤	60	45	15		3/4" C.-3#8 AND 1#10 GROUND (CONNECT ERV COMPLETE*)	
⑥	60	45	15		3/4" C.-3#8 AND 1#10 GROUND (CONNECT ERV COMPLETE*)	

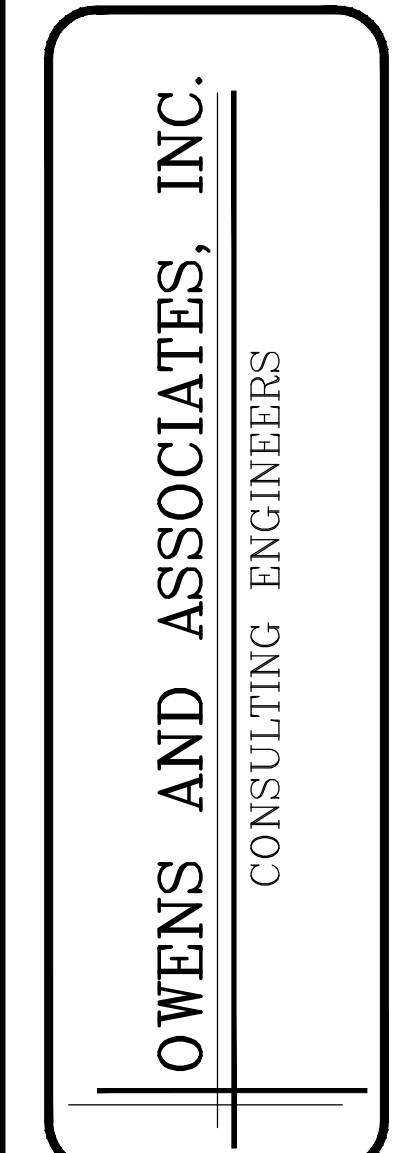
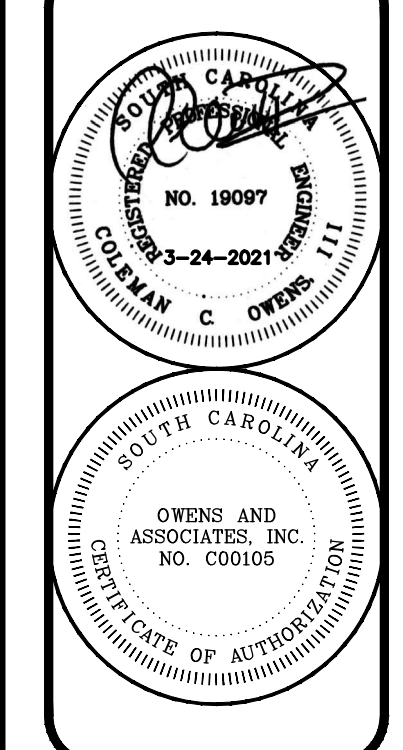
NOTES: FUSE NEW DISCONNECTS TO THE M.O.C.P. OF EQUIPMENT PROVIDED.
 DISCONNECTS SHALL BE NEMA 3R BY SQUARE-D OR APPROVED EQUAL.
 *UNITS SO DESIGNATED ARE EQUIPPED WITH ENERGY RECOVERY VENTILATORS. CONTRACTOR SHALL PROVIDE POWER WIRING AS REQUIRED FROM UNIT DISCONNECT TO UNIT ERV @ 3-#12&GND, 480V/3P TO SEPARATE 30A FUSED DISCONNECT. FUSE ERV TO 15 AMPS OR AS RECOMMENDED BY UNIT MANUFACTURER.
 **--COORDINATE ALL FUSE SIZES WITH MANUFACTURERS RATED MOCP REQUIREMENTS.

GENERAL ELECTRICAL NOTES:

- DUE TO THE NATURE OF WORK COVERED UNDER THESE PLANS AND SPECIFICATIONS, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING VISITED THE SITE TO FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID.
- ALL CONDUIT PENETRATIONS OF FIRE RATED WALLS AND/OR CEILING SHALL BE FIRESTOPPED AS PER UL STANDARDS.
- ALL CONDUIT PENETRATIONS OF EXTERIOR WALLS SHALL BE SEALED AND MADE WEATHERPROOF.
- CONTRACTOR SHALL REMOVE AND REINSTALL EXISTING CEILING TILES AS NECESSARY FOR THE INSTALLATION OF NEW CONDUITS AND DEVICES. CONTRACTOR SHALL REPLACE ANY TILE DAMAGED BY THIS WORK. NEW CEILING TILES TO MATCH EXISTING.
- ALL CONDUIT RUNS SHOWN ON THESE DRAWINGS ARE APPROXIMATE. ELECTRICAL CONTRACTOR SHALL FIELD VERIFY LENGTH AND LOCATION.
- ELECTRICAL CONTRACTOR SHALL REFER TO THE ARCHITECTURAL DRAWINGS AND THE SPECIFICATIONS, FOR ALL BID ALTERNATES AND ALL PHASING INFORMATION, PRIOR TO SUBMITTING HIS BID.
- ALL BREAKERS FEEDING MECHANICAL EQUIPMENT SHALL BE HACR TYPE.
- THE MECHANICAL EQUIPMENT BASIS OF DESIGN IS AS INDICATED ON THE MECHANICAL DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE ELECTRICAL REQUIREMENTS OF THE MECHANICAL EQUIPMENT WITH THE MECHANICAL CONTRACTOR PRIOR TO ORDERING MATERIALS. MODIFICATIONS TO ANY ELECTRICAL SYSTEM REQUIRED FOR MECHANICAL EQUIPMENT WHICH DIFFERS FROM THE MECHANICAL BASIS OF DESIGN SHALL BE THE RESPONSIBILITY OF THE MECHANICAL AND ELECTRICAL CONTRACTORS. IN NO CASE SHALL SUBSTITUTION OF MECHANICAL EQUIPMENT RESULT IN ADDITIONAL COSTS TO THE OWNER.
- ELECTRICAL CONTRACTOR SHALL USE LOCATOR SERVICE TO IDENTIFY ALL UNDERGROUND UTILITIES. DAMAGE TO ANY EXISTING UTILITIES RESULTING FROM INSTALLATION OF NEW ELECTRICAL EQUIPMENT SHALL BE REPAIRED BY THE ELECTRICAL CONTRACTOR.
- ALL FEEDERS SHALL BE ROUTED CONCEALED. ELECTRICAL CONTRACTOR SHALL SAW CUT AND PATCH EXISTING CONCRETE AS NECESSARY TO ROUTE UNDERGROUND CONDUITS. ABOVE CEILING CONDUITS SHALL BE ROUTED CONCEALED.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR BRINGING THE SITE BACK TO ORIGINAL CONDITIONS AFTER THE COMPLETION OF UNDERGROUND ELECTRICAL WORK. THIS IS INCLUSIVE OF SAW CUT ASPHALT AND CONCRETE SURFACES, EXISTING VEGETATION, GRASS, SITE GRADING ETC. THIS CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE TO THE SITE/FACILITY CAUSED BY ELECTRICAL CONSTRUCTION.
- ELECTRICAL CONTRACTOR SHALL SAW CUT EXISTING CONCRETE AND ASPHALT DRIVES AS REQUIRED TO INSTALL BELOW GRADE CONDUITS. AFTER INSTALLATION OF WORK, CONTRACTOR SHALL BACKFILL AND BRING SOIL TO INITIAL COMPACTION LEVELS AND REPAIR SAW CUT AREAS OF CONCRETE AND ASPHALT DRIVES. PATCHING SHALL MATCH EXISTING WITH REGARD TO REINFORCING AND THICKNESS. ALL SAW CUT TRENCHES SHALL BE MADE IN A WORKMANLIKE FASHION.
- ANY EXISTING ELECTRICAL EQUIPMENT NOT BEING REMOVED OR RELOCATED BUT ON THE SAME CIRCUIT AS ANY ELECTRICAL EQUIPMENT BEING REMOVED OR RELOCATED SHALL BE RECONNECTED TO ALLOW FOR NORMAL OPERATION UNLESS SHOWN OTHERWISE ON THE NEW WORK DRAWINGS. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY MATERIALS AND LABOR FOR THE RECONNECTION OF SAID DEVICES.
- ELECTRICAL CONTRACTOR SHALL RELOCATE ANY EXISTING ELECTRICAL EQUIPMENT, CIRCUITRY, OR CONDUIT THAT INTERFERES WITH DEMOLITION OR INSTALLATION WORK AND PROVIDE ALL NECESSARY MATERIALS AND LABOR NEEDED TO RETURN THE RELOCATED EQUIPMENT TO A SAFE AND OPERATING CONDITION THAT CONFORMS TO THE CURRENT EDITION OF THE N.E.C. AND ALL LOCAL REGULATIONS. COORDINATE ALL WORK WITH THE OWNER'S REPRESENTATIVE AND ALL OTHER TRADES.
- ANY DEVICE INTERFERING WITH DEMOLITION OR INSTALLATION, NOT BEING REMOVED OR RELOCATED, SHALL NOT BE MOVED WITHOUT WRITTEN CONSENT FROM THE OWNER'S REPRESENTATIVE.
- ALL WORK SHALL BE IN COMPLIANCE WITH THE CODES AND STANDARDS LISTED IN THE ARCHITECTURAL CODE ANALYSIS FOUND ELSEWHERE IN THESE CONTRACT DOCUMENTS.



MECHANICAL AND ELECTRICAL SCHEDULES AND DETAILS
NO SCALE



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