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MECHANICAL RENOVATIONS TO CONWAY ELEMENTARY SCHOOL

HORRY COUNTY SCHOOL DISTRICT

1101 SNOWHILL DRIVE
CONWAY, SC 29526

COVER

project: 2123
date: 9-19-2022

REVISIONS

project:
MECHANICAL
RENOVATIONS TO
CONWAY ELEMENTARY
SCHOOL

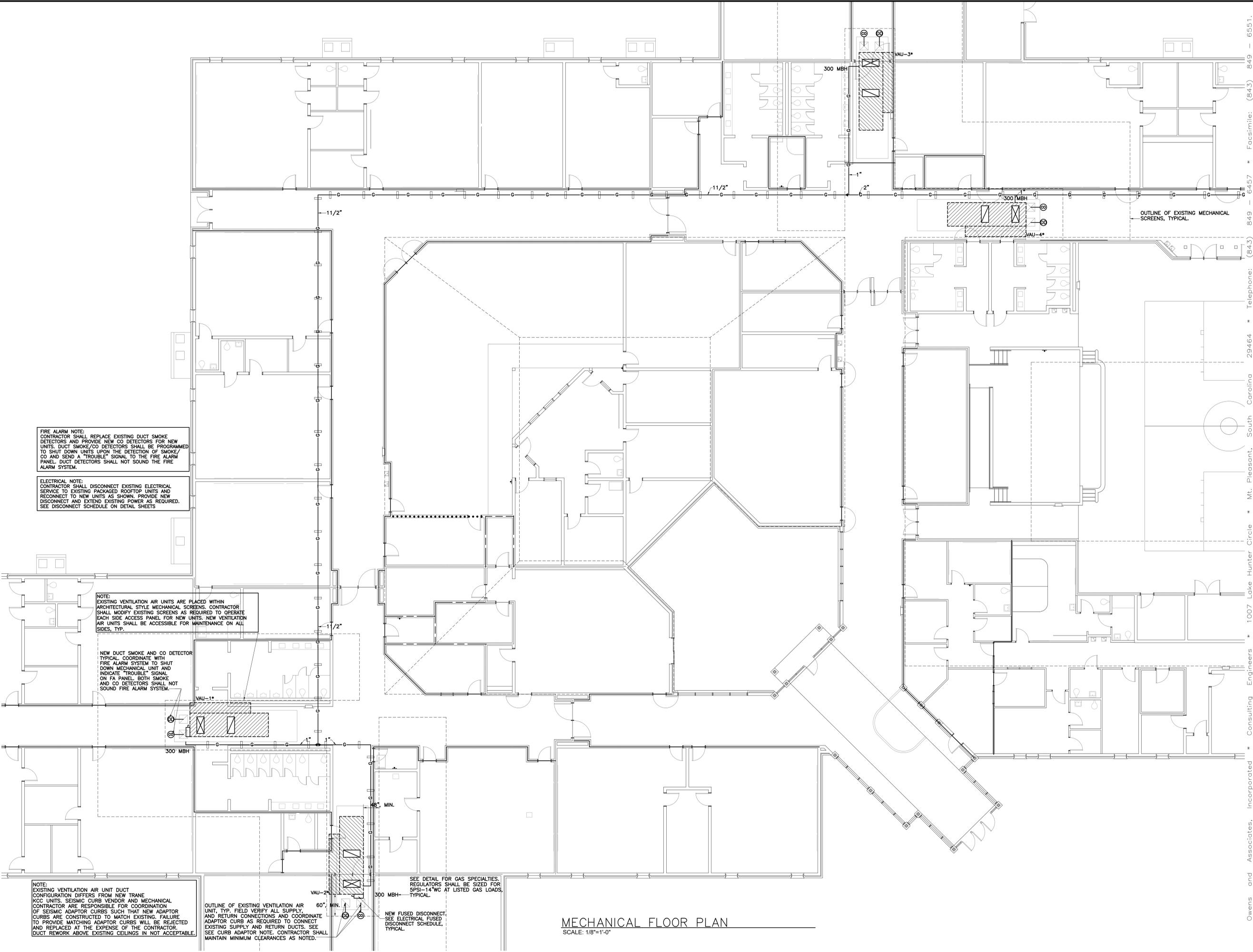
Owens and Associates Inc.,
inc., consulting engineers
Mt. Pleasant, South Carolina

OWENS AND ASSOCIATES, INC.
CONSULTING ENGINEERS



Owens and Associates, Incorporated * Consulting Engineers * 1007 Lake Hunter Circle * Mt. Pleasant, South Carolina 29464 * Telephone: (843) 849 - 6457 * Facsimile: (843) 849 - 6551.

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FIRE ALARM NOTE:
CONTRACTOR SHALL REPLACE EXISTING DUCT SMOKE DETECTORS AND PROVIDE NEW CO DETECTORS FOR NEW UNITS. DUCT SMOKE/CO DETECTORS SHALL BE PROGRAMMED TO SHUT DOWN UNITS UPON THE DETECTION OF SMOKE/CO AND SEND A "TROUBLE" SIGNAL TO THE FIRE ALARM PANEL. DUCT DETECTORS SHALL NOT SOUND THE FIRE ALARM SYSTEM.

ELECTRICAL NOTE:
CONTRACTOR SHALL DISCONNECT EXISTING ELECTRICAL SERVICE TO EXISTING PACKAGED ROOFTOP UNITS AND RECONNECT TO NEW UNITS AS SHOWN. PROVIDE NEW DISCONNECT AND EXTEND EXISTING POWER AS REQUIRED. SEE DISCONNECT SCHEDULE ON DETAIL SHEETS

NOTE:
EXISTING VENTILATION AIR UNITS ARE PLACED WITHIN ARCHITECTURAL STYLE MECHANICAL SCREENS. CONTRACTOR SHALL MODIFY EXISTING SCREENS AS REQUIRED TO OPERATE EACH SIDE ACCESS PANEL FOR NEW UNITS. NEW VENTILATION AIR UNITS SHALL BE ACCESSIBLE FOR MAINTENANCE ON ALL SIDES, TYP.

NEW DUCT SMOKE AND CO DETECTOR TYPICAL. COORDINATE WITH FIRE ALARM SYSTEM TO SHUT DOWN MECHANICAL UNIT AND INDICATE "TROUBLE" SIGNAL ON FA PANEL. BOTH SMOKE AND CO DETECTORS SHALL NOT SOUND FIRE ALARM SYSTEM.

NOTE:
EXISTING VENTILATION AIR UNIT DUCT CONFIGURATION DIFFERS FROM NEW TRANE KCC UNITS. SEISMIC CURB VENDOR AND MECHANICAL CONTRACTOR ARE RESPONSIBLE FOR COORDINATION OF SEISMIC ADAPTOR CURBS SUCH THAT NEW ADAPTOR CURBS ARE CONSTRUCTED TO MATCH EXISTING. FAILURE TO PROVIDE MATCHING ADAPTOR CURBS WILL BE REJECTED AND REPLACED AT THE EXPENSE OF THE CONTRACTOR. DUCT REWORK ABOVE EXISTING CEILINGS IS NOT ACCEPTABLE.

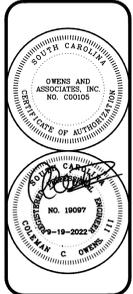
OUTLINE OF EXISTING VENTILATION AIR UNIT. TYP. FIELD VERIFY ALL SUPPLY AND RETURN CONNECTIONS AND COORDINATE ADAPTOR CURB AS REQUIRED TO CONNECT EXISTING SUPPLY AND RETURN DUCTS. SEE CURB ADAPTOR NOTE. CONTRACTOR SHALL MAINTAIN MINIMUM CLEARANCES AS NOTED.

SEE DETAIL FOR GAS SPECIALTIES. REGULATORS SHALL BE SIZED FOR 5PSI-14"WC AT LISTED GAS LOADS. TYPICAL.

NEW FUSED DISCONNECT. SEE ELECTRICAL FUSED DISCONNECT SCHEDULE. TYPICAL.

OUTLINE OF EXISTING MECHANICAL SCREENS, TYPICAL.

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



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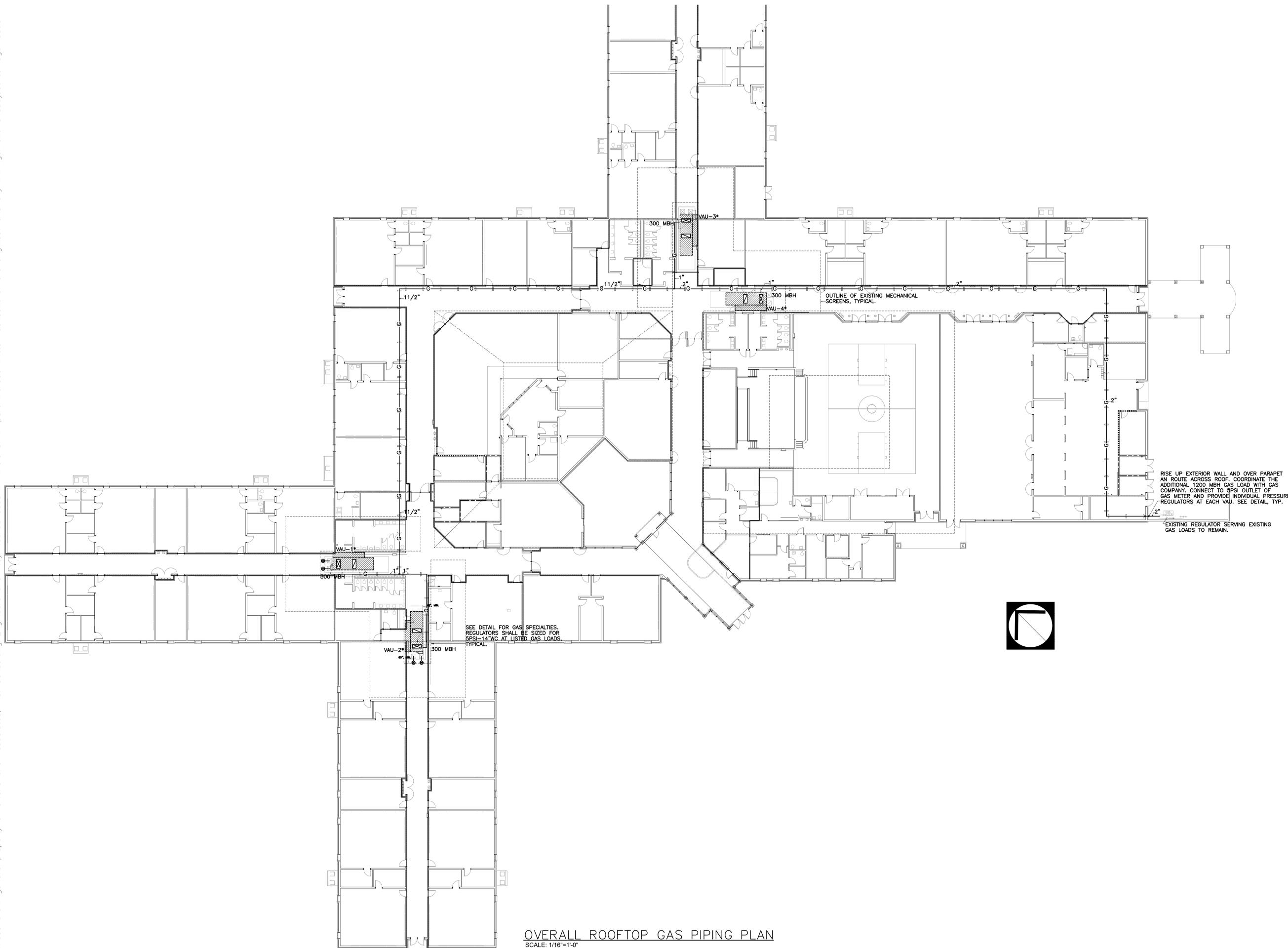
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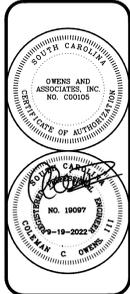
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OVERALL ROOFTOP GAS PIPING PLAN
SCALE: 1/16"=1'-0"

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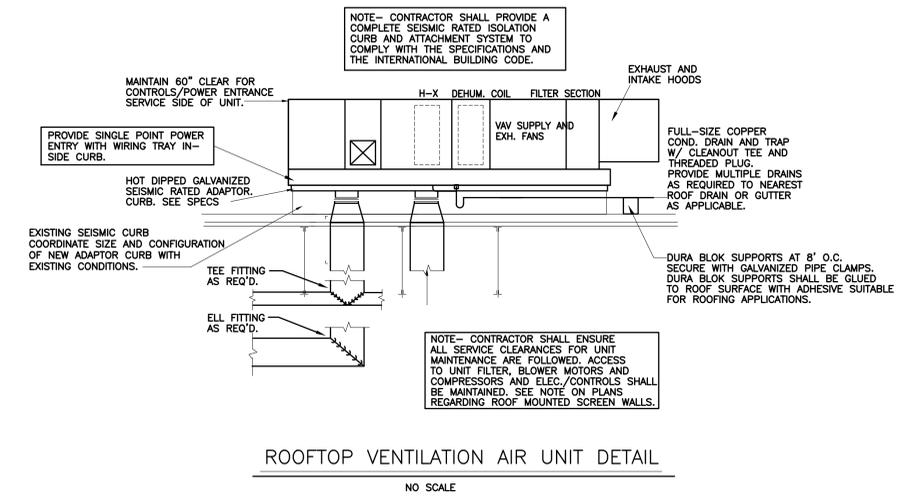
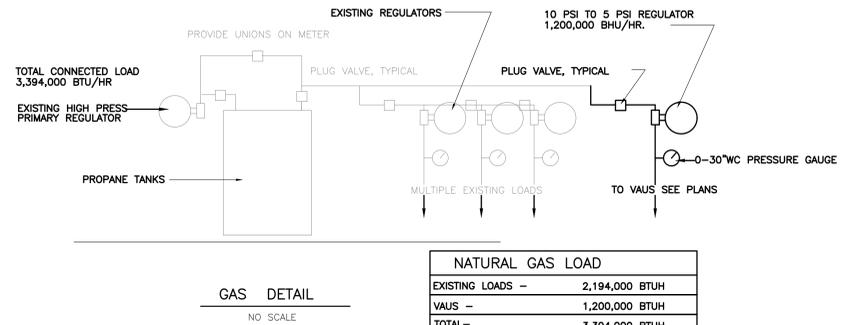
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GENERAL MECHANICAL NOTES:

- SEE GENERAL SECTIONS OF SPECIFICATIONS FOR GENERAL JOB DESCRIPTIONS AND REQUIREMENTS.
- DUCTS CONNECTING EXISTING EQUIPMENT TO EXISTING DUCTWORK SHALL BE ROUTED FULL-SIZE OF EXISTING DUCTWORK. CONTRACTOR SHALL INVESTIGATE EXISTING SIZE AND ORIENTATION OF SUPPLY AND RETURN/EXHAUST DUCTS FOR VENTILATION AIR UNITS BEING REPLACED.
- REFER TO OVERALL GAS PIPING PLAN FOR ROUTING OF GAS PIPING ALONG EXISTING ROOF. PROVIDE SUPPORTS AT 8' ON CENTER AS SPECIFIED.
- CONTRACTOR SHALL FURNISH TO OWNER AT COMPLETION OF PROJECT, A COMPLETE SET OF WRITTEN OPERATING INSTRUCTIONS FOR ALL SYSTEMS.
- COORDINATE ELECTRICAL REQUIREMENTS WITH EXISTING ELECTRICAL SERVICES.
- 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 MECHANICAL SLABS.
- 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.
- 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 SEISMICALLY ATTACH ALL NEW VENTILATION AIR UNITS TO EXISTING SEISMIC CURBS PER THE INTERNATIONAL BUILDING CODE.
- CONTRACTOR IS RESPONSIBLE FOR RESTORING SITE BACK TO EXISTING CONDITION AT THE COMPLETION OF WORK. ALL DAMAGED AREAS TO GRASS/SIDEWALKS AND PARKING LOTS DUE TO CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AT THE EXPENSE OF THIS CONTRACTOR. CONTRACTOR SHALL COORDINATE NEW GAS LOADS BEING ADDED TO EXISTING GAS METERS WITH GAS COMPANY AT THE START OF WORK. CONFIRM SUPPLY PRESSURE OF 5PSI AT METER OUTLET.
- CONTRACTOR SHALL MODIFY EXISTING MECHANICAL SCREEN LOCATED ON ROOF TO CONCEAL EXISTING VENTILATION AIR UNITS TO ACCOMMODATE NEW UNITS. SCREENS ARE DECORATIVE ONLY AND SHALL BE CUT BACK AS REQUIRED IN ORDER TO PROPERLY ACCESS NEW UNITS FOR MAINTENANCE. ANY REPAIR TO SCREENS SHALL BE MADE WITH LIKE MATERIALS AND PAINTED TO MATCH EXISTING WITH KYNAR BASED PAINT WITH CUSTOM COLOR. DO NOT CUT ANY STRUCTURAL MEMBERS OF SCREEN WITHOUT CONSULTING OWNER AND ENGINEER. EXTENT OF CUTTING OF SCREENS IS BASE ON THE ABILITY FULLY OPEN ALL SIDE ACCESS DOORS. CONTRACTOR SHALL MAINTAIN 60" MINIMUM CLEAR FROM THE CONTROLS/SERVICE ACCESS END OF UNIT TO THE EXISTING MECHANICAL SCREENS.

DESIGN CONDITIONS		
	COOLING	HEATING
OUTSIDE	95F DB, 80F WB	20F DB
INSIDE	74F DB, 50% RH	70F DB

SYMBOL SCHEDULE	
SYMBOL	DESCRIPTION
Ⓧ	THERMOSTAT WITH LOCK COVER
Ⓜ	HUMIDISTAT WITH LOCK COVER
Ⓞ	CO2 SENSOR WITH LOCK COVER
Ⓢ	CARBON MONOXIDE SENSOR BY CONTROLS CONTRACTOR
Ⓣ	DUCT SMOKE DETECTOR BY FIRE ALARM CONTRACTOR
Ⓝ	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.)



SYM.	VENTILATION AIR				EXHAUST AIR				T.E. WHEEL SUMMER		T.E. WHEEL WINTER		WHEEL EFF. %	COOLING COIL		H.G. REHEAT CAPACITY MBH	BUILDING SUPPLY L.A.T. (db/wb)	NATURAL GAS FIRED HEAT		ELECTRICAL		M.O.P (AMPS)	MANUFACTURER				
	CFM	ESP	FAN HP	HP	CFM	ESP	FAN HP	HP	E.A.T. (db/wb)	CAPACITY MBH	E.A.T. (db/wb)	CAPACITY MBH		E.A.T. (db/wb)	CAPACITY MBH			E.A.T. (db)	L.A.T. (db)	MBH INPUT	VOLTS			PHASE			
VAU-1	5100	2.0*	5.0		4335	2.0*	5.0	95/78	184	80.6/68.8	20	311	54.8	82	80.6/68.7	322	47.7/68.7	133	71.9/57.7	54.8	91	250	480	3	90	TRANE-KCC HORIZON W/ SAARA VFD.	
VAU-2																											
VAU-3																											
VAU-4	3100	2.0*	3.0		2400	2.0*	2.0	95/78	105	81.5/69.4		177	54.4	85	81.5/69.4	222	45.2/44.8	94	73.3/57.1	52.4	100	200			60		

- NOTE 1-BASIS OF DESIGN IS TRANE(KCC) OR ALTERNATE BID BY GREENHECK RVE (SEE BID FORM). ANY ADDITIONAL REQUIREMENTS ELECTRICALLY, STRUCTURALLY, DIMENSIONALLY OR OTHERWISE TO USE OTHER PRIOR APPROVED MANUFACTURERS ARE THE RESPONSIBILITY OF THIS CONTRACTOR.
- NOTE 2-UNIT SHALL BE PROVIDED WITH SINGLE POINT POWER, VARIABLE SPEED DRIVE BYPASS AND DRIVER COORDINATED WITH SIEMENS CONTROL SYSTEM. PROVIDE UNITS WITH AIRFLOW MONITORING STATIONS.
- NOTE 3-UNIT SHALL BE PROVIDED WITH 120V GFI CONVENIENCE OUTLET WITH IN-USE COVER PER NEC.
- NOTE 4-UNIT SHALL BE CAPABLE OF PROVIDING SUPPLY AIR CONDITIONS (DRY BULB AND WET BULB) AT DESIGN CONDITIONS DURING PART LOAD OPERATION WITHOUT THE USE OF AUXILIARY HEAT IN THE FORM OF GAS OR ELECTRIC REHEAT. PART LOAD SHALL BE ADDRESSED RUNNING A SEPARATE SIMULATION UTILIZING 68DB/64.3WB AS THE ENTERING OUTSIDE AIR CONDITION TO DEMONSTRATE PART LOAD PERFORMANCE. GAS AND OR ELECTRIC STRIP REHEAT WILL NOT BE PERMITTED AS A FORM OF REHEAT TO ACHIEVE ACCEPTABLE DESIGN OUTSIDE AIR SUPPLY CONDITIONS DURING PART LOAD SITUATIONS.
- NOTE 5-UNIT SHALL BE PROVIDED WITH SEACOAST COATINGS FOR CONDENSER AND COOLING COILS.
- NOTE 6-CONTROLS CONTRACTOR SHALL PROVIDE CARBON DIOXIDE SENSORS IN THE RETURN AIR DUCT OF EACH VAU AND MODULATE UNIT RECIRCULATION AIR DAMPER TO MAINTAIN 1000 PPM CO2 LEVELS (ADJUSTABLE).

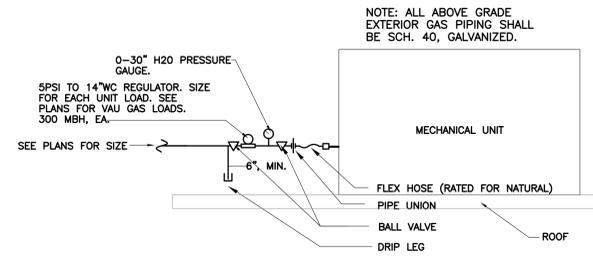
MECHANICAL, PLUMBING AND ELECTRICAL SCHEDULE AND DETAILS
NO SCALE

GENERAL ELECTRICAL NOTES:

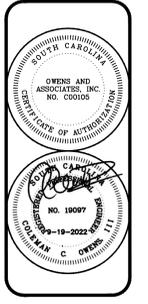
- DUE TO THE NATURE OF WORK COVERED UNDER THESE PLANS AND SPECIFICATIONS, ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING VISITED THE SITE TO FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING HIS BID.
- ALL CONDUIT PENETRATIONS OF FIRE RATED WALLS AND/OR CEILINGS SHALL BE FIRESTOPPED 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.
- FIRE ALARM CONTRACTOR SHALL PROVIDE NEW RETURN DUCT SMOKE DETECTORS AND SUPPLY DUCT MOUNTED CARBON MONOXIDE SENSORS FOR EACH VENTILATION AIR UNIT AS INDICATED. DEVICES SHALL BE CONNECTED TO THE EXISTING BUILDING FIRE ALARM SYSTEM AND, UPON SENSING SMOKE OR PRODUCTS OF COMBUSTION RESPECTIVELY, SHUT DOWN ASSOCIATED UNIT AND REPORT A "TROUBLE" SIGNAL TO THE BUILDING FIRE ALARM PANEL. SMOKE AND CO DETECTORS SHALL NOT SOUND THE BUILDING FIRE ALARM SYSTEM. COORDINATE INSTALLATION OF DEVICES WITH MECHANICAL AND CONTROLS CONTRACTORS.

ROOFTOP UNIT ELECTRICAL FUSED DISCONNECT SCHEDULE						
SYM.	DISCONNECT (AMPS)	FUSE (AMPS)	VOLTAGE	PHASE	REQUIREMENTS	
VAU-1	100	90	480	3	1 1/2" C.-3#2 AND 1#4 GROUND	
VAU-2	100	90	480	3	1 1/2" C.-3#2 AND 1#4 GROUND	
VAU-3	100	90	480	3	1 1/2" C.-3#2 AND 1#4 GROUND	
VAU-4	60	60	480	3	1 1/4" C.-3#4 AND 1#8 GROUND	

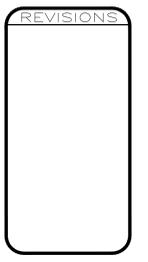
NOTES: FUSE NEW DISCONNECTS TO THE M.O.C.P. OF EQUIPMENT PROVIDED. DISCONNECTS SHALL BE NEMA 3R BY SQUARE-D OR APPROVED EQUAL. ELECTRICAL CONTRACTOR SHALL EXTEND EXISTING POWER CIRCUIT TO NEW FUSED DISCONNECT AND CONNECT TO UNIT PROVIDED SINGLE POINT POWER. FUSE AS REQUIRED BY UNIT MANUFACTURER'S INSTRUCTIONS.



MECHANICAL UNIT GAS PIPING DETAIL
NO SCALE



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