BROWNSVILLE I.S.D.
MARGARET M. CLARK - AQUATIC CENTER
HVAC & CONTROLS REPLACEMENT

BROWNSVILLE, TEXAS

VICINITY MAP

DATE OF ISSUE

JUNE 25, 2019

LIST OF DRAWINGS

SCOPE OF WORK

SOPE OF WORK: PROVIDE ALL MATERIALS AND LABOR ASSOCIATED WITH COMPLETE OPERATIONAL SYSTEMS. MAJOR ITEMS OF WORK INCLUDE, BUT ARE NOT LIMITED TO:

1. DEMOLITION: DEMOLISH LISTED EQUIPMENT AND MATERIALS. OWNER HAS RIGHT OF FIRST REFUSAL. DISPOSE OF REMOVED ITEMS THAT OWNER NO LONGER WISHES TO KEEP.
   a. REMOVE AND DISPOSE OF EXISTING DEHUMIDIFIER EQUIPMENT (TWO UNITS FOR COMPETITION POOL, ONE FOR ADAPTIVE POOL, RELATED ACCUS), EXHAUST FAN AT THE COMPETITION POOL, RELATED SUPPORT ASSEMBLY, DUCTWORK, REFRIGERANT, CONDENSATE, DRAIN PIPING, MISCELLANEOUS MATERIALS, CONTROLS, AND DEVICES ASSOCIATED WITH DEMOLISHED EQUIPMENT WHICH WILL NO LONGER BE USED, INCLUDING AND NOT LIMITED TO, HANGERS, SUPPORTS, MOUNTING HARDWARE, CONDUIT & POWER WIRING, ETC.
   b. SAVE EXISTING SMOKE DETECTORS, WIRING AND SAFETIES FOR REUSE. DOCUMENT DEVICES THAT ARE NOT IN WORKING ORDER.
   c. WHERE INDICATED, SAVE EXISTING POWER AND CONTROL WIRING, CONDUIT AND CIRCUIT BREAKERS FOR REUSE.VERIFY SIZE AND CONDITION OF CIRCUIT BREAKERS, CONDUITS, AND WIRING TO BE REUSED. DEMOLISH OTHER MISCELLANEOUS MATERIALS AS NOTED IN THE DRAWINGS.
   d. CLEAR AREA AND PREPARE FOR NEW WORK.
2. BASE BID:
   a. PROVIDE NEW POOL DEHUMIDIFIERS AND ACCUS, EXHAUST FAN, DX MINI-SPLIT SYSTEMS, NEW ROOF CURBS/ADAPTERS, EQUIPMENT SUPPORT ASSEMBLY, WIND RESTRAINTS, MISCELLANEOUS MATERIALS, UTILITIES AND ACCESSORIES, INDICATED IN THE DRAWINGS.
   b. PROVIDE CONNECTIONS FOR DUCTWORK, REFRIGERANT PIPING, HOT WATER PIPING FOR SPACE AND POOL WATER HEATING SYSTEMS, CONTROLS, MISCELLANEOUS MATERIALS, UTILITIES AND ACCESSORIES, INDICATED IN THE DRAWINGS.
   c. PROVIDE MINI-SPIT UNITS, REFRIGERANT PIPING, CONDENSATE PIPING AND PIPING SUPPORTS.
   d. PROVIDE ON-BOARD CONTROLS FOR NEW EQUIPMENT, ELECTRICAL MODIFICATIONS, STRUCTURAL AND ROOFING WORK AS REQUIRED.
      1) ON-BOARD CONTROLS INCLUDE DEHUMIDIFIER CONTROLLERS TO CONTROL DEHUMIDIFIERS AND RELATED EXHAUST FANS.
      2) FRONT END USER INTERFACE FOR POOL OPERATOR TO SELECT MODES OF OPERATION.
      3) WEB-SENTRY OR EQUAL SYSTEM.
   e. FIRE ALARM: DEPROGRAM, DISCONNECT, RECONNECT AND REPROGRAM EXISTING FA DEVICES AS REQUIRED. REUSE EXISTING DUCT SMOKE DETECTORS, AND REWIRE TO INTEGRATE THEM WITH NEW EQUIPMENT AND CONTROLS. COORDINATE WORK WITH OWNER'S FIRE ALARM. PROVIDE NEW SMOKE DETECTORS, WIRING AND CONTROLS, WHERE NONE EXIST.
   f. PROVIDE ELECTRICAL MODIFICATIONS PER DRAWINGS AND SPECIFICATIONS, AS REQUIRED FOR A COMPLETE AND OPERATIONAL INSTALLATION OF ALL EQUIPMENT INCLUDING WIRING OF ALL SAFETIES AND CONTROLS. MODIFY/UPGRADE EXISTING ELECTRICAL DISTRIBUTION SYSTEM AS NOTED.
   g. PROVIDE TESTING, ADJUSTING AND BALANCING, AND COMMISSIONING SERVICES. SEE SPECIFICATIONS.
   h. PROVIDE CUTTING AND PATCHING AND TOUCH UP PAINTING AS REQUIRED.
   i. PROVIDE STRUCTURAL WORK.
      1) WHERE INDICATED PROVIDE STRUCTURAL WORK RELATED TO NEW HVAC EQUIPMENT SUPPORTS, CURBS, ROOF PENETRATIONS, ETC. SEE DETAILS.
      2) PER SPECIFICATIONS, CONTRACTOR IS RESPONSIBLE FOR STRUCTURAL DESIGN, BUILDING CODE COMPLIANCE, WINDSTORM CERTIFICATION, AND WORK RELATED TO EXTERIOR DUCTWORK AND ASSOCIATED SUPPORTS.
   j. PROVIDE ROOFING WORK ASSOCIATED WITH INSTALLATION OF NEW HVAC EQUIPMENT ON ADAPTER ROOF CURBS. AN EXPERIENCED ROOFING CONTRACTOR WHO IS A MEMBER OF THE NATIONAL ROOFING CONTRACTORS ASSOCIATION SHALL PROVIDE ROOFING WORK. ALL WORK SHALL BE PERFORMED AS PER THE NRCA AND SMACNA GUIDELINES.
      1) ROOFING WORK SHALL BE PERFORMED BY CONTRACTORS THAT ARE ACCEPTABLE TO THE OWNER. OBTAIN WRITTEN APPROVAL FROM OWNER AND ENGINEER.
   k. SHOP DRAWING SUBMITTALS FOR ALL MECHANICAL SYSTEMS INCLUDING BUT NOT LIMITED TO EQUIPMENT, DUCTWORK AND PIPING. COORDINATION DRAWINGS FOR PLACING OF MECHANICAL SYSTEMS IN RELATION TO WORK BY OTHER DISCIPLINES.
   l. PROVIDE WINDSTORM CERTIFICATION FOR EXTERIOR WORK INSTALLED ON THE ROOF AND ON GRADE. CONTRACTOR IS RESPONSIBLE FOR PROVIDING WIND STORM CERTIFICATION INSPECTIONS AND CERTIFICATIONS FOR ROOFTOP EQUIPMENT. CONTRACTOR MUST NOTIFY INSPECTOR PRIOR TO INSTALLING EQUIPMENT, AND APPRISE INSPECTOR OF WORK SCHEDULING INVOLVING EQUIPMENT REQUIRING WIND INSPECTION / CERTIFICATION, SO THAT INSPECTIONS MAY BE CARRIED OUT AT REQUIRED STAGE(S) OF CONSTRUCTION. COST FOR INSPECTION SHALL BE BORNE BY THE CONTRACTOR. INSPECTOR SHALL BE CERTIFIED BY THE TEXAS DEPARTMENT OF INSURANCE (SEE WWW.TDI.STATE.TX.US FOR A LIST OF CERTIFIED INSPECTORS).
   m. COMMISSIONING: PROVIDE ASSISTANCE WITH COMMISSIONING SERVICES PER SPECIFICATIONS. THIS INCLUDES COMPLETING SYSTEMS READINESS CHECKLISTS, PERFORMING FUNCTIONAL TESTING, PROVIDING OPERATOR TRAINING, ETC.
   n. ALLOWANCES: THE OWNER HAS SET ASIDE ALLOWANCES FOR UNFORESEEN CIRCUMSTANCES AND FOR STRUCTURAL CATWALK. SEE SECTION 012100.
3. ALTERNATE 1: PROVIDE 5-YEAR BUMPER-BUMPER EXTENDED WARRANTY AND MAINTENANCE CONTRACT FOR POOL DEHUMIDIFICATION SYSTEM.
4. ALTERNATE 2: PROVIDE BUILDING AUTOMATION SYSTEM TO MONITOR POOL DEHUMIDIFICATION SYSTEM VIA A BACNET INTERFACE.
   a. PROVIDE BUILDING AUTOMATION SYSTEM (CONTROLS) AS SPECIFIED FOR NEW POOL DEHUMIDIFIERS AND POOL EXHAUST FANS. CONTROLS CONTRACTOR IS RESPONSIBLE FOR ALL CONTROLS RELAYS, CONTACTORS, POWER TO DDC PANELS, DAMPERS, AND OTHER CONTROLS EQUIPMENT. INTEGRATE WITH EQUIPMENT CONTROLLERS AND SAFETIES. ALTHOUGH CONTRACTOR MAY COORDINATE WITH OTHER TRADES TO PROVIDE MISCELLANEOUS ELECTRICAL AND MECHANICAL WORK, THE FINAL RESPONSIBILITY FOR ACHIEVEMENT OF CONTROL SEQUENCES LIES WITH CONTROLS CONTRACTOR. INTEGRATE CONTROLS WITH EXISTING DISTRICTWIDE BAS FOR A SEAMLESS SYSTEM. COORDINATE WITH MECHANICAL CONTRACTOR AND EQUIPMENT SUPPLIER, AS NEEDED.
      1) ALTERNATE BID 2A: AUTOMATED LOGIC.
      2) ALTERNATE BID 2B: JOHNSON CONTROLS.
      3) ALTERNATE BID 2C: TRANE.
5. ALTERNATE 3: PROVIDE BUILDING AUTOMATION SYSTEM FOR OTHER BUILDING HVAC SYSTEMS, INCLUDING BUT NOT LIMITED TO SPACE AIR CONDITIONING SYSTEMS (RTUS, MINI-SPLITS), EXHAUST FANS, POOL AND SPACE HEATING WATER HEATERS AND RELATED PUMPS ETC.
      1) ALTERNATE BID 3A: AUTOMATED LOGIC.
      2) ALTERNATE BID 3B: JOHNSON CONTROLS.
      3) ALTERNATE BID 3C: TRANE.

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ELECTRICAL
6.25.2019

BROWNSVILLE I.S.D.
MARGARET M. CLARK - AQUATIC CENTER
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DATE: JUNE 25, 2019
CHECKED BY: R.K./R.P.
DRAWN BY:
PROJECT NO.: 19V21
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EXISTING CONDITIONS & COORDINATION/RENOVATION:

1. COORDINATE FACILITY SCHEDULES AND PROJECT COMPLETION DATES WITH OWNER. PERFORM WORK IN CLOSE COORDINATION WITH OWNER. MAJORITY OF WORK SHALL BE PERFORMED WHEN SCHOOL IS UNOCCUPIED, SUCH AS WEEKENDS, AFTER HOURS, SPRING AND SUMMER BREAK OR AT OWNER APPROVED TIME.
2. COORDINATE WORK AMONG ALL DISCIPLINES. IT IS NOT THE INTENT OF THESE DOCUMENTS TO DICTATE WHO MUST DO THE WORK. ALL WORK SHOWN IS THE RESPONSIBILITY OF THE (PRIME) CONTRACTOR.
3. PROVIDE LIGHTED SAFETY BARRIERS AROUND WORK AREAS AT ALL TIMES.
4. WORK TO BE DONE UNDER ALLOWANCES BECOMES AN INTEGRAL PART OF THE WORK AND THE RESPONSIBILITY OF THE CONTRACTOR ONCE THE ALLOWANCE IS APPROVED.
5. COORDINATE WITH OWNER AND ENGINEER FOR ANY DISRUPTION IN UTILITY SERVICES, PARTICULARLY THOSE THAT MIGHT AFFECT OTHER BUILDINGS ON CAMPUS.
6. SLEEVE ALL EXTERIOR WALL AND GRADE BEAM PENETRATIONS. GRADE BEAM PENETRATIONS SHALL BE MADE WITHIN MIDDLE 1/3 OF VERTICAL SPAN OF BEAM.
7. CONTRACTOR SHALL NOT PROCEED WITH ANY WORK INVOLVING A CHANGE IN PROJECT SCOPE OR COST WITHOUT FIRST HAVING OBTAINED ENGINEER'S APPROVAL IN WRITING. UNLESS ENGINEER HAS AGREED TO SUCH CHANGE PRIOR TO IT BEING DONE, AND HAS AGREED THAT AN INCREASE IN COST ASSOCIATED WITH SUCH CHANGE IS WARRANTED; CONTRACTOR WILL NOT BE REIMBURSED FOR SUCH CHANGE.
8. OWNER'S EQUIPMENT, MATERIALS, FURNISHINGS, CARPETS, AND INTERIOR SURFACES ARE TO BE PROTECTED FROM DUST ACCUMULATION AND DAMAGE, AND MUST BE THOROUGHLY CLEANED PRIOR TO SUBSTANTIAL COMPLETION. CARPETS ARE TO BE PROTECTED WITH HEAVY DUTY PLASTIC SHEETING. REFER TO SPECIFICATIONS SECTION 01700 EXECUTION REQUIREMENTS FOR FURTHER DETAIL.
9. MAINTAIN PROJECT SITE FREE OF WASTE MATERIALS AND DEBRIS, AND CLEAN SITE AT END OF EACH WORK DAY TO GREATEST EXTENT POSSIBLE.
10. SUBMISSION OF PROPOSAL IS CONSIDERED AN ACKNOWLEDGEMENT THAT CONTRACTOR VISITED SITE, VERIFIED ALL EXISTING CONDITIONS, AND INCLUDED ANY MODIFICATIONS TO EXISTING AND NEW WORK REQUIRED FOR INSTALLATION OF A COMPLETE AND OPERATIONAL SYSTEM.
11. TIME OR MONEY ALLOWANCES WILL NOT BE MADE TO ACCOMMODATE CONDITIONS THAT COULD HAVE BEEN VERIFIED PRIOR TO SUBMITTING PROPOSAL.
12. DRAWINGS SHOWING ALL EQUIPMENT LOCATIONS, DUCT AND PIPE SIZES, ELEVATIONS, AND ELECTRICAL INFORMATION HAVE BEEN RECREATED USING DRAWINGS AND SITE SURVEYS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SITE CONDITIONS IN ORDER TO MAKE ANY NECESSARY ADJUSTMENTS, PRIOR TO ORDERING MATERIALS OR COMMENCING INSTALLATION. CHANGE ORDERS WILL NOT BE APPROVED FOR DIMENSIONAL VERIFICATIONS REQUIRING MINOR ADJUSTMENTS NEEDED TO COMPLETE INSTALLATION.
13. PROVIDE OWNER WITH MINIMUM 10 DAYS ADVANCE NOTICE OF INTENT TO PERFORM ANY WORK WHICH WILL REQUIRE CHILLER PLANT OR ELECTRICAL SERVICE TO BE SHUT DOWN.
14. PROVIDE SHOP DRAWINGS TO COORDINATE EXISTING AND NEW WORK.
15. OWNER REPORTS THAT THERE IS NO KNOWN ASBESTOS AT THE PROJECT SITES. NOTIFY OWNER AND ENGINEER IF ANY MATERIALS SUSPECTED OF CONTAINING ASBESTOS ARE FOUND AND STOP WORK IMMEDIATELY.
16. IT IS CONTRACTOR'S RESPONSIBILITY TO REMOVE AND DISPOSE OF ALL ITEMS INDICATED TO BE REMOVED. ONLY EXPRESSLY DESIGNATED ITEMS SHALL BE TURNED OVER TO OWNER.
17. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL OF ALL MATERIAL REMOVED. CONTRACTOR SHALL DISPOSE OF ALL MATERIALS WHICH THE OWNER DOES NOT WANT.
18. REMOVE ALL EQUIPMENT, MATERIALS, CONTROL DEVICES, BOXES, POWER AND CONTROL WIRING, SAFETY SWITCHES, TUBING, ELECTRICAL CONDUIT, PIPING, SENSORS, ELECTRICAL DISCONNECTS, SUPPORTING DEVICES AND STRUCTURES, AND ALL RELATED AUXILIARY ITEMS ASSOCIATED WITH EQUIPMENT AND MATERIALS WHICH WILL NO LONGER BE USED AFTER THE PROJECT IS COMPLETE.
19. CONTRACTOR IS RESPONSIBLE FOR RESTORING ANY DISTURBED SURFACE TO ITS ORIGINAL CONDITION. ANY ROAD, TRAFFIC, OR OTHER PAINTED OR ERECTED SIGNS DAMAGED AS A RESULT OF WORK PERFORMED IN THOSE AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.
20. CUTTING AND PATCHING OF WALLS DAMAGED IN THE REMOVAL OF ITEMS SHALL BE DONE, WHETHER OR NOT DRAWINGS SPECIFICALLY CALL FOR SUCH REPAIRS.
21. ABOVE CEILING WORK: FIELD VERIFY LOCATIONS OF EXITING LIGHTING FIXTURES, SPEAKERS, HORN STORBES, SMOKE DETECTORS ETC. THAT WILL BE RETAINED. ENSURE THAT THESE ARE IN WORKING CONDITION PRIOR TO DEMOLITION. IF ANY OF THE ABOVE ITEMS ARE IN NON-WORKING CONDITION, SUBMIT A WRITTEN REPORT TO OWNER/ENGINEER.
22. PRIOR TO DEMOLITION WORK, SUBMIT A DETAILED DEMOLITION AND CONSTRUCTION SCHEDULE TO OWNER AND ENGINEER. DO NOT PROCEED WITH WORK UNTIL PROPOSED SCHEDULE IS APPROVED BY ALL PARTIES. PROVIDE OWNER WITH MINIMUM 10 DAYS ADVANCE NOTICE OF INTENT TO PERFORM ANY WORK WHICH WILL REQUIRE ELECTRICAL SERVICE TO BE SHUT DOWN.
23. FIELD-VERIFY EXACT LOCATIONS OF ALL EXISTING AND NEW UTILITIES, PRIOR TO CONDUCTING ANY WORK. COORDINATE WITH OWNERS PERSONNEL AND UTILITY COMPANIES. ALL EXPENSES INCURRED TO REPAIR DAMAGE CAUSED TO KNOWN UTILITIES AS A RESULT OF CONTRACTOR'S WORK SHALL BE BORNE BY THE CONTRACTOR. OWNER WILL NOT BE RESPONSIBLE FOR SUCH COSTS.
24. COORDINATE DEMOLITION WORK WITH NEW AND TEMPORARY CONSTRUCTION WITH MINIMAL INTERRUPTION OF POWER, AND OTHER UTILITIES. COORDINATE WITH OWNER AND ENGINEER FOR ANY DISRUPTION IN UTILITY SERVICES, PARTICULARLY THOSE THAT MIGHT AFFECT OCCUPANCY.

EQUIPMENT:

1. EQUIPMENT INSPECTION:
   a. FIELD VERIFY ALL CONDITIONS AND MEASURE DIMENSIONS WITHIN THE BUILDING PRIOR TO ORDERING EQUIPMENT AND/OR PROCEEDING WITH INSTALLATION.
   b. ALL EQUIPMENT SHALL BE FACTORY TESTED, AND CONTRACTOR SHALL VERIFY EQUIPMENT CONDITION PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR EQUIPMENT DAMAGED DURING MOVING AND INSTALLATION.
   c. EQUIPMENT FOUND DEFECTIVE PRIOR TO FINAL ACCEPTANCE SHALL BE REPLACED AT NO COST TO OWNER.
   d. COORDINATE CONCRETE HOUSEKEEPING PAD EXTENSIONS AS NEEDED.
2. EQUIPMENT ACCESS:
   a. PROVIDE MANUFACTURER RECOMMENDED AND CODE ENFORCED CLEARANCES AROUND EQUIPMENT. MAINTAIN 36" CLEAR IN FRONT OF CONTROLLER, ELECTRIC HEATERS, ETC.
   b. INSTALL ALL VALVES, CONTROLS, DAMPERS, FANS, ETC. IN ACCESSIBLE LOCATIONS. PROVIDE ADEQUATELY SIZED ACCESS DOORS WHERE REQUIRED.
3. EQUIPMENT INSTALLATION:
   a. PROVIDE SPRING HANGER TYPE VIBRATION ISOLATORS TO SUPPORT POWERED VIBRATING EQUIPMENT. PROVIDE FLEXIBLE DUCT CONNECTORS.
   b. COMPLETELY WEATHERPROOF ALL EQUIPMENT, DUCTS, PIPES AND OTHER DEVICES AND MATERIALS INSTALLED OUTSIDE THE BUILDING, CHILLER YARD AREA, OR OTHERWISE EXPOSED TO WEATHER. AS A MINIMUM, WEATHERPROOFING SHALL INCLUDE, BUT IS NOT LIMITED TO THE FOLLOWING: JACKETING FOR ALL PIPING INSULATION, VALVES AND ACCESSORIES RATED FOR OUTDOOR SERVICE, ELECTRICAL ENCLOSURES NEMA 4X-SS. PROVIDE ELECTRICAL HEAT TRACING FOR UTILITIES SUSCEPTIBLE TO FREEZING.
   c. AFFIX ID TAGS TO ALL MECHANICAL EQUIPMENT PER SPECIFICATIONS.
4. EQUIPMENT INSULATION:
   a. INSULATE ALL SURFACES OF THAT ARE CAPABLE OF BECOMING COLD AND COLLECTING CONDENSATE. THIS INCLUDES SUPPLY DIFFUSERS AND CONNECTING DUCTWORK / TRANSITION PIECES.
5. PLUMBING:
   a. COORDINATE LOCATIONS WITH PLUMBING CONTRACTOR.
   b. PROVIDE INSULATED AND TRAPPED CONDENSATE DRAIN LINES FROM ALL AIR CONDITIONING EQUIPMENT AND TERMINATE TO NEAREST CONDENSATE DRAIN RECEPTORS OR OTHER APPROVED RECEPTACLES. COORDINATE WITH PLUMBING.
6. ELECTRICAL:
   a. CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH ELECTRICAL CONTRACTOR REGARDING EQUIPMENT SIZES AND TYPES OF ELECTRICAL INTERFACE EQUIPMENT REQUIRED.
   b. DUE TO VARIATIONS IN EQUIPMENT CHARACTERISTICS BY DIFFERENT EQUIPMENT SUPPLIERS, MECHANICAL EQUIPMENT ULTIMATELY PROVIDED MAY DIFFER IN HORSEPOWER OR AMPERAGE REQUIREMENTS FROM THAT SPECIFIED IN THESE DRAWINGS. COORDINATE WITH GENERAL CONTRACTOR PRIOR TO BIDDING, AND PRIOR TO SUBMITTALS AND ORDERING EQUIPMENT, TO ENSURE THAT EQUIPMENT ELECTRICAL REQUIREMENTS ARE CONVEYED TO ELECTRICAL CONTRACTOR. IT IS SOLELY CONTRACTOR'S RESPONSIBILITY TO ENSURE COMPATIBILITY ISSUES ARE COORDINATED.

INSULATION:

1. FIBERGLASS INSULATION MAY NOT BE USED ON ANY COLD SURFACES; ONLY CLOSED CELL INSULATION IS ACCEPTABLE.
2. PROVIDE INSULATION ON ALL SURFACES CAPABLE OF CREATING CONDENSATION.
3. INSULATION ON DUCT SHALL BE PROPERLY TAPED AND MASTICS MUST BE APPLIED ON SEAMS AND JOINTS AND AT ENDS ADJACENT TO DUCT FLANGES AND FITTINGS. FOR DUCT SIDES WITH DIMENSIONS LARGER THAN 18 INCHES, APPLY ADDITIONAL PINS AND CLIPS TO HOLD INSULATION TIGHTLY AGAINST SURFACE AT CROSS BRACING.

CONTROLS:

1. CONTRACTOR SHALL COOPERATE AND COORDINATE WORK ACTIVITIES WITH DDC CONTROLS CONTRACTOR TO ENSURE SMOOTH TROUBLE-FREE INSTALLATION.
2. WHERE NOT SPECIFICALLY INDICATED ON PLANS, DDC CONTRACTOR IS RESPONSIBLE FOR ALL CONTROL RELAYS AND CONTACTORS, POWER TO DDC PANELS, AND OTHER CONTROL ELEMENTS. ALTHOUGH DDC CONTRACTOR MAY COORDINATE WITH OTHER TRADES TO PROVIDE MISCELLANEOUS ELECTRICAL WORK, THE FINAL RESPONSIBILITY FOR ACHIEVEMENT OF CONTROL SEQUENCES LIES WITH DDC CONTRACTOR.
3. ON THE GRAPHIC PAGES FOR ALL EQUIPMENT AND/OR MONITORED DEVICES (SUCH AS SENSORS, METERS, DAMPERS, ETC.) GIVE A CLEAR, GRAPHICAL INDICATION AS TO WHETHER EQUIPMENT OR DEVICE HAS BEEN PLACED IN MANUAL OPERATION, OVERRIDING AUTOMATIC OPERATION. (FOR EXAMPLE, PLACE AN "M" NEXT TO EQUIPMENT HAS BEEN PLACED IN MANUAL OPERATION.)
4. REFER TO OPERATING SEQUENCE IN SPECIFICATIONS FOR ALARMS AND SEQUENCES REQUIRED.
5. INTEGRATE NEW CONTROLS WITH OWNER'S EXISTING ON SITE.
6. ALL REFERENCES TO CONTROLLED / MONITORED POINTS AND/OR GRAPHICS WHICH ARE ON A CURRENT CONTROL SYSTEM, AND WHICH WILL BE REMOVED DURING COURSE OF CONSTRUCTION OF THIS PROJECT, MUST BE COMPLETELY REMOVED FROM CONTROL SYSTEM SOFTWARE. CONTROL SYSTEM WIRING AND CONTROLLERS TO SUCH POINTS MUST BE REMOVED AS WELL.
7. PROVIDE FULL COLOR GRAPHICS OF NEW SYSTEMS.
8. INTEGRATE NEW CONTROLS WITH OWNER'S EXISTING COS ON SITE.
9. PROVIDE WEB-SERVER. SEE SPECIFICATIONS.
10. RECOMMENDED DIVISION OF RESPONSIBILITIES BETWEEN SUB-CONTRACTORS IS AS FOLLOWS:
    a. WITH OWNER COORDINATE ETHERNET CONNECTION FOR DDC SYSTEM. CONTRACTOR TO EXTEND ETHERNET FROM OWNER DESIGNATED LOCATION TO NEW DDC PANELS.
    b. DDC CONTRACTOR SHALL COORDINATE CONTROL WIRING BETWEEN CONTROL PANELS AND UNITARY CONTROLLERS. PROVIDE MEANS TO SUPPORT WIRING (J-HOOKS). DO NOT SUPPORT WIRING FROM EXISTING DATA OR FIRE ALARM WIRING SUPPORTS.
    c. WITH ELECTRICAL SUB CONTRACTOR, CONTROL CONTRACTOR COORDINATES 120V POWER WIRING AND CONDUIT TO NEW CONTROLLERS (AND CIRCUIT BREAKERS, IF NO SPARES EXIST).
    d. CONTROLS CONTRACTOR SUPPLIES, DAMPERS, HYDRONIC VALVES, THERMOWELLS, ETC. TO MECHANICAL CONTRACTOR FOR INSTALLATION. COORDINATE OUTSIDE AND RETURN AIR DAMPERS WITH AHU MANUFACTURER.
    e. CONTROLS CONTRACTOR IS RESPONSIBLE FOR:
       * ROUGH-INS FOR WALL MOUNTED SENSORS.
       ADJUSTABLE RANGE/FLAT PLATE THERMOSTATS, RH,
       * EQUIPMENT CONTROLLERS, SOFTWARE, PROGRAMMING.
       * ALL NETWORK CONTROL PANELS, DDC CONTROLLERS, SOFTWARE, AND PROGRAMMING.
       * WIRING AND CONDUIT FOR CONTROL AND MONITORING DEVICES
       * CONTROL RELAYS
       * SHOP DRAWINGS PER SPECIFICATIONS
       * SYSTEM CHECK OUT, OWNER TRAINING, DDC SYSTEM WARRANTY WORK

CODES AND ORDINANCES:

1. GENERAL:
   a. UNLESS DRAWINGS OR SPECIFICATIONS HAVE MORE STRINGENT REQUIREMENTS, PERFORM ALL WORK PER APPLICABLE VERSION OF INTERNATIONAL BUILDING CODES, AND LOCAL CODES AND ORDINANCES.
   b. PRIOR TO SUBMITTING PROPOSAL, NOTIFY ENGINEER OF ANY ASPECTS OF DESIGN WHICH ARE THOUGHT TO BE IN NONCOMPLIANCE WITH APPLICABLE CODES.
2. WIND STORM CERTIFICATION:
   a. CONTRACTOR SHALL DESIGN, CONSTRUCT AND INSTALL EXTERIOR AND ROOF MOUNTED EQUIPMENT TO MEET GOVERNING BUILDING CODES.
3. PERMITS:
   a. CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS AND FEES ASSOCIATED WITH PROJECT, INCLUDING FEES FOR INSPECTIONS, APPLICATIONS, AND PROVISION OF NEW SERVICES.
   b. CONTRACTOR WHO WILL ACTUALLY PERFORM WORK MUST APPLY FOR ALL REQUIRED PERMITS.
4. APPROVALS AND INSPECTIONS:
   a. OBTAIN APPROVAL FROM CITY FIRE DEPARTMENT AND BUILDING AND SAFETY DEPARTMENT PRIOR TO INSTALLATION OF ANY FIRE RELATED ITEMS.
   b. COORDINATE PRESSURE TESTS, INSPECTIONS AND APPROVAL FOR ALL SYSTEMS WITH PERMITTING OFFICER, OWNER AND ENGINEER.
   c. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING WIND STORM CERTIFICATION INSPECTIONS AND CERTIFICATIONS FOR ROOFTOP EQUIPMENT. CONTRACTOR MUST NOTIFY INSPECTOR PRIOR TO INSTALLING EQUIPMENT, AND APPRISE INSPECTOR OF WORK SCHEDULING INVOLVING EQUIPMENT REQUIRING WIND INSPECTION / CERTIFICATION, SO THAT INSPECTIONS MAY BE CARRIED OUT AT REQUIRED STAGE(S) OF CONSTRUCTION.

ELECTRICAL:

1. PERFORM ALL WORK PER 2011 N.E.C. AND APPLICABLE STATE STANDARDS, UNLESS DRAWINGS OR SPECIFICATIONS HAVE MORE STRINGENT REQUIREMENTS.
2. UNLESS NOTED OTHERWISE, MINIMUM POWER CIRCUIT IS TO BE #12 THWN WITH #12 GROUND IN 3/4" CONDUIT, WITH THE EXCEPTION THAT ANY CIRCUIT LONGER THAN 100 FEET SHALL BE MINIMUM #10 AWG WITH #10 GROUND WIRE. CIRCUIT LONGER THAN 200 FEET SHALL BE MINIMUM #8 AWG WITH #10 GROUND WIRE MINIMUM.
3. MARK ALL J-BOXES WITH INDELIBLE INK, INDICATING POWER CIRCUITRY INFORMATION. LABEL ALL EQUIPMENT ITEMS AS PER SPECIFICATIONS.
4. DEPROGRAM, DISCONNECT AND RECONNECT AND REPROGRAM EXISTING H.V.A.C. DUCT SMOKE DETECTORS, WIRING AND CONTROLS.
5. ALL EXISTING I.D. NAME TAGS AND CIRCUIT IDENTIFICATION MUST BE REVISED TO REFLECT CURRENT CONDITIONS FOR ALL EQUIPMENT WHICH IS NEW, REPLACED, OR DEMOLISHED. REMOVE I.D. NAME TAGS FOR DEMOLISHED EQUIPMENT. REPLACE EXISTING NAME TAGS WITH NEW FOR REPLACED EQUIPMENT, IF REPLACEMENT EQUIPMENT HAS DIFFERENT NAME. PROVIDE NEW NAME TAGS FOR ALL NEW EQUIPMENT. ALL CIRCUIT BREAKER DIRECTORIES FOR PANELS IN WHICH NEW WORK TAKES PLACE ARE TO BE REPLACED WITH NEW DIRECTORIES WHICH LIST EXISTING CIRCUITS AND NEW. ALL UNUSED CIRCUITS ARE TO BE MARKED AS "SPARE" IN THE DIRECTORIES. DIRECTORIES ARE TO BE COMPUTER GENERATED; NO HAND WRITTEN DIRECTORIES ARE ACCEPTABLE.
7. PRIOR TO ANY DEMOLITION, CONTRACTOR SHALL CONDUCT A DETAILED INSPECTION OF EXISTING CONDITIONS AND COMPARE AGAINST DEMOLITION DRAWINGS. CONTRACTOR SHALL REQUEST CLARIFICATION AS TO THE REMOVAL OF ANY ELECTRICAL COMPONENTS FOUND IN THE FIELD THAT ARE NOT SPECIFICALLY NOTED TO BE DEMOLISHED.
8. THE DESIGN INTENT IS TO REUSE TO EXTENT POSSIBLE EXISTING ELECTRICAL AND SAFETY SYSTEMS INCLUDING CIRCUIT BREAKERS, WIRING AND CONDUITS, SAFETY AND OTHER HARD WIRED INTERLOCKS, ETC. EXISTING SYSTEMS TO BE REUSED SHALL BE PROTECTED FROM DAMAGE DURING CONSTRUCTION.
9. SINCE ELECTRICAL CHARACTERISTICS OF EQUIPMENT (SUCH AS HORSEPOWER, KW, AMPERAGE, VOLTAGE, ETC.) SUBMITTED MAY DIFFER FROM THOSE SPECIFIED IN DRAWINGS, CONTRACTOR IS RESPONSIBLE FOR COORDINATION WITH MECHANICAL AND OTHER CONTRACTORS TO ENSURE COMPATIBILITY BETWEEN ELECTRICAL AND MECHANICAL EQUIPMENT SIZES AND TYPES OF ELECTRICAL INTERFACE EQUIPMENT REQUIRED.

PIPING:

1. DRAWINGS ARE DIAGRAMMATIC IN NATURE. FOR CLARITY SAKE, MOST PIPING OFFSETS/RISES/DROPS ARE NOT SHOWN IN DRAWINGS.
2. SEAL ALL PENETRATIONS IN EXTERIOR WALLS WITH APPROVED SEALANT. PROVIDE ESCUTSCHEON PLATES BOTH INSIDE AND OUT, TO PROVIDE A FINISHED LOOK.
3. DO NOT ROUTE ANY PIPING ABOVE ELECTRICAL EQUIPMENT. COORDINATE LAYOUT WITH OTHER TRADES SUCH AS DUCTWORK, PLUMBING, LIGHTING, ELECTRICAL, FIRE PROTECTION, ETC. PROVIDE SHOP DRAWINGS TO CLEARLY SHOW PIPING ROUTING AND COORDINATION WITH OTHER ELEMENTS. IN CASE OF CONFLICT, COORDINATE REROUTING OF UTILITIES WITH ENGINEER.
4. PROVIDE LINE SIZE MANUAL ISOLATION VALVES AT ALL EQUIPMENT AND AT ALL MAJOR PIPING TAKE OFFS. REFER TO PIPING RISER SCHEMATIC FOR VALVE LOCATION AND SIZES. INSTALL ISOLATION VALVES IN ACCESSIBLE LOCATIONS. PROVIDE ADEQUATELY SIZED ACCESS DOORS WHERE REQUIRED.
5. PROVIDE EXPANSION JOINTS PER SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS.
6. ALL PIPING WELDS MUST BE WIRE-BRUSHED AND PAINTED A MINIMUM OF 12" ON EITHER SIDE OF WELD PRIOR TO INSULATION.
7. INSULATE PER SPECIFICATIONS ALL PIPING, VALVES, FITTINGS, AND COLD SURFACES THAT ARE CAPABLE OF GENERATING CONDENSATION.
8. PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY THAT MANUFACTURER RECOMMENDED AND CODE REQUIRED CLEARANCES ARE AVAILABLE.
9. INSTALL PIPES AND DUCTS AS HIGH AS POSSIBLE TO ALLOW MAXIMUM POSSIBLE HEADROOM.

ABBREVIATIONS

A	AMPS	CU	CONDENSING UNIT	FCU	FAN COIL UNIT	HVAC	HEAT., VENT., & AIR CONDITION.	SA	SUPPLY AIR	N.T.S.	NOT TO SCALE
ACT	ACTUATOR	CU.	COPPER	FD	FLOOR DRAIN OR FIRE DAMPER	LCU	LOCAL CONTROL UNIT	SAG	SUPPLY AIR GRILLE	OA	OUTSIDE AIR
A.F.F.	ABOVE FINISHED FLOOR	DDC	DIRECT DIGITAL CONTROLS	FM	FLOW METER	LVG.	LEAVING	SS	STAINLESS STEEL	PCU	PRIMARY CONTROL UNIT
B.	BOTTOM	DMPR.	DAMPER	FS	FLOW SWITCH	MECH	MECHANICAL	SZ	SINGLE ZONE	PH	PHASE
BOP	BOTTOM OF PIPE	DISC.	DISCONNECT	FPI	FINS PER INCH	MOT. STRTR.	MOTOR STARTER	TAB	TESTING & BALANCING	RA	RETURN AIR
BOTT.	BOTTOM	DX	DIRECT EXPANSION COOLING	G.	GROUND	MS	MOTOR STARTER	TS	TEMPERATURE SENSOR	RAG	RETURN AIR GRILLE
C.	CONDUIT OR COMMON	EAG	EXHAUST AIR GRILLE	GA.	GAGE	RAH	RELIEF AIR HOOD	TSTAT	THERMOSTAT	V	VOLTS
CLG.	CEILING OR COOLING	EF	EXHAUST FAN	GALV.	GALVANIZED	RD	ROOF DRAIN	UG	UNDERGROUND	VAV	VARIABLE AIR VOLUME
COMB.	COMBINATION	EMS	ENERGY MANAGEMENT SYSTEM	GRND.	GROUND	RM.	ROOM	MZ	MULTI-ZONE	VFD	VARIABLE FREQUENCY DRIVE
CONC.	CONCRETE	ENT.	ENTERING	HP	HORSEPOWER	RPZ	REDUCED PRESSURE ZONE	NC	NORMALLY CLOSED	W	WIRE
COND.	CONDUIT	EXT.	EXTERNAL OR EXTERIOR	HS	HUMIDITY SENSOR	RTU	ROOFTOP UNIT	NO	NORMALLY OPEN		

ELECTRICAL LEGEND

S_T	THERMAL SWITCH - SQUARE 'D' CLASS 2510	AS REQUIRED
	DISCONNECT SWITCH - NON FUSED	AS REQUIRED
	DISCONNECT SWITCH - FUSED	AS REQUIRED
	ELECTRICAL PANELBOARD	AS REQUIRED
— — —	UNDERGROUND RACEWAY	- - - -
———	CONCEALED RACEWAY	- - - -
T	T-STAT PROVIDED BY DIV. 23. PROVIDE STEEL SURFACE RACEWAY AND BACK BOX (WIREMOLD).	48" AFF

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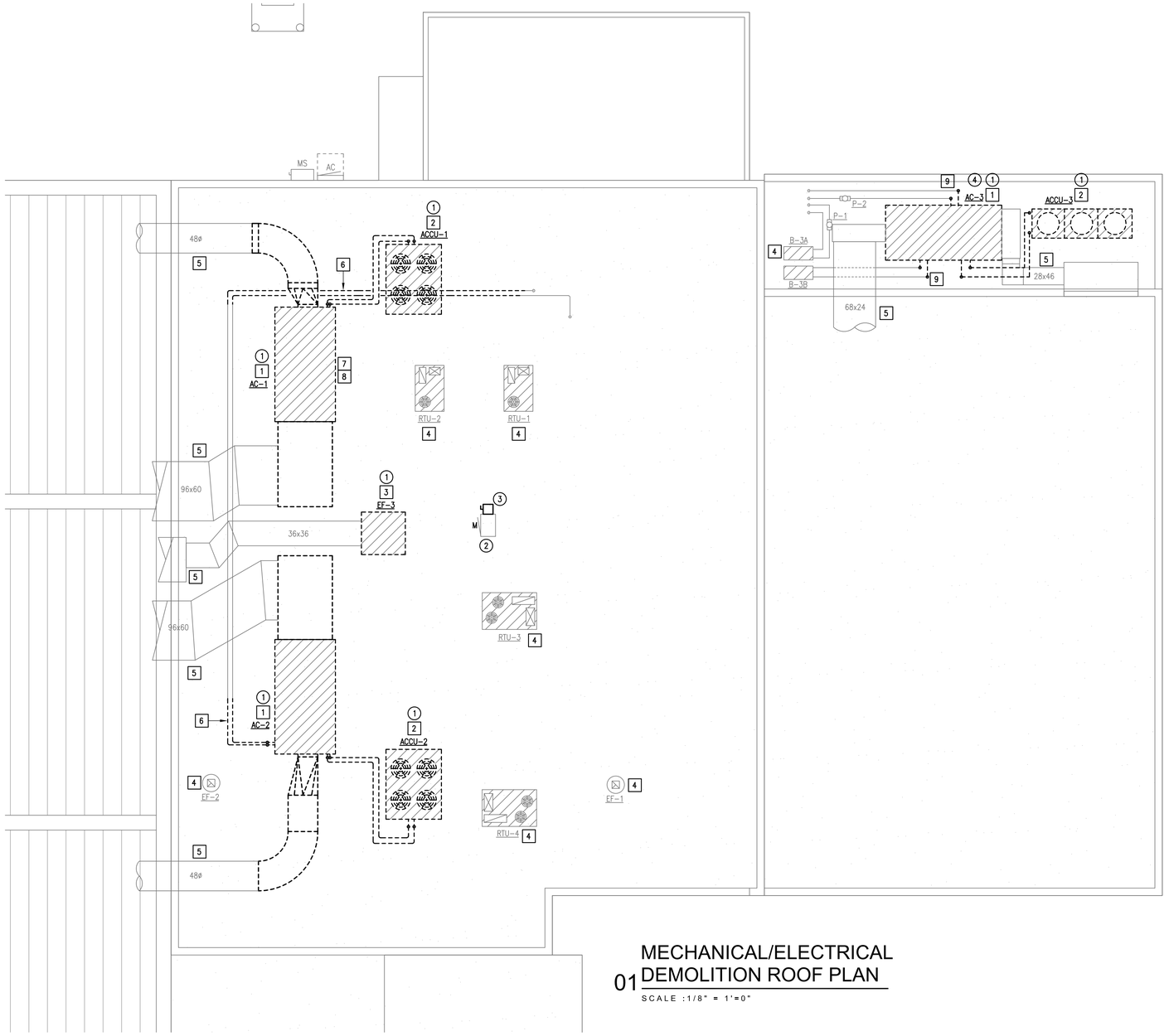
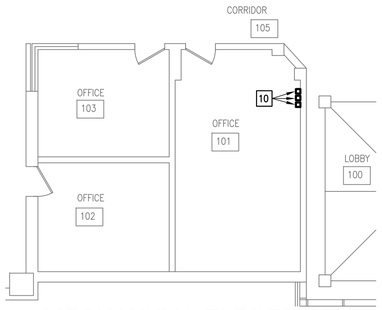


01 MECHANICAL/ELECTRICAL DEMOLITION ROOF PLAN

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



02 MECHANICAL/ELECTRICAL DEMOLITION FLOOR PLAN

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

GENERAL NOTES:

1. OWNER MAY WISH TO KEEP DEMOLISHED EQUIPMENT AND MATERIALS. COORDINATE WITH OWNER, AND DISPOSE OF EQUIPMENT AND MATERIALS THAT OWNER DOES NOT RETAIN.
2. PRIOR TO DEMOLITION, COORDINATE WITH BAS CONTRACTOR TO DESIGNATE ITEMS THAT WILL BE RETAINED AND REUSED.
3. DRAWINGS SHOWING ALL EQUIPMENT LOCATIONS AND PIPE SIZES, ELEVATIONS, AND ELECTRICAL INFORMATION HAVE BEEN RECREATED USING DRAWINGS AND SITE SURVEYS. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL SITE CONDITIONS IN ORDER TO MAKE ANY NECESSARY ADJUSTMENTS, PRIOR TO BID, ORDERING MATERIALS OR COMMENCING INSTALLATION, INFORM IMMEDIATELY THE ENGINEER. CHANGE ORDERS WILL NOT BE APPROVED FOR DIMENSIONAL VERIFICATIONS REQUIRING MINOR ADJUSTMENTS NEEDED TO COMPLETE INSTALLATION.

MECHANICAL KEYED NOTES:

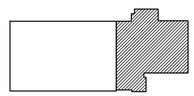
1. DEMOLISH EXISTING POOL DEHUMIDIFIER ON ROOF. PREPARE AREA FOR NEW UNIT. SEE NEW PLAN FOR MORE INFORMATION.
2. DEMOLISH EXISTING AIR COOLED CONDENSING UNIT ON ROOF (ACCU) AND ASSOCIATED REFRIGERANT PIPING. REFER TO ELECTRICAL DRAWINGS FOR WORK RELATED TO DISCONNECTS, CONDUITS, WIRING, ETC
3. DEMOLISH EXISTING EXHAUST FAN ON ROOF. PREPARE AREA FOR NEW EXHAUST FAN. SEE NEW PLAN FOR MORE INFORMATION.
4. RETAIN AND REUSE EXISTING HVAC EQUIPMENT ON ROOF AS SHOWN.
5. RETAIN AND REUSE EXISTING DUCTWORK ON ROOF AS SHOWN.
6. DEMOLISH EXISTING 2-1/2" POOL WATER PIPING SERVING AC-2 AS SHOWN ON ROOF.
7. DEMOLISH EXISTING 2" HOT WATER SUPPLY AND RETURN PIPING SERVING AC-1 DIRECTLY DIRECTLY UNDERNEATH THE UNIT, ENOUGH TO INSTALL NEW POOL DEHUMIDIFIER UNIT AND RELATED PIPING.
8. DEMOLISH EXISTING 2-1/2" POOL WATER SUPPLY AND RETURN PIPING SERVING AC-1 DIRECTLY UNDERNEATH THE UNIT, ENOUGH TO INSTALL NEW POOL DEHUMIDIFIER UNIT AND RELATED PIPING.
9. DEMOLISH EXISTING POOL WATER AND HOT WATER PIPING SERVING AC-3 AS SHOWN.
10. DEMOLISH EXISTING DEHUMIDIFIERS WALL MOUNTED CONTROLLERS (QTY.3)

ELECTRICAL KEYED NOTES:

1. DISCONNECT EXISTING HVAC EQUIPMENT FOR REPLACEMENT. SEE EQUIPMENT CONNECTION SCHEDULE.
2. APPROXIMATE LOCATION OF EXISTING PANELBOARD "M".
3. DISCONNECT AND REMOVE EXISTING FUSED DISCONNECT.
4. DISCONNECT EXISTING HVAC EQUIPMENT AND DEMOLISH ALL ASSOCIATED ELECTRICAL EQUIPMENT, RACEWAYS, AND CONDUCTORS.

LEGEND

	EXISTING PIPING TO REMAIN
	NEW PIPING
	EXISTING PIPING TO BE DEMOLISHED
	EXISTING UNIT TO BE DEMOLISHED
	EXISTING UNIT TO REMAIN
	NEW UNIT



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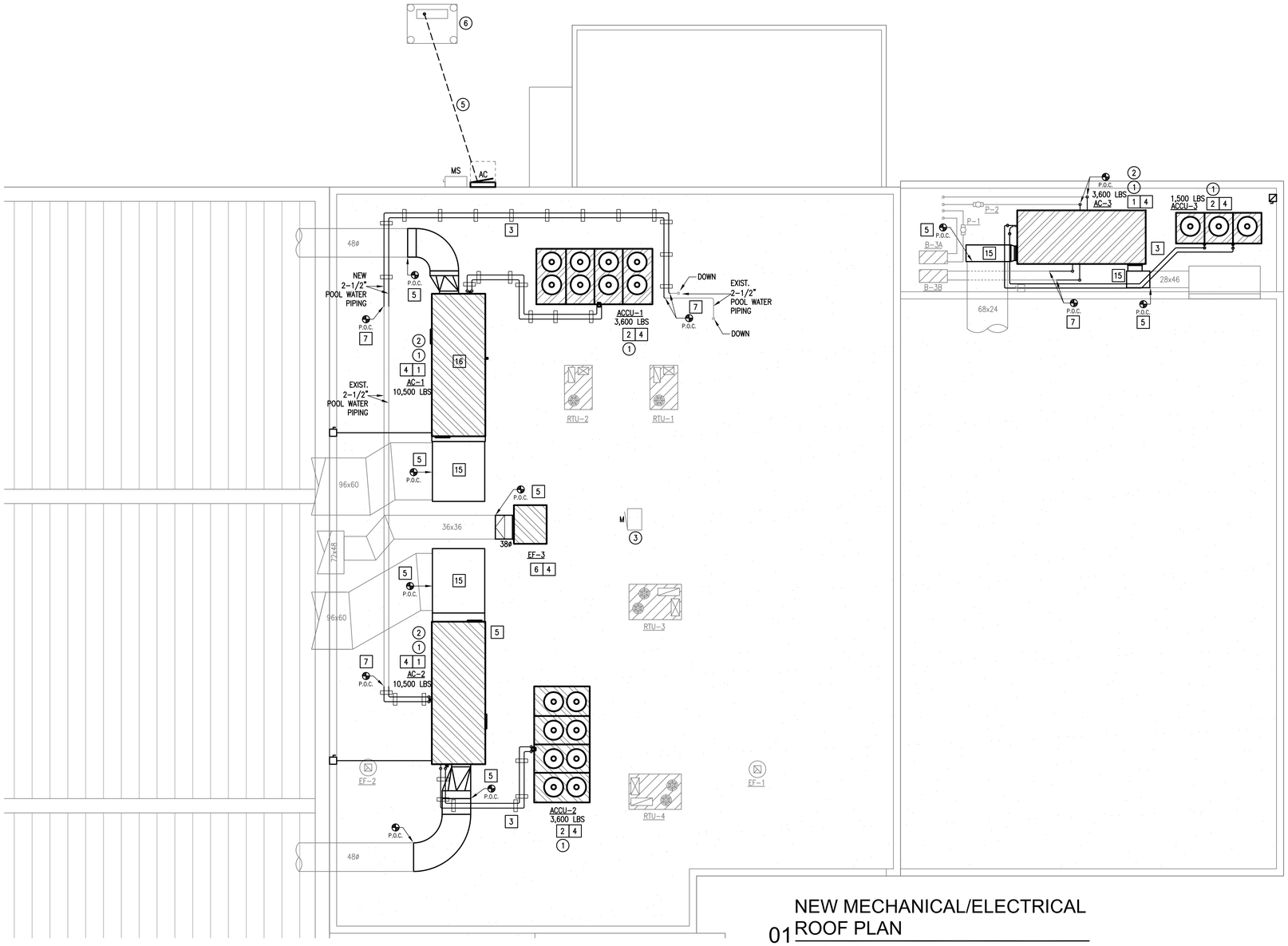
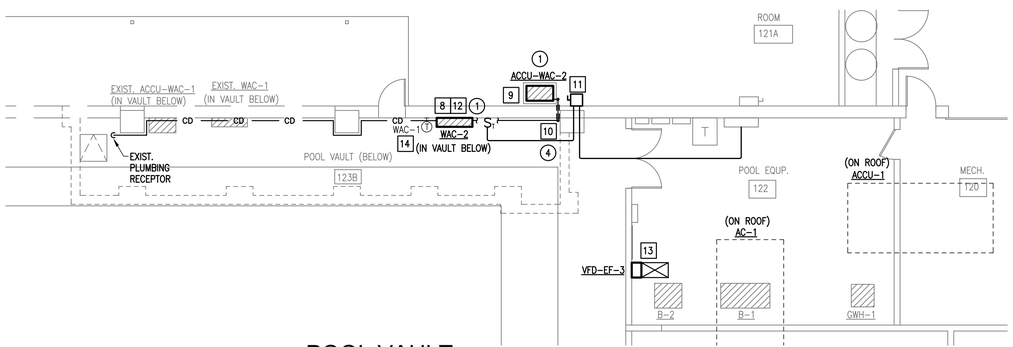


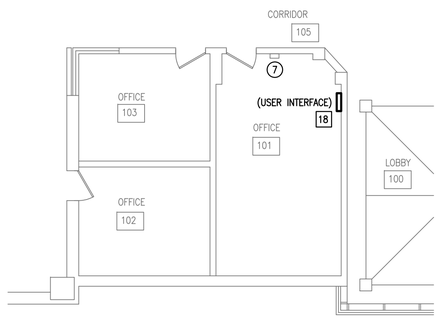
01 NEW MECHANICAL/ELECTRICAL ROOF PLAN

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



02 POOL VAULT MECHANICAL/ELECTRICAL FLOOR PLAN

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



03 OFFICE MECHANICAL/ELECTRICAL FLOOR PLAN

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

GENERAL NOTES:

1. PRIOR TO LABELING EQUIPMENT, COORDINATE DESIGNATION AND IDENTIFICATION WITH OWNER AND BUILDING AUTOMATION SYSTEM.
2. UNLESS OTHERWISE NOTED PROVIDE CONDENSATE DRAIN LINES WITH P-TRAPS, AND EXTEND TO NEAREST CONDENSATE DRAIN RECEPTOR.
3. POOL WATER PIPING SHALL BE SCH80 PVC.

MECHANICAL KEYED NOTES:

1. PROVIDE NEW POOL DEHUMIDIFIER UNIT AS SCHEDULED. PROVIDE NEW ROOF CURB. ROUTE COPPER CONDENSATE LINE TO EXISTING DRAIN RECEPTACLE AND INSULATE PER SPECIFICATIONS. ROUTE REFRIGERANT LINES NEXT TO UNIT TO AVOID INTERFERENCE WITH MAINTENANCE ACCESS. POSITION UNIT TO ALLOW REQUIRED CLEARANCES, AND ALIGN TO MINIMIZE DUCTWORK TRANSITIONS BETWEEN UNIT OPENINGS AND TRUNK DUCTS. ENSURE TO PROVIDE ALL REQUIRED PIPING CONNECTIONS/PIPE CIRCUITS TO DEHUMIDIFIER UNIT (EVAPORATOR COIL, HOT WATER SPACE HEATING, HOT WATER POOL HEATING, AND CONDENSATE) AS PER MANUFACTURER RECOMMENDATIONS.
2. PROVIDE AIR COOLED CONDENSING UNIT AND INSULATED REFRIGERANT PIPING PER SPECIFICATIONS. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. REFRIGERANT PIPING SHOWN IS STRICTLY SCHEMATIC, VERIFY NUMBER OF CIRCUITS AND PIPE SIZES WITH MANUFACTURER'S DATA. SECURE ACCU TO STRUCTURAL ROOF SUPPORTS.
3. PROVIDE 1 " INSULATION & ALUMINUM METAL JACKET ON EXPOSED REFRIGERANT LINES. SEE SPECIFICATIONS. PROVIDE REFRIGERANT LINE SUPPORTS SUITABLE FOR ROOF APPLICATION.
4. SECURE EQUIPMENT TO ROOF. ATTACHMENTS SHALL BE CAPABLE OF WITHSTANDING THE LOCAL WIND PRESSURES. REFER TO DIV. 7 FOR MORE INFORMATION. COORDINATE WITH STRUCTURAL.
5. CONNECT NEW DUCTWORK INTO EXISTING DUCTWORK AT THIS APPROXIMATE LOCATION. PROVIDE NEW EXTERIOR EXPOSED DUCTWORK ON ROOF AS PER DETAILS AND SPECIFICATIONS.
6. PROVIDE EXHAUST FAN ON ROOF SUPPORTS AS SCHEDULED. SEAL ALL OPENINGS AND ENSURE THAT INSTALLATION IS WEATHER-TIGHT.
7. CONNECT NEW PIPING INTO EXISTING PIPING ON ROOF AT THIS APPROXIMATE LOCATION.
8. PROVIDE WALL MOUNTED EVAPORATOR UNIT PER SCHEDULE. CONTRACTOR SHALL LOCATE UNIT TO ACCOMMODATE EXISTING CONDITIONS AND INSTALL PER MANUFACTURER'S RECOMMENDATIONS/REQUIREMENTS. FURNISH UNIT WITH ACCESSORIES PER SCHEDULE .
9. PROVIDE AIR COOLED CONDENSING UNIT AND INSULATED REFRIGERANT PIPING PER SPECIFICATIONS. CONTRACTOR SHALL LOCATE NEW CONDENSING UNIT PER EXISTING CONDITIONS. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES. PROVIDE CONCRETE PAD TO INSTALL ACCU. REFRIGERANT PIPING SHOWN IS STRICTLY SCHEMATIC, VERIFY NUMBER OF CIRCUITS AND PIPE SIZES WITH MANUFACTURER'S DATA.
10. ROUTE REFRIGERANT PIPING TO AIR COOLED CONDENSING UNIT LOCATED OUTSIDE. CONTRACTOR SHALL ADJUST ROUTING TO ACCOMMODATE EXISTING CONDITIONS. CORE DRILL EXISTING WALL AND FLOOR AS NECESSARY TO ROUTE REFRIGERANT PIPING DOWN TO VAULT BELOW.
11. SLEEVE ALL WALL PENETRATIONS PER SPECIFICATIONS. SEAL AROUND DUCTS & PIPING AT ALL WALLS, AC ROOMS AND WALL LOUVER PENETRATIONS WITH FIRE-PROOF CAULKING. PROVIDE ESCUTCHEON PLATES AND FLASHING AROUND PENETRATION, BOTH INSIDE AND OUTSIDE TO PROVIDE A FINISH LOOK. (TYP.)
12. PROVIDE 3/4"COPPER CONDENSATE LINE FROM CONDENSATE PUMP TO EXISTING PLUMBING RECEPTOR AT THIS APPROXIMATE LOCATION. COORDINATE ROUTING WITH GENERAL CONTRACTOR.
13. PROVIDE VFD PER SCHEDULE WITH NEMA-1 ENCLOSURE FOR MOUNTING INDOORS. MAINTAIN MINIMUM 3'-0" CLEARANCE IN FRONT OF VFD. (TYPICAL)
14. PROVIDE 7-DAY DIGITAL PROGRAMMABLE THERMOSTAT. INSTALL 48" A.F.F. INSIDE VAULT.
15. PROVIDE SHEET METAL FIELD FABRICATED PLENUM TO ACCOMMODATE CONNECTION OF NEW UNIT TO EXISTING DUCTWORK.
16. PROVIDE 2-1/2" POOL WATER PIPING AND 2" HOT WATER PIPING DIRECTLY UNDERNEATH OF NEW AC-1 AS NECESSARY TO CONNECT NEW PIPING TO EXISTING.
17. PROVIDE EXTERNALLY WRAPPED INSULATION ON ALL NEW OUTDOOR DUCTWORK, ALUMAGUARD OR APPROVED EQUAL AS PER SPECIFICATIONS.
18. PROVIDE USER INTERFACE AT THIS APPROXIMATE LOCATION TO CONTROL AC-1, AC-2, AND AC-3.

GENERAL ELECTRICAL NOTES:

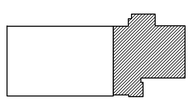
1. PROVIDE ALL BOXES, HANGERS, SUPPORTS, AND ACCESSORIES HOT-DIPPED GALVANIZED.

ELECTRICAL KEYED NOTES:

1. CONNECT NEW HVAC EQUIPMENT. SEE EQUIPMENT CONNECTION SCHEDULE.
2. CONNECT INTEGRAL GFCI RECEPTACLE TO NEAREST NON-GFCI, NON-OVERLOADED 120V CIRCUIT. BRANCH CIRCUIT - 1/2" 2#12 & #12G.
3. APPROXIMATE LOCATION OF EXISTING PANELBOARD "M".
4. CORE DRILL FLOOR TO ROUTE RACEWAY DOWN TO VAULT BELOW. FOLLOW REFRIGERANT PIPING PATH. COORDINATE WITH HVAC CONTRACTOR PRIOR TO ROUGH-IN.
5. PROVIDE UNDERGROUND SECONDARY FEEDER.
6. APPROXIMATE LOCATION OF EXISTING PUB PAD MOUNT TRANSFORMER. COORDINATE CONNECTION WITH PUB.
7. APPROXIMATE LOCATION OF EXISTING EST3X FIRE ALARM CONTROL PANEL.

LEGEND

	EXISTING PIPING TO REMAIN
	NEW PIPING
	EXISTING PIPING TO BE DEMOLISHED
	EXISTING UNIT TO BE DEMOLISHED
	EXISTING UNIT TO REMAIN
	NEW UNIT



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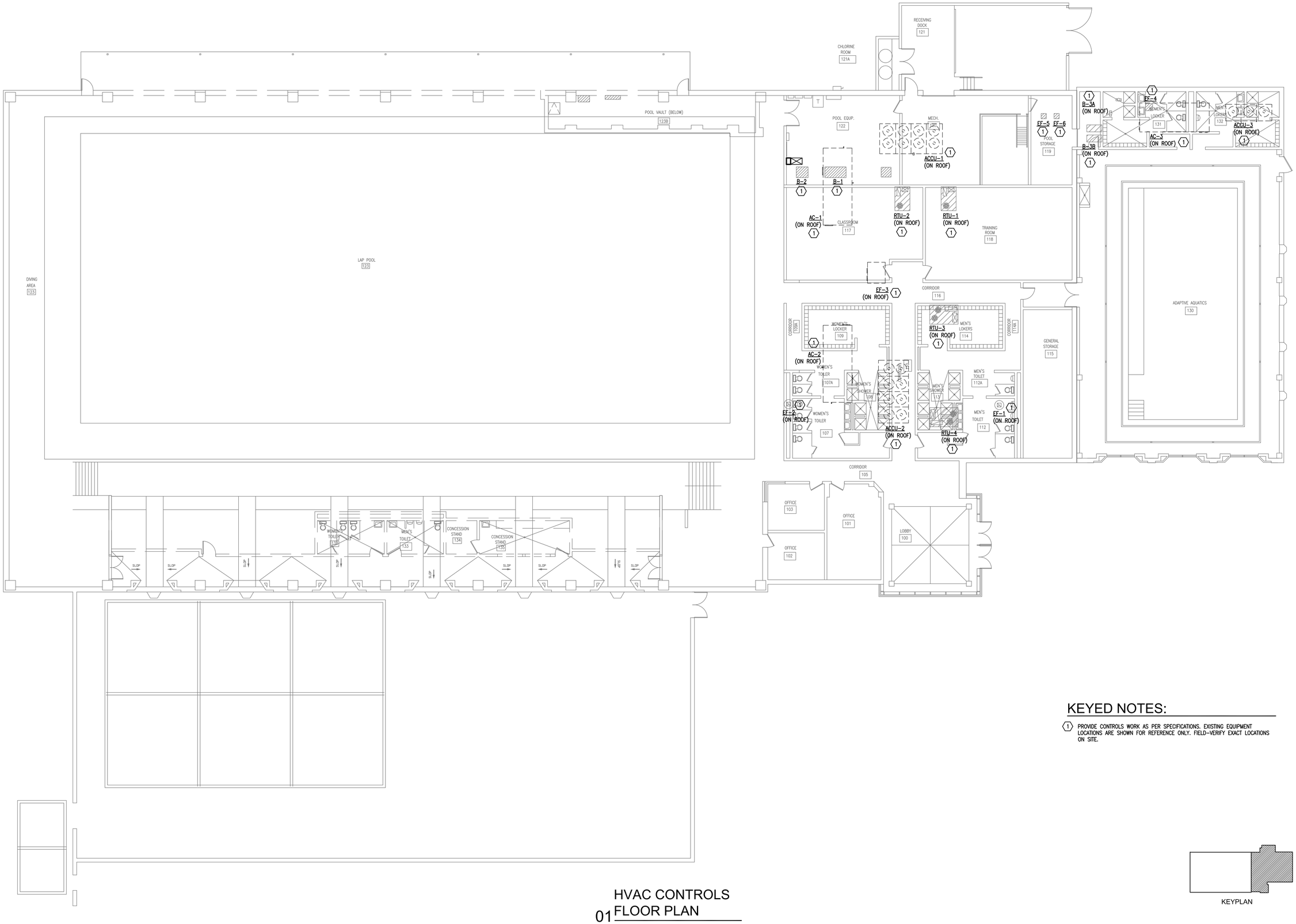

KEYED NOTES:

1. PROVIDE CONTROLS WORK AS PER SPECIFICATIONS. EXISTING EQUIPMENT LOCATIONS ARE SHOWN FOR REFERENCE ONLY. FIELD-VERIFY EXACT LOCATIONS ON SITE.

01 HVAC CONTROLS FLOOR PLAN

SCALE : 3/32" = 1'=0"

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AIR COOLED FLUID COOLER

UNIT	ACCU-1	ACCU-2	ACCU-3
SPACE SERVED	COMPETION POOL	COMPETION POOL	ADAPTIVE POOL
DESIGN AMBIENT (F DB)	100	100	100
CAPACITY (MBH)	926.6	926.6	493.9
UNIT VOLTAGE	460/3/60	460/3/60	460/3/60
QNTY OF FANS	6	6	3
FAN MOTOR HP (EA)	1.1	1.1	1.1
FAN MOTOR FLA EA (A)	4.2	4.2	4.2
UNIT MCA/MOCP (A)	28 / 35	28 / 35	15 / 20
MANUFACTURER	SERESCO	SERESCO	SERESCO
MODEL	NG-V-32	NG-V-32	NG-V-31
MAX OP WEIGHT (LBS)	3,600	3,600	1,500
NOTES	ALL	ALL	ALL

NOTES:
1. ELECTRICAL SAFETY DISCONNECT BY DIV.26. COORDINATE WITH ELECTRICAL CONTRACTOR.
2. PROVIDE UNITARY CONTROLLER WITH WEB ACCESS AND BACNET IP INTERFACE.
3. SEE SPECIFICATION FOR CONSTRUCTION AND OTHER REQUIREMENTS.
4. PROVIDE IBC 2015 COMPLIANT CURB AND ATTACHMENTS FROM UNIT TO CURB AND CURB TO STRUCTURE.

EQUIPMENT OR CURB MANUFACTURER IS RESPONSIBLE FOR PROVIDING ENGINEERED DETAIL ANALYSIS OF:
A) ATTACHMENT OF EQUIPMENT TO CURB.
B) CURB TO STRUCTURE.
C) CURB AND ATTACHMENT HARDWARE STRENGTH.
REFER TO STRUCTURAL DRAWINGS FOR ROOF SUBSTRATE DETAILS.
EQUIPMENT OR CURB MANUFACTURER IS ALSO RESPONSIBLE FOR PROVIDING ENGINEERED INSTALLATION DRAWINGS FOR ITEMS A AND B LISTED ABOVE.
SUBMITTALS WILL NOT BE APPROVED UNTIL ALL DOCUMENTATION LISTED ABOVE IS PROVIDED ACCURATELY.

EXHAUST FAN SCHEDULE

MARK	ROOM NUMBER SERVING	TYPE	ELECTR. V/H/P	CFM	MOTOR HP	E.S.P. IN. H20	MANUFACTURER & MODEL NUMBER	WEIGHT (LBS)	CONTROL NOTES	NOTES
EF-3	COMPETITION POOL	ROOF MOUNTED	460/60/3	14000	5.00	0.75	LOREN COOK 330 CPV	1050	ALL	ALL

NOTES:
1. PROVIDE FACTORY MOUNTED DISCONNECT.
2. MANUFACTURER AND MODEL NUMBER LISTED ARE "OR APPROVED EQUAL." REFER TO SPECIFICATIONS.
3. PROVIDE FAN WITH ALL ALUMINUM BACKDRAFT DAMPER.
4. PROVIDE DISCHARGE SHUTTER WITH WEATHER COVER.
5. PROVIDE PHENOLIC EPOXY COATING ON OUTER AND INNER SCROLLS, WHEELS AND ACCESSORIES.
6. PROVIDE UV RESISTANT TOP COAT TO PREVENT COATING DETERIORATION IN OUTDOOR APPLICATION.

CONTROL NOTES:
A. FAN SHALL BE INTERLOCKED WITH AC-1. COORDINATE WITH ELECTRICAL CONTRACTOR.
B. ALTERNATE #2 (A THRU C): PROVIDE DDC START/STOP POINTS. REFER TO SEQUENCES OF OPERATIONS.

MINI-SPLIT OUTDOOR UNIT SCHEDULE

MARK	SERVING	TOTAL BTU/H	COND DB	ELECTRIC V-PH-HZ	SEER ARI CONDITIONS	HSPF ARI CONDITIONS	COMPR STAGES	MCA	MOCP	WEIGHT (LBS)	NOTES	MANUFACTURER MODEL NUMBER
ACCU-WAC-2	WAC-2	18,000	95	208-1-60	18	N/A	VAR	18.3	20	97	ALL	DAIKIN RK18NMVJU

NOTES:
1. MANUFACTURER AND MODEL NUMBER LISTED ARE "OR APPROVED EQUAL". SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS. AND SUBSTITUTION PROCEDURES.
2. INSULATE REFRIGERANT LINES AS PER SPECIFICATIONS. PROVIDE ALUMINUM METAL JACKETING AROUND INSULATION FOR ALL EXTERIOR EXPOSED LINES.
3. EER SHALL EXCEED IECC MINIMUM EFFICIENCY AT ARI CONDITIONS.
4. PROVIDE INVERTER DRIVEN COMPRESSOR FOR IMPROVED HUMIDITY CONTROL.
5. PROVIDE CONTROL WIRING FROM OUTDOOR UNIT TO ALL INDOOR UNITS. CONDUITS TO BE PROVIDED BY DIV. 26. COORDINATE WITH ELECTRICAL CONTRACTOR.
6. SAFETY DISCONNECT TO BE PROVIDED BY DIV. 26. ELECTRICAL CONTRACTOR TO PROVIDE SINGLE CIRCUIT POWER FROM SERVICE TO OUTDOOR UNIT AND WIRE TO INDOOR UNIT.
7. PROVIDE COATED CONDENSER COIL FINS.

MINI-SPLIT INDOOR UNIT SCHEDULE

MARK	MATCHED TO	LOCATION	CFM	ESP IN WG	ELECT. V-P-H	COOLING TOTAL BTU/H	COOLING EAT DB/WB	WT (LBS)	NOTES	MANUFACTURER & MODEL NUMBER
WAC-2	ACCU-WAC-2	SEE PLAN	579	N/A	208-1-60	18,000	80/67	27	ALL	DAIKIN FTK18NMVJU

NOTES:
1. MANUFACTURER AND MODEL NUMBER LISTED ARE "OR APPROVED EQUAL". SEE SPECIFICATIONS FOR APPROVED MANUFACTURERS. AND SUBSTITUTION PROCEDURES.
2. PROVIDE WASHABLE FILTER.
3. PROVIDE MOUNTING BRACKET
4. PROVIDE WALL MOUNTED AND WIRED 7-DAY PROGRAMMABLE T-STAT IN LIEU OF WIRELESS REMOTE.
5. PROVIDE CONDENSATE PUMP EQUAL TO LITTLE GIANT EC-1 WITH LINE SET KIT FOR UTILIZATION OF SIDE PIPING AND WIRING INSTALLATION.
6. ELECTRICAL CONTRACTOR TO PROVIDE SINGLE CIRCUIT POWER FROM SERVICE TO OUTDOOR UNIT AND WIRE TO INDOOR UNIT.

POOL DEHUMIDIFIER SCHEDULE

GENERAL			
UNIT	AC-1	AC-2	AC-3
SPACE SERVED	COMPETION POOL	COMPETION POOL	ADAPTIVE POOL
DESIGN OCCUPPIED SPACE CONDITIONS (F DB) / (RH%)	84 / 60	84 / 60	84 /60
UNOCCUPPIED SPACE CONDITIONS (F DB) / (RH%)	84 / 50	84 / 50	84 / 50
SWIM MEET SPACE CONDITIONS (F DB) / (RH%)	80 / 60	80 / 60	–
OUTSIDE AIR (CFM)	4,750	4,750	2,000
OUTSIDE AIR SWIM MEET (CFM)	7,000	7,000	–
SUPPLY FAN			
TOTAL SUPPLY AIR (CFM)	25,000	25,000	15,000
ESP (IN)	1.5	1.5	1.0
QNTY OF FANS	2	2	1
FAN MOTOR HP (EA)	20.0 / 15.0	20.0 / 15.0	15.0
FAN MOTOR FLA EA (A)	25.9 / 19.2	25.9 / 19.2	25.9
FAN TYPE	PLENUM DD/ TEFC MOTOR	PLENUM DD/ TEFC MOTOR	PLENUM DD/ TEFC MOTOR
EVAPORATOR COIL (DESIGN OCPD CONDITIONS)			
DESIGN TOTAL/SENSIBLE CAPACITY (MBH)	803.3 / 405.5	803.3 / 405.5	395.1 / 199.4
MAX TOTAL/SENSIBLE CAPACITY (MBH)	896.8 / 481.0	896.8 / 481.0	441.1 / 236.6
LATENT CAPACITY (LBS/HR)	368.3	368.3	181.1
MAX LATENT CAPACITY (LBS/HR)	385	385	189.4
CIRCUITS	2	2	2
REHEAT COIL (DESIGN OCPD CONDITIONS)			
TOTAL HEAT REJECTION (MBH)	1004.1	1004.1	493.9
CONTROL TYPE	FULL MODULATING	FULL MODULATING	FULL MODULATING
POOL HEATING			
CAPACITY (MBH)	585	585	273
WATER FLOW RATE (GPM)	90	90	45
WATER PRESSURE DROP (PSI)	8	8	6
COMPRESSOR			
TYPE	SCROLL R410A	SCROLL R410A	SCROLL R410A
NUMBER OF COMPRESSORS	2	2	2
FLA EA (A)	53.1	53.1	26.9
FLUID COOLED A/C			
FLUID FLOW (GPM)	150	150	60
FLUID PRESSURE DROP (PSI)	4.6	4.6	1
PUMP MOTOR (HP)	2.1	2.1	0.75
PUMP MOTOR FLA (A)	5.1	5.1	1.8
AUXILARY HEATING COIL			
CAPACITY (MBH)	500	–	500
ENTERING / LEAVING AIR TEMPERATURE (F)	78 / 104	–	82 / 117.4
ENTERING / LEAVING WATER TEMPERATURE (F)	180 / 135	–	180 / 128
WATER FLOW (GPM)	22	–	19.1
PRESSURE DROP (FT)	6.2	–	3
CONTROL	MODULATING	–	MODULATING
INDOOR UNIT ELECTRICAL			
UNIT VOLTAGE	460/3/60	460/3/60	460/3/60
UNIT FLA (A)	252.3	252.3	89
UNIT MCA/MOCP (A)	269/300	269/300	110
UNIT			
MANUFACTURER	SERESCO	SERESCO	SERESCO
MODEL	NP-064-VC-X-A3NH5253W2E5ADE	NP-064-VC-X-A3NH5253W2E5ADE	NP-030-VL-X-A3NH1153W0E5ADE
NOMINAL TONNAGE	64	64	30
MAX OP WEIGHT (LBS)	10,500	10,250	7,400
NOTES	ALL	ALL	ALL

NOTES:
1. PROVIDE 2" DOUBLE WALL CONSTRUCTION.
2. PROVIDE ONE FACTORY INSTALLED VFD FOR ON ONE SUPPLY FOR AIR BALANCE PURPOSES.
3. PROVIDE FACTORY INSTALLED CONTROLLER WITH WEB ACCESS AND BACNET IP INTERFACE.
4. PROVIDE FACTORY WIRED LIGHTS WITHIN THE UNIT SECTIONS AS SPECIFIED. LIGHTS TO BE CONTROLLED BY A SINGLE SWITCH. POWER TO CIRCUIT TO BE FIELD WIRED.
5. PROVIDE UNIT MOUNTED GFCI 120 VOLT SERVICE RECEPTACLE. POWER TO BE FIELD WIRED.
6. ELECTRICAL SAFETY DISCONNECT BY DIV.26. COORDINATE WITH ELECTRICAL CONTRACTOR.
7. PROVIDE VENTED POOL HEAT EXCHANGER.
8. SEE SPECIFICATION FOR CONSTRUCTION AND OTHER REQUIREMENTS.
9. PROVIDE NEW ROOF CURB AS PER SPECIFICATIONS.
10. PROVIDE IBC 2015 COMPLIANT CURB AND ATTACHMENTS FROM UNIT TO CURB AND CURB TO STRUCTURE.

EQUIPMENT OR CURB MANUFACTURER IS RESPONSIBLE FOR PROVIDING ENGINEERED DETAIL ANALYSIS OF:
A) ATTACHMENT OF EQUIPMENT TO CURB.
B) CURB TO STRUCTURE.
C) CURB AND ATTACHMENT HARDWARE STRENGTH.
REFER TO STRUCTURAL DRAWINGS FOR ROOF SUBSTRATE DETAILS.
EQUIPMENT OR CURB MANUFACTURER IS ALSO RESPONSIBLE FOR PROVIDING ENGINEERED INSTALLATION DRAWINGS FOR ITEMS A AND B LISTED ABOVE.
SUBMITTALS WILL NOT BE APPROVED UNTIL ALL DOCUMENTATION LISTED ABOVE IS PROVIDED ACCURATELY.

VFD SCHEDULE

MARK	EQUIPMENT SERVED	MOTOR HP	FL AMPS	ELECTRICAL V/P/Hz	MANUFACTURER & MODEL NUMBER	NOTES
VFD-EF-3	EF-3	5	7.6	480/3/60	DANFOSS VLT-HVAC	ALL

NOTES:
1. PROVIDE NEMA 1 ENCLOSURE FOR VFD LOCATED INDOORS.
2. PROVIDE INTEGRAL DISCONNECT.
3. PROVIDE BYPASS WITH VFDS.

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PROJECT NO.: 19V21
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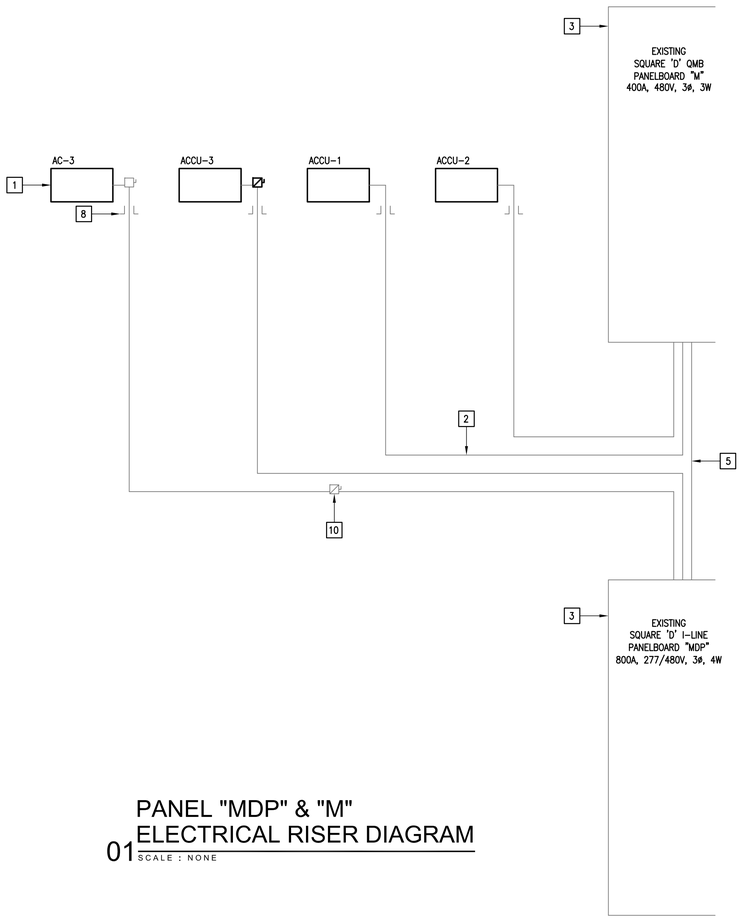
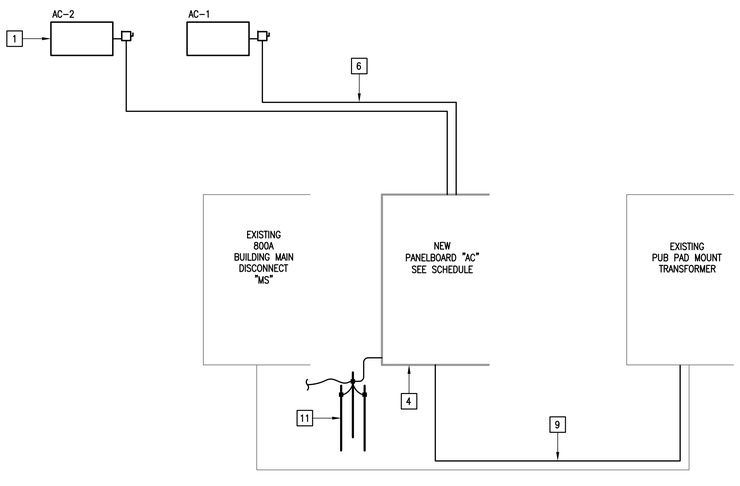
SHEET: ME5.1



PANEL "MDP" & "M"
ELECTRICAL RISER DIAGRAM
01 SCALE : NONE



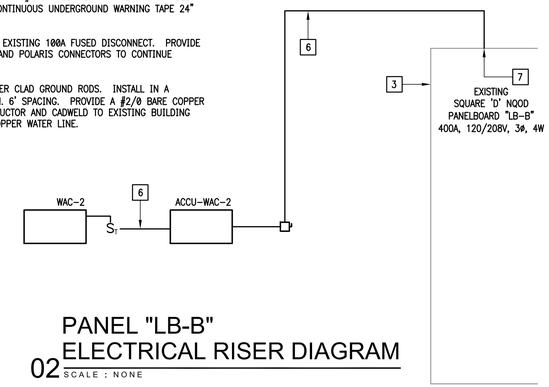
PANEL "AC"
ELECTRICAL RISER DIAGRAM
03 SCALE : NONE

ELECTRICAL KEYED NOTES:

1. DISCONNECT EXISTING HVAC EQUIPMENT FOR REPLACMENT AND CONNECT NEW HVAC EQUIPMENT. REFER TO EQUIPMENT CONNECTION SCHEDULE – TYPICAL.
2. EXISTING BRANCH CIRCUIT. REFER TO EQUIPMENT CONNECTION SCHEDULE – TYPICAL.
3. EXISTING PANELBOARD.
4. NEW PANELBOARD.
5. EXISTING FEEDER.
6. NEW BRANCH CIRCUIT. REFER TO EQUIPMENT CONNECTION SCHEDULE – TYPICAL.
7. CONNECT TO EXISTING SPARE 30A/2P BREAKER (CIRCUIT #'S 82,84). BREAKER CURRENTLY SERVES A DRYER SPECIAL RECEPTACLE NO LONGER IN USE. REMOVE RECEPTACLE, RACEWAY AND WIRING.
8. PROVIDE CONNECTION THROUGH EXISTING ROOF CURB. – TYPICAL.
9. PROVIDE 2–RUNS EACH 3" – 3#350KCMIL. BURY RACEWAYS 36" BELOW GRADE AND PROVIDE A CONTINUOUS UNDERGROUND WARNING TAPE 24" BELOW GRADE.
10. DISCONNECT AND REMOVE EXISTING 100A FUSED DISCONNECT. PROVIDE A NEMA 4X SS WIREWAY AND POLARIS CONNECTORS TO CONTINUE SERVICE DOWNSTREAM.
11. PROVIDE 3/4"X 10' COPPER CLAD GROUND RODS. INSTALL IN A TRIANGULAR PATTERN. MIN. 6' SPACING. PROVIDE A #2/0 BARE COPPER GROUND ELECTRODE CONDUCTOR AND CADWELD TO EXISTING BUILDING STRUCTURE STEEL AND COPPER WATER LINE.

ELECTRICAL GENERAL NOTES:

1. IF EXISTING HVAC EQUIPMENT CONNECTIONS ARE NOTED TO BE REUSED AND DO NOT REACH NEW HVAC EQUIPMENT CONNECTION POINTS, CONTRACTOR WILL PROVIDE JUNCTION BOX AND SPLICING. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE EXISTING CONDITIONS.
2. COORDINATE PHASING OF ELECTRICAL WORK WITH MECHANICAL CONTRACTOR. REFER TO MECHANICAL PLANS FOR MORE INFORMATION.



PANEL "LB-B"
ELECTRICAL RISER DIAGRAM
02 SCALE : NONE

AC

ROOM OUTDOORS
MOUNTING SURFACE
FED FROM UTILITY
NOTE PROVIDE A TYPE WRITTEN AS BUILT DIRECTORY.

VOLTS 480Y 3P 3W
BUS AMPS 600
NEUTRAL NONE

AIC 65,000
MAIN BKR MLO
LUGS STANDARD

CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C	CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA A	LOAD KVA B	LOAD KVA C
1	300/3	AC-1	69.7			2	300/3	AC-2	69.7		
3	|			69.7		4	|			69.7	
5	|				69.7	6	|				69.7
7	100/3	SPACE	0			8	100/3	SPACE	0		
9	|			0		10	|			0	
11	|				0	12	|				0
13	100/3	SPACE	0			14	100/3	SPACE	0		
15	|			0		16	|			0	
17	|				0	18	|				0
								TOTAL CONNECTED KVA BY PHASE	139	139	139

	CONN KVA	CALC KVA			CALC KVA
COOLING	418	418	(100%)	TOTAL LOAD	418
				BALANCED 3-PHASE AMPS	503

1. PROVIDE NEMA 3R (304 STAINLESS STEEL) ENCLOSURE.
2. PROVIDE SERVICE ENTRANCE RATED.
3. PROVIDE ALL BREAKERS HACR TYPE.

ELECTRICAL CONNECTION SCHEDULE

MARK	NEW FLA	NEW MCA	NEW MOCP	EXISTING OCP	ELECTRIC V/P/H	EXISTING DISCONNECT	NEW DISCONNECT	EXISTING BRANCH CIRCUIT	NEW BRANCH CIRCUIT
ACCU-1	25.2	28	35	25 [4]	460/3/60	[7]	[5]	3/4" – 3#10 & #10G [2]	–
ACCU-2	25.2	28	35	25 [4]	460/3/60	[7]	[5]	3/4" – 3#10 & #10G [2]	–
ACCU-3	12.6	15	20	30 [4]	460/3/60	[7]	30A, 3P3F, 20AF, 600V, NEMA 4X SS [1]	3/4" – 3#10 & #10G [2]	–
AC-1	252.3	269	300	200 [8]	460/3/60	[7]	400A, 3PNF, 600V, NEMA 4X SS	2" – 3#2/0 & #6G [7]	3" 3#350KCMIL & #4G
AC-2	252.3	269	300	200 [8]	460/3/60	[7]	400A, 3PNF, 600V, NEMA 4X SS	2" – 3#2/0 & #6G [7]	3" 3#350KCMIL & #4G
AC-3	89.0	110	110	100 [4]	460/3/60	200A, 3PNF, 600V, NEMA 4X SS	[9]	2" – 3#2 & #8G [2]	–
ACCU-WAC-2		18	20	–	208/1/60	–	30A, 2PNF, 240V, NEMA 4X SS [1]	–	3/4" – 2#10 & #10G
WAC-2		–	–	–	208/1/60	–	[6]	–	3/4" – 2#10 & #10G
EF-3	7.6	10	15	25 [4]	460/3/60	[7]	VARIABLE FREQUENCY DRIVE [11]	[7]	3/4" – 3#12 & #12G

NOTES:
[1] LOCATE EQUIPMENT MEANS OF DISCONNECT WITHIN LINE–OF–SIGHT OF EQUIPMENT. DO NOT INSTALL BELOW DUCTWORK OR PLUMBING LINES.
[2] EXISTING TO REMAIN.
[3] CIRCUIT BREAKER IS MEANS OF DISCONNECT, WITHIN LINE–OF–SIGHT.
[4] REMOVE EXISTING OCP (FUSES) AND REPLACE TO MATCH NEW MOCP.
[5] MEANS OF DISCONNECT IS THE PANELBOARD SWITCH WITHIN SIGHT.
[6] PROVIDE THERMAL SWITCH WITH NO OVERLOADS IN A NEMA 4X ENCLOSURE.
[7] REMOVE EXISTING
[8] REMOVE EXISTING OCP. SWITCH SHALL REMAIN A SPARE.
[9] RETAIN EXISTING.
[10] REMOVE EXISTING OCP (CIRCUIT BREAKER) AND REPLACE TO MATCH NEW MOCP.
[11] PROVIDED BY DIV. 23. INSTALLED AND CONNECTED BY DIV. 26.

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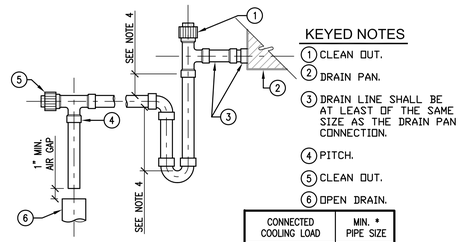


KEYED NOTES

1. CLEAN OUT.
2. DRAIN PAN.
3. DRAIN LINE SHALL BE AT LEAST OF THE SAME SIZE AS THE DRAIN PAN CONNECTION.
4. PITCH.
5. CLEAN OUT.
6. OPEN DRAIN.

NOTES:

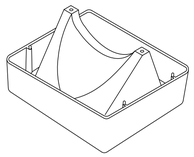
1. MANUALLY PRIME TRAP BEFORE START UP.
2. SUPPORT DRAIN LINES TO PREVENT SAG.
3. ALLOW SUFFICIENT SPACE BELOW PAN FOR TRAP AND PITCH TO DRAIN.
4. COORDINATE WITH MANUFACTURER OF AHU.

CONNECTED COOLING LOAD	MIN. * PIPE SIZE
UP TO 2 TON	3/4"
2-5	1"
5-30	1-1/4"
30-50	1-1/2"
50-160	2"
160-300	3"
300-430	4"

* NOT SMALLER THAN OUTLET SIZE.

01 CONDENSATE DRAIN TRAP PIPE

SCALE : NOT TO SCALE

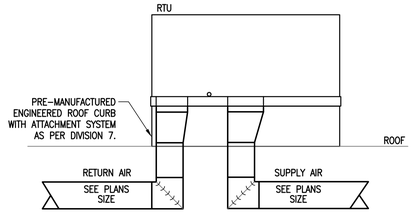


MIRO INDUSTRIES, MODEL 1.5
(PILLOW BLOCK PIPE STAND)

NOTE : ATTACH SUPPORT TO ROOF USING ROOF ADHESIVE.

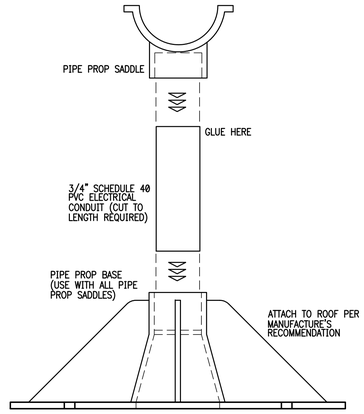
02 CONDENSATE PIPE SUPPORT DETAIL

SCALE : NOT TO SCALE



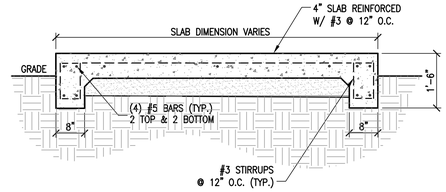
03 ROOFTOP UNIT DETAIL

SCALE : NOT TO SCALE



04 CONDENSATE PIPE SUPPORT DETAIL

SCALE : NOT TO SCALE

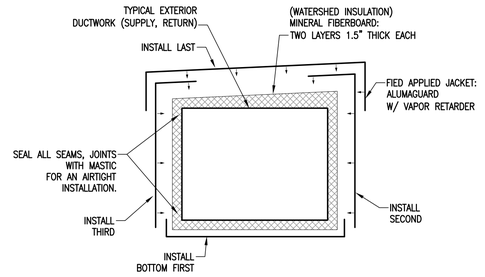


NOTE:

1. STRIP TOPSOIL AND REMOVE ALL DEBRIS.
2. GRADE BEAMS TO EXTEND A MINIMUM OF 6" INTO UNDISTURBED SOIL.
3. TOP OF SLAB TO BE A MINIMUM OF 3" ABOVE EXISTING FINISHED GRADE.
4. GRADE AROUND SLAB TO INSURE DRAINAGE.
5. PROVIDE MINIMUM 6" CRUSHED STONE UNDER SLAB.
6. ATTACH ACCU TO CONCRETE PAD PER TDI WINDSTORM REQUIREMENTS.

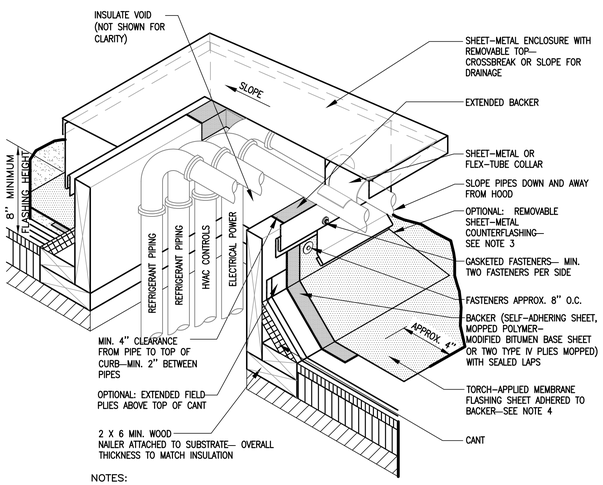
05 EXTERIOR CONCRETE PAD DETAIL

SCALE : NOT TO SCALE



06 EXTERIOR DUCT INSTALLATION DETAIL

SCALE : NOT TO SCALE

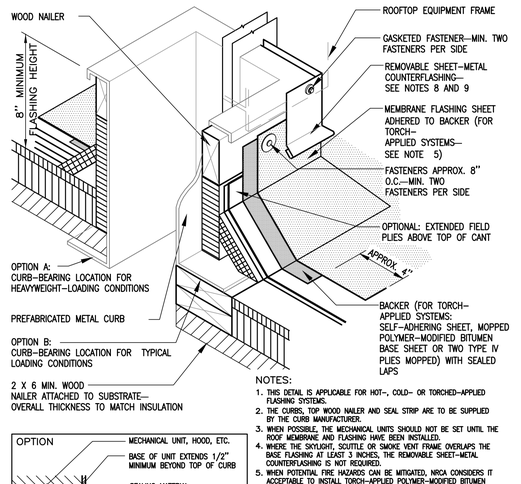


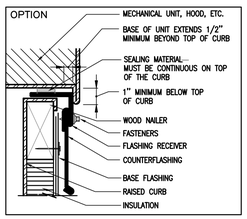
NOTES:

1. THIS DETAIL ILLUSTRATES ANOTHER METHOD OF ELIMINATING PITCH POCKETS AND AN OPTIONAL METHOD OF GROUPING PIPING THAT MUST PENETRATE THE ROOF.
2. WHERE THE SHEET-METAL ENCLOSURE OVERLAPS THE BASE FLASHING AT LEAST 3 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.
3. WHEN POTENTIAL FIRE HAZARDS CAN BE MITIGATED, NRCA CONSIDERS IT ACCEPTABLE TO INSTALL TORCH-APPLIED POLYMER-MODIFIED BITUMEN SHEET OVER THE SPECIFIED BACKER FLASHING USING THE DIRECT TORCHING METHOD PROVIDED LOW OUTPUT (50,000 BTU OUTPUT OR LESS) TORCHING EQUIPMENT IS USED. WHEN POTENTIAL FIRE HAZARDS CANNOT BE ADEQUATELY MITIGATED, TORCH- APPLIED POLYMER-MODIFIED BITUMEN SHEET SHALL BE INSTALLED USING INDIRECT TORCHING METHODS, SUCH AS THE TORCH-AND- FLOP APPLICATION METHOD.
4. FOR ROOF SYSTEMS WITH FACTORY-APPLIED GRANULE SURFACING, PROPERLY PREPARE CAP SHEET TO RECEIVE FLASHING.

07 PIPING ROOF PENETRATION DETAIL

SCALE : NOT TO SCALE





NOTES:

1. THIS DETAIL IS APPLICABLE FOR HOT-, COLD- OR TORCHED-APPLIED FLASHING SYSTEMS.
2. THE CURBS, TOP WOOD NAILER AND SEAL STRIP ARE TO BE SUPPLIED BY THE CURB MANUFACTURER.
3. WHEN POSSIBLE, THE MECHANICAL UNITS SHOULD NOT BE SET UNTIL THE ROOF MEMBRANE AND FLASHING HAVE BEEN INSTALLED.
4. WHERE THE SKYLIGHT, SCUTTLE OR SMOKE VENT FRAME OVERLAPS THE BASE FLASHING AT LEAST 3 INCHES, THE REMOVABLE SHEET-METAL COUNTERFLASHING IS NOT REQUIRED.
5. WHEN POTENTIAL FIRE HAZARDS CAN BE MITIGATED, NRCA CONSIDERS IT ACCEPTABLE TO INSTALL TORCH-APPLIED POLYMER-MODIFIED BITUMEN SHEET OVER THE SPECIFIED BACKER FLASHING USING THE DIRECT TORCHING METHOD PROVIDED LOW OUTPUT (50,000 BTU OUTPUT OR LESS) TORCHING EQUIPMENT IS USED. WHEN POTENTIAL FIRE HAZARDS CANNOT BE ADEQUATELY MITIGATED, TORCH-APPLIED POLYMER-MODIFIED BITUMEN SHEET SHALL BE INSTALLED USING INDIRECT TORCHING METHODS, SUCH AS THE TORCH-AND-FLOP APPLICATION METHOD.
6. NRCA RECOMMENDS DESIGNERS CONSIDER PERMANENT INTERNAL OR EXTERNAL FALL-PROTECTION DEVICES AT ALL SKYLIGHTS.
7. FOR ROOF SYSTEMS WITH FACTORY-APPLIED GRANULE SURFACING, PROPERLY PREPARE CAP SHEET TO RECEIVE FLASHING.
8. REFER TO THE ARCHITECTURAL METAL FLASHING SECTION OF THE NRCA ROOFING MANUAL: ARCHITECTURAL METAL FLASHING, CONDENSATION AND AIR LEAKAGE CONTROL, AND REROOFING FOR JOINERY AND SECUREMENT OPTIONS FOR SHEET-METAL FLASHINGS.
9. REFER TO THE INTRODUCTION OF THE CONSTRUCTION DETAILS CHAPTER FOR ADDITIONAL INFORMATION.

08 ROOF CURB FLASHING DETAIL

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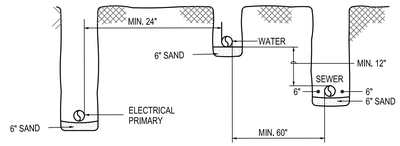
CLEAR TRENCH OF ALL ROCKS AND DEBRIS BEFORE ADDING SAND CUSHION.

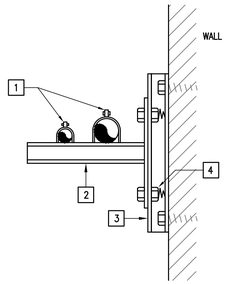
COMPACT TRENCH FILL TO 95% PROCTOR DENSITY.

MAINTAIN A MINIMUM OF 60 INCHES UNDISTURBED EARTH BETWEEN PARALLEL WATER AND SEWER LINES OR SUPPORT WATER LINE ON SEPARATE SHELF A MINIMUM OF 12" ABOVE SEWER LINE.

MAINTAIN A MINIMUM OF 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND SEWER. MAINTAIN A MINIMUM OF 12" VERTICALLY OR 24" HORIZONTALLY BETWEEN ELECTRICAL PRIMARY AND WATER LINES, GAS LINES, TELEPHONE RACEWAYS AND CABLE RACEWAYS.



04 TRENCHING DETAIL
SCALE : NOT TO SCALE

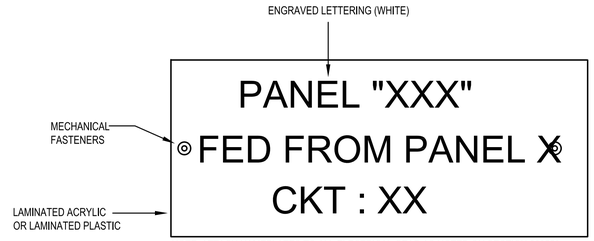


KEYED NOTES:

1. PROVIDE CONDUIT CLAMPS.
2. PROVIDE GALVANIZED UNISTRUT WALL BRACKET.
3. PROVIDE RAMSET OR BOLT GALVANIZED UNISTRUT TO WALL.
4. PROVIDE SELF HOLDING CLAMPING NUT WITH SPRING.

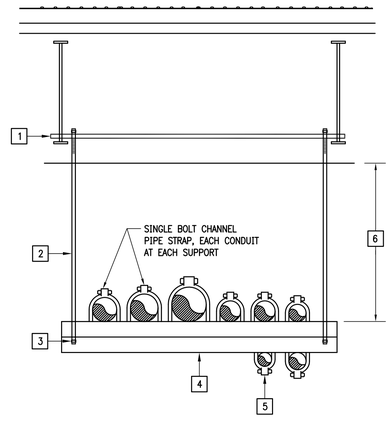
01 RACEWAY RUNS SUPPORT DETAIL
SCALE : NOT TO SCALE

05 ROOF MOUNTED RACEWAY SUPPORT DETAIL
SCALE : NOT TO SCALE



NOTE: ATTACH NAMEPLATES TO ALL ELECTRICAL GEAR AS NOTED ON SECTION 260553.

02 ELECTRICAL GEAR ENGRAVED NAMEPLATE IDENTIFICATION DETAIL
SCALE : NOT TO SCALE



KEYED NOTES:

1. PROVIDE UNISTRUT STRUCTURAL CHANNEL SECURED TO TO JOIST AT BOTH ENDS.
2. PROVIDE 1/2" GALVANIZED THREADED ROD MINIMUM.
3. PROVIDE LOCKNUT.
4. PROVIDE GALVANIZED UNISTRUT 8'-0" O/C MAXIMUM.
5. 0'-1" MAXIMUM SIZE ON BOTTOM OF UNISTRUT.
6. VARIES.

03 HORIZONTAL RACEWAYS SUPPORT DETAIL
SCALE : NOT TO SCALE

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HVAC & CONTROLS REPLACEMENT

CSP# 20-114

ethos engineering
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F-15998

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