Texas Parks and Wildlife Department
Infrastructure Division
4200 Smith School Road
Austin, Texas 78744

ADDENDUM

Addendum Number:	03	Dated:	05/31/2024
Solicitation Number:	MR11493		
Solicitation Title:	Mother Neff State Park Headquarters (HQ) Renovation		
Due Date/Deadline:	June 11, 2024, at 2:00 PM		
Contract Manager:	Misty K. Wyatt, CTCD, CTCM		

PURPOSE OF ADDENDUM: **Address Questions and Answers, Revisions to Bid Schedule and Drawings**

Except as provided herein, all terms and conditions of the document referenced herein, remain unchanged and in full force and effect. The following are official revisions, specifications and/or clarifications to this solicitation. This Addendum shall be attached to and form a part of the referenced solicitation document and any resulting awarded contract and must be considered in your response.

Respondents are advised to check for updates, addenda issuance, and proposal opening date changes through the Comptroller's website under *Electronic State Business Daily (ESBD)* at https://www.txsmartbuy.com/esbd.

Questions and Answers

Q1: Would you please post the Prebid Sign in Sheet?

A1: As the Pre-Bid Conference was not mandatory, a sign-in sheet will not be posted.

Q2: ARE FACTORY START UPS REQUIRED?

A2: Factory startup for the (7) carrier units are required.

Q3: WILL THIS PROJECT REQUIRE A 3RD PARTY COMMISSIONING TEST? IF SO, PLEASE DESCRIBE THE NATURE OF THE TEST TO BE PERFORMED.

A3: Third party commissioning is not required for this size of project.

Q4: ONCE PROJECT IS AWARDED, IS TP&W PROJECT MGR GOING TO REQUIRE WEEKLY TEAMS MEETING?

A4: Yes, there will be a weekly Teams meeting. In addition, one weekly meeting will be combined with the monthly progress meeting that is required to be on site versus TEAMS.

Q5: IS A CERTIFIED TEST AND BALANCE REQUIRED FOR THIS PROJECT?

A5: A certified Test and Balance contractor will be required to ensure diffusers are balanced as noted on the plans and that units are running as intended.

Q6: IS A TEMPORARY AC REQUIRED FOR THIS PROJECT? IF SO, PLEASE INDICATE TONNAGES, SIZE, AND VOLTAGES.

A6: The HQ will be open for business during the replacement process. Staggering the replacement of the units will allow for the building to remain partially conditioned. Refer to the revised Bid Schedule for Owner's Allowance for temporary cooling, should it be necessary.

Q7: WHAT ARE THE BASES OF THE FIRE ALARM IN REGARD TO EXSISTING HVAC SYSTEM? PROVIDE PREFERD AND OR LAST CONTRACTOR TO SERVICE FIRE ALARM SYSTEM.

A7: No fire alarm related work.

Q8: DUE TO CALL BACK AND OR SERVICE RESPONSE TIME, ARE WE ABLE TO PARTNER WITH A LOCAL HVAC CONTRACTOR?

A8: Yes, partnering with a local HVAC contractor is allowed for maintenance and service requirements. Refer to qualification requirements per the Notice to Bidders.

Q9: CAN ELECTRICAL CONTRCATOR REUSED CONDUIT PIPE IS FEASABLE?

A9: Contractor to provide pricing for full replacement of electrical conduit.

Q10: CAN ELECTRICAL BREAKERS BE REUSED IF AMPS ARE CORRECT?

A10: Contractor to provide pricing for full replacement of existing circuits or as indicated on E1.0 demolition note 1.

Q11: IS EXSISTING COPPER TO BE REMOVED AND REPLACED?

A11: Existing copper is to be removed and replaced for FCU systems 2 through 8. FCU-1 piping shall be reused, reference Mechanical Drawings. New pipe to be ACR copper pipe per M1.0 & M2.0.

Q12: PLEASE ADVISE ON REPLACEMENT OF COPPER FOR SYSTEM 1 AND SYSTEM 2. NOTE, NO DIRECT PATH DUE TO FLAT ROOF.

A12: System 1 or FCU-1 piping shall be reused, reference Mechanical drawings. System 2 or FCU-2 will require new ACR copper piping due to different pipe size requirements. Refer to Keyed Note 3 on M2.0 for directions on routing.

Q13: What is your anticipated start date?

A13: The start date will be determined during the Pre-Construction meeting with the awarded contractor.

Revisions to Bid Schedule

The Bid Scope in the Bid Portal has been revised as follows:
Added section for Owners Allowance for temporary cooling during HVAC replacement if required.

Revisions to Drawings

Delete Original Sheet 1 in Drawings issued in solicitation dated April 25, 2024, and replace with AD3 Sheet 1 dated May 29, 2024.

Delete Original Sheet 3 in Drawings issued in solicitation dated April 25, 2024, and replace with AD3 Sheet 3 dated May 29, 2024.

Delete Original Sheet 4 in Drawings issued in solicitation dated April 25, 2024, and replace with AD3 Sheet 4 dated May 29, 2024.

Delete Original Sheet 6 in Drawings issued in solicitation dated April 25, 2024, and replace with AD3 Sheet 6 dated May 29, 2024.

Delete Original Sheet 7 in Drawings issued in solicitation dated April 25, 2024, and replace with AD3 Sheet 7 dated May 29, 2024.

Respondents are to acknowledge receipt of this Addendum via the Bid Portal.

MEP GENERAL CONDITIONS

1. IT IS THE INTENT OF THE CONTRACT DOCUMENTS TO PROVIDE AN INSTALLATION COMPLETE IN EVERY RESPECT. WORK SHALL BE EXECUTED IN A WORKMANLIKE MANNER AND SHALL INCLUDE ALL LABOR, MATERIALS, AND SUPERVISION ESSENTIAL TO PROVIDE COMPLETE FUNCTIONING SYSTEMS AS DESCRIBED IN THE CONTRACT DOCUMENTS. IN THE EVENT THAT ADDITIONAL DETAILS OR SPECIAL CONSTRUCTION IS REQUIRED FOR WORK INDICATED, IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE SAME AS WELL AS TO PROVIDE MATERIAL AND EQUIPMENT USUALLY FURNISHED WITH SUCH SYSTEMS OR REQUIRED TO COMPLETE THE INSTALLATION AT NO EXPENSE TO THE OWNER.
2. DEVIATIONS TO THE INTENDED DESIGN OR THE SCOPE OF THE WORK MUST BE APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK. FAILURE TO DO SO MAY RESULT IN THE WORK TO BE REMOVED AT NO COST TO THE OWNER.
3. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LOCAL CODES, STANDARDS, AND AMENDMENTS AND/OR OTHER AUTHORITIES THAT MAY HAVE JURISDICTION PERTAINING TO THE WORK. IN ADDITION, ALL WORK SHALL CONFORM TO THE STANDARDS AND PRACTICES OF THE OWNER.
4. ALL EQUIPMENT INSTALLED ON THIS PROJECT SHALL BE NEW AND UNUSED UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL REMOVE ALL SHIPPING LABELS, DIRT, PAINT SPOTS, GREASE, AND STAINS FROM ALL EQUIPMENT. DEBRIS SHALL BE REMOVED AS IT ACCUMULATES. UPON COMPLETION OF HIS WORK, THE CONTRACTOR SHALL CLEAN ALL EQUIPMENT. NO LOOSE PARTS OR SCRAPS OF EQUIPMENT SHALL BE LEFT ON THE PREMISES.
5. ALL MATERIALS SALVAGED FOR THE OWNER SHALL BE STORED BY CONTRACTOR UNTIL END OF PROJECT THEN RETURNED TO THE OWNER.
6. ALL WORK SHALL BE GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE AS DEFINED BY THE CONTRACT. THE CONTRACTOR SHALL REPAIR OR REPLACE, AT HIS/HER OWN EXPENSE WHEN ORDERED TO DO SO, ALL WORK THAT MAY DEVELOP DEFECTS IN MATERIAL OR WORKMANSHIP WITHIN SAID PERIOD OF TIME. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED RECOMMENDATIONS FOR SERVICE INTENDED, AS INTERPRETED BY THE ENGINEER. THE INSTALLATION OF ALL EQUIPMENT SHALL BE MADE BY EXPERIENCED CRAFTSMAN IN A NEAT, WORKMANLIKE MANNER. ALL MATERIALS, TOOLS, COSTS, AND SERVICES NECESSARY TO COMPLETELY INSTALL ALL WORK SHALL BE PROVIDED BY THE CONTRACTOR.
7. ALL SAFETY EXPOSURES OR VIOLATIONS SHALL BE RECTIFIED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING PROTECTION OF PERSONS AND PROPERTY, PROVIDING SAFE WORKING CONDITIONS THROUGHOUT THE WORK PROGRESS, PROVIDING TEMPORARY COVERINGS FOR OPENINGS THROUGH WALLS OR FLOORS, AND PROVIDING TEMPORARY BARRIERS, PARTITIONS AND/OR DUST BARRIERS WHERE REQUIRED TO MAINTAIN OSHA AND THE OWNER'S SAFETY STANDARDS AND TO PREVENT DAMAGE TO PROPERTY. ALL AREAS ADJACENT TO THE CONSTRUCTION AREA OR AFFECTED BY THE CONSTRUCTION MUST BE PROTECTED FROM DAMAGE, CLEANED, AND RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL EXPENSE TO THE OWNER. THE CONTRACTOR SHALL PROVIDE PROTECTIVE CLOTHING AND EYEWEAR FOR ALL PERSONNEL WHO ARE REQUIRED TO HANDLE HAZARDOUS CHEMICAL PRODUCTS OR WORK IN HAZARDOUS LOCATIONS.
8. DO NOT DISTURB ASBESTOS CONTAINING MATERIALS (ACM). IF ACM ARE ENCOUNTERED OR SUSPECTED DURING THE COURSE OF WORK, THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE OWNER AND ACCOMMODATE FURTHER NECESSARY ABATEMENT BY THE OWNER. ASBESTOS ABATEMENT SHALL OCCUR PRIOR TO CONTRACTOR COMMENCING OR CONTINUING DEMOLITION OR CONSTRUCTION OPERATIONS.
9. CONTRACTOR SHALL DIRECT ALL QUESTIONS TO THE OWNER. THE CONTRACTOR SHALL VERIFY ALL WORKING CONDITIONS SUCH AS STARTING TIME, NOISE AND VIBRATION LIMITATIONS, CONFINED SPACE, ETC. THROUGH THE OWNER AND APPROVAL SHALL BE RECEIVED TO START WORK.
10. THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY THE SCOPE OF WORK REQUIRED INCLUDING ALL EXISTING CONDITIONS, LOCATIONS, DIMENSIONS, AND QUANTITIES AS SHOWN AND NOTED ON THE DRAWINGS AND THE EXTENT AND EFFECT OF EXISTING SYSTEMS. NOTIFY THE OWNER IF ANY OF THE WORK CANNOT BE SAFELY ACCESSED.
11. THE CONTRACTOR SHALL ENSURE FULL COORDINATION WITH OTHER TRADES AND CONTRACTORS TO ACCOMPLISH THE WORK AS SHOWN AND NOTED IN THESE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL COMPARE THE DRAWINGS OF OTHER TRADES AND REPORT ANY DISCREPANCIES TO THE OWNER.
12. NOT ALL EXISTING UTILITIES ARE SHOWN FOR CLARITY OF THE DRAWING. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND SHALL PERFORM FIELD MEASUREMENTS PRIOR TO FABRICATION AND/OR PURCHASE OF ANY MATERIAL. CONTACT THE OWNER SHOULD EXISTING CONDITIONS BE DIFFERENT FROM THE DESIGN DRAWINGS. CONFLICTS ARISING DUE TO LACK OF COORDINATION SHALL BE THE RESPONSIBILITY AND AT THE EXPENSE OF THE CONTRACTOR.
13. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, LICENSES, CLEARANCES AND CERTIFICATES FROM THE OWNER AND LOCAL AUTHORITIES HAVING JURISDICTION AS REQUIRED PRIOR TO THE COMMENCEMENT OF THE WORK.
14. THE CONTRACTOR SHALL TRAIN HIS/HER EMPLOYEES AND SUBCONTRACTORS AS REQUIRED BY THE OWNER, IN THE RECOGNITION AND AVOIDANCE OF UNSAFE CONDITIONS, AND IN THE REGULATIONS AND HAZARDS WHICH APPLY TO THE AREA IN WHICH THE WORK WILL TAKE PLACE.
15. ANY REQUIRED CHANGES TO THE DRAWINGS RESULTING FROM THE ACCEPTANCE OF ALTERNATIVES AND/OR SUBSTITUTIONS ARE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE SUBMITTED TO THE OWNER FOR APPROVAL.
16. SUBMITTALS
    - A. ALL SUBMITTALS SHALL BE REVIEWED BY THE CONTRACTOR PRIOR TO SUBMITTING TO THE ENGINEER. ALL SUBMITTALS NOT REVIEWED BY THE CONTRACTOR WILL BE RETURNED WITHOUT REVIEW. AFTER REVIEW HAS BEEN COMPLETED, SUBMIT A COPY OF EACH SUBMITTAL TO THE OWNER WITH THE APPROVAL SEAL OF THE ENGINEER AND THE CONTRACTOR. SUBMITTALS SHALL BE APPROVED PRIOR TO STARTING ANY WORK.
    - B. SUBMIT MATERIAL SAFETY DATA SHEETS AND MANUFACTURER'S CURRENT RECOMMENDED METHOD OF INSTALLATION TO THE OWNER FOR ALL MATERIALS USED TO PERFORM THE WORK INDICATED BY THESE DOCUMENTS. ALL CHEMICALS OR CHEMICAL COMPOUNDS PROPOSED FOR USE ON THE PROPERTY INCLUDING, BUT NOT LIMITED TO PAINT THINNERS, SOLVENTS, ADHESIVES, SEALANTS, CLEANING COMPOUNDS, EPOXIES, ETC. MUST BE APPROVED BY THE OWNER.
    - C. PROVIDE PRODUCT DATA SUBMITTALS ON ALL MAJOR EQUIPMENT, COMPONENTS, AND MATERIALS SPECIFIED IN THESE PLANS FOR ENGINEER'S AND OWNER'S REVIEW AND ACCEPTANCE PRIOR TO INSTALLATION. SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, AMPERAGE, VOLTAGE, A/C RATINGS, DIMENSIONS, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED. EACH SUBMITTAL SHALL INCLUDE A COPY OF THE RELEVANT EQUIPMENT OR MATERIALS SCHEDULE ON THE PLANS WITH EACH LINE ITEM MARKED COMPLIES OR DOES NOT COMPLY WITH THE REQUIREMENTS.
      - C1. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
      - C2. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
      - C3. INCLUDE ALL RELEVANT ELECTRICAL DIAGRAMS INCLUDING SCHEMATIC AND INTERCONNECTION DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING.
    - D. PROVIDE SHOP DRAWINGS SHOWING ALL DUCTWORK, PIPING AND CONDUIT 2" AND ABOVE, AND ALL MAJOR EQUIPMENT AND HOUSEKEEPING PADS. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR OR MATERIAL SUPPLIER, IN LIEU OF THE PREPARATION OF SHOP DRAWINGS IS FORBIDDEN. SHOP DRAWINGS RECEIVED BEARING THE ENGINEER'S TITLE AND SEAL SHALL BE PROMPTLY REJECTED.
    - E. ALL SUBMITTALS SHALL BE PROVIDED IN PDF FORMAT.
17. SHOULD ANY ERRORS, OMISSIONS, CONFLICTS, OR AMBIGUITIES EXIST IN THE DRAWINGS, THE CONTRACTOR SHALL BRING THESE TO THE ATTENTION OF THE OWNER IMMEDIATELY FOR ADJUSTMENT IN WRITING BEFORE SIGNING THE CONTRACT OR PROCEEDING WITH THE WORK. OTHERWISE, HE/SHE SHALL AT HIS/HER OWN EXPENSE, SUPPLY THE PROPER MATERIALS AND LABOR TO MAKE GOOD ANY DAMAGE OR DEFECT CAUSED BY SUCH UNINTENTIONAL ERROR.
18. CONTRACTOR SHALL CHECK ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSIONS FOR ACCURACY, AND CONFIRM THAT THE WORK IS BUILDABLE AS SHOWN AND MEETS ALL APPLICABLE CODES BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE OWNER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR RELATED WORK.
19. THE CONTRACTOR SHALL NOT FABRICATE OR INSTALL ITEMS AS SHOWN ON THE DRAWINGS IF THERE ARE DISCREPANCIES OR CONFLICTS BETWEEN THE EXISTING CONDITIONS AND THE INFORMATION SHOWN ON THE DRAWINGS UNTIL SUCH DISCREPANCIES HAVE BEEN RESOLVED. PRIOR TO FABRICATION OR INSTALLATION, THE CONTRACTOR SHALL IMMEDIATELY CALL SUCH DISCREPANCIES OR CONFLICTS TO THE ATTENTION OF THE OWNER AND THE ENGINEER.
20. ALL WORK NOTED "NIC" OR "NOT IN CONTRACT" IS TO BE ACCOMPLISHED BY ANOTHER CONTRACTOR AND IS NOT TO BE PART OF THE CONSTRUCTION AGREEMENT.
21. IN CASES OF A DIFFERENCE BETWEEN THE MINIMUM REQUIREMENTS OF THE VARIOUS LAWS, CODES, AUTHORITIES, AND THE DOCUMENTS; THE WORK SHALL MEET THE GREATER OR MORE STRINGENT REQUIREMENTS.
22. THE SEQUENCE OF CONSTRUCTION AND ANY SERVICE OUTAGES SHALL BE SCHEDULED AND COORDINATED WITH THE OWNER.
23. WORK AREAS SHALL BE KEPT CONTINUOUSLY, AT ALL TIMES, FREE OF DEBRIS AND NON-HAZARDOUS MATERIAL TO THE SATISFACTION OF THE OWNER. ALL EXISTING PIPING AND CONDUITS SHALL HAVE TEMPORARY PROTECTION DURING CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE STORAGE OF MATERIALS, PARKING OF VEHICLES, AND RESTRICTIONS OF WORK WITH THE OWNER. AFTER PROJECT COMPLETION, THE SITE SHALL BE CLEANED UP AND RESTORED TO ITS ORIGINAL CONDITION OR BETTER PRIOR TO THE START OF THE PROJECT TO THE SATISFACTION OF THE OWNER.
24. THE DRAWINGS ARE DIAGRAMMATIC ONLY AND DO NOT GIVE FULLY DIMENSIONED LOCATIONS OF VARIOUS ELEMENTS OF WORK OR INDICATE ALL OFFSETS THAT MAY BE REQUIRED. DETERMINE EXACT LOCATIONS FROM FIELD MEASUREMENTS. MAKING ADJUSTMENTS TO FIELD CONDITIONS IS CONSIDERED A PART OF THE WORK REQUIRED.
25. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS.

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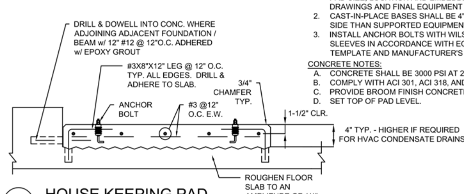
MEP GENERAL CONDITIONS (CONT.)

26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING WORK AS REQUIRED TO INSTALL THE SYSTEMS AS SHOWN ON THE DRAWINGS. ANY CUTTING THRU STRUCTURAL MEMBERS OR FLOORS SHALL FIRST BE APPROVED BY THE OWNER AND STRUCTURAL ENGINEER. ALL PATCHING AT WALLS SHALL BE THE SAME MATERIAL AS THE WALL AND TOUCHED UP WITH PAINT. ALL NEW WALL AND FLOOR PENETRATIONS SHALL BE MADE AT 90 DEGREE ANGLES. THERE SHALL BE NO DRILLING INTO THE FLOOR FROM ABOVE OR BELOW WITHOUT FIRST CONTACTING THE OWNER, AND STRUCTURAL ENGINEER.
27. PRIOR TO ANY CUTTING OR TRENCHING, VERIFY WITH OWNER, UTILITY COMPANIES, AND LANDLORD THAT ALL AVAILABLE INFORMATION IS KNOWN REGARDING UNDERGROUND OBSTRUCTIONS. TAKE CAUTION WHEN TRENCHING NOT TO DISTURB ANY EXISTING UTILITIES. NOTIFY OWNERS REPRESENTATIVE IMMEDIATELY UPON UNCOVERING UNKNOWN UTILITIES FOR FURTHER DIRECTION. REFER TO CIVIL-SITE DRAWINGS FOR BURIED PIPE TRENCHING AND BACKFILL SPECIFICATIONS AND DETAILS.
28. CONTRACTOR TO PROVIDE START-UP AND COMMISSIONING SUPPORT SERVICES FOR ALL NEW SYSTEMS AND EQUIPMENT, AS WELL AS TRAINING SERVICES FOR THE OWNER'S MAINTENANCE PERSONNEL IN THE USE OF THESE SYSTEMS AND EQUIPMENT. CONTRACTOR SHALL ALSO ASSIST TEST & BALANCE CONTRACTOR AND THE COMMISSIONING AGENT AS REQUIRED.
29. CONTRACTOR TO COORDINATE FINAL INSPECTION OF THE WORK WITH THE OWNER AND ENGINEER, AND DEMONSTRATE PROPER FUNCTIONALITY OF ALL NEW SYSTEMS.
30. CONTRACTOR TO COORDINATE ALL SYSTEM OUTAGES WITH THE OWNER; PROVIDE MINIMUM TWO WEEKS NOTICE.

GENERAL MEP NOTES

1. ALL NEW OPENINGS THROUGH FLOORS, ROOF, STRUCTURAL WALLS, AND STRUCTURAL MEMBERS (WHERE APPROVED BY THE OWNER) AND INSTALLATION OF ROOF-MOUNTED EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECT AND DESIGNED BY THE STRUCTURAL ENGINEER. PENETRATIONS THROUGH SHEAR WALLS ARE PROHIBITED.
2. DUCT, PIPE AND CONDUIT ROOF PENETRATIONS:
   - 2.A. ALL DUCT, PIPE, AND CONDUIT ROOF PENETRATIONS SHALL BE THROUGH AN INSULATED, FACTORY-MANUFACTUREDFULLY-WELDED GALVANIZED STEEL ROOF CURBS. CURBS MUST EXTEND 14" ABOVE THE FINISHED SURFACE OF THE ROOF AND SHALL BE SLOPED TO MATCH ROOF, SHALL MATCH ROOF MANUFACTURER'S REQUIREMENTS, AND SHALL BE INSTALLED TO MAINTAIN ROOF WARRANTY. ATTACH CURB TO ROOF PER STRUCTURAL ENGINEER'S DESIGN. IF DESIGN IS NOT INCLUDED IN PROJECT STRUCTURAL ENGINEER'S SCOPE, THE DESIGN SHALL BE PERFORMED BY THE CONTRACTOR'S LICENSED STRUCTURAL ENGINEER.
   - 2.B. ENTIRE ASSEMBLY SHALL BE DESIGNED TO WITHSTAND ALL IBC AND ASCE-7 WINDLOADING REQUIREMENTS FOR BUILDINGS LESS THAN 60' HIGH (revise if >60' high) . THIS SPECIFICALLY APPLIES TO THE ATTACHMENT TO THE ROOF AND THE REQUIRED RESTRAINTS NECESSARY TO COMPLY WITH IBC AND ASCE-7, AS WELL AS ASSOCIATED DUCTWORK, PIPING, AND EQUIPMENT PLATFORMS ABOVE THE ROOF.
   - 2.C. CONTRACTOR SHALL PROVIDE STAINLESS STEEL FLASHING TO SEAL BETWEEN THE DUCT / PIPE AND THE ROOF CURB.
   - 2.D. FLUES AND VENT STACKS SHALL MAINTAIN CLEARANCE FROM COMBUSTIBLE CONSTRUCTION AND INSULATED ASSEMBLIES IN ACCORDANCE WITH THE VENT MANUFACTURER'S INSTRUCTIONS. TOP WITH BIRD PROOF FLUE CAP.
   - 2.E. THE WEIGHT OF ALL DUCTS PENETRATING THE ROOF SHALL BE SUPPORTED FROM BELOW-ROOF STRUCTURE, NOT AT THE ROOF CURB.
   - 2.F. COORDINATE LOCATIONS OF EXISTING AND NEW ROOF PENETRATIONS TO MINIMIZE NUMBER OF OPENINGS. ELECTRICAL AND REFRIGERANT LINES ARE TO USE THE SAME PENETRATIONS WHERE POSSIBLE.
   - 2.G. COORDINATE ALL ROOF WORK WITH OWNERS ROOFING CONTRACTOR TO MAINTAIN THE WARRANTY.
3. PIPE AND CONDUITS PENETRATING FIRE-RATED FLOORS AND WALLS:
   - 3.A. A UL-RATED FIRESTOP SYSTEM SHALL BE INSTALLED AT ALL PIPE PENETRATIONS THROUGH SMOKE AND/OR FIRE-RATED FLOORS AND WALLS. FIRESTOP SYSTEM SHALL BE SUITABLE FOR THE FLOOR AND WALL TYPE, MATERIALS OF CONSTRUCTION, AND PIPE MATERIALS; RATINGS SHALL MATCH FIRE BARRIER RATINGS. ONLY PRODUCTS BY A SINGLE MANUFACTURER SHALL BE USED ON THE PROJECT; APPROVED MANUFACTURERS ARE STI, 3M AND HILTI. INSTALLERS SHALL BE CERTIFIED BY THE FIRESTOP SYSTEM MANUFACTURER. CONTRACTOR TO PROVIDE INVENTORY OF ALL PENETRATIONS.
   - 3.B. PIPE WEIGHT SHALL BE SUPPORTED AT THE FLOOR OR FROM HANGERS TO EITHER SIDE OF THE WALL OR FLOOR; PIPE WEIGHT SHALL NOT BE SUPPORTED BY THE WALL.
   - 3.C. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THE PENETRATION.
   - 3.D. FLOOR PENETRATIONS SHALL BE SEALED WATER TIGHT AT THE TOP OF THE FLOOR.
4. PIPE AND CONDUITS PENETRATING NON-FIRE RATED FLOORS AND WALLS INCLUDING SLAB ON GRADE:
   - 4.A. WEIGHT SHALL BE SUPPORTED AT THE FLOOR OR FROM HANGERS ABOVE OR BELOW THE FLOOR. PIPE WEIGHT SHALL NOT BE SUPPORTED BY THE WALL.
   - 4.B. INSULATION AND VAPOR BARRIER SHALL BE CONTINUOUS THROUGH THE FLOOR.
   - 4.C. FLOOR PENETRATION SHALL BE SLEEVED WITH MINIMUM 16 GA. GALVANIZED STEEL EXTENDING 2" ABOVE THE SLAB AND SEALED WATER TIGHT.
   - 4.D. WHERE FLOOR OR WALL PENETRATIONS ARE EXPOSED IN OCCUPIED SPACES, ESCUTCHEON PLATES SHALL BE INSTALLED TO COVER THE OPENING.
   - 4.E. PENETRATIONS THROUGH EXTERIOR WALLS TO BE SEALED WATERTIGHT.
5. NO ASBESTOS CONTAINING MATERIALS SHALL BE USED IN ANY OF THE NEW CONSTRUCTION.
6. ALL INSULATING MATERIALS AND ALL MATERIALS USED IN PLENUMS SHALL BE PLENUM RATED AND SHALL CONFORM TO ASTM E 84, HAVING A MAXIMUM FLAME SPREAD OF <25 AND A MAXIMUM SMOKE DEVELOPED RATING OF <50.
7. EQUIPMENT SCHEDULED ON THE DRAWINGS IS BASED UPON EQUIPMENT OF MANUFACTURER NOTED. EQUIPMENT FROM ANOTHER MANUFACTURER MAY BE USED PROVIDED THAT THE CONTRACTOR SUBMIT PROOF THAT THE EQUIPMENT TO BE USED IS EQUAL TO OR BETTER THAN THAT SCHEDULED ON THE DRAWINGS AND IS APPROVED BY THE OWNER AND ENGINEER. PRICE SPECIFIED ITEM AS WELL AS PROPOSED SUBSTITUTION.
8. INVERTER READY MOTORS SHALL BE PROVIDED WITH AEGIS SHAFT GROUNDING RING, COOLBLUE INDUCTIVE ABSORBERS, OR CERAMIC BEARINGS AND CLASS F 105° C RISE INSULATION. REFERENCE NEMA MG1 PART 31.
9. PROVIDE TEFC MOTORS FOR ALL WET LOCATIONS AND ALL OUTDOOR LOCATIONS.
10. LOCATION OF NEW EQUIPMENT IS APPROXIMATE WHERE SHOWN. IF THERE IS A CONFLICT WITH AN EQUIPMENT LOCATION SHOWN ON THE PLANS, DO NOT PROCEED UNTIL THE ENGINEER APPROVES A NEW LOCATION.
11. INSTALL ALL NEW EQUIPMENT WITH MANUFACTURER-RECOMMENDED CLEARANCES ON ALL SIDES FOR SERVICE AND MAINTENANCE AS WELL AS REMOVAL OF INDIVIDUAL COMPONENTS WITHOUT REMOVING THE ENTIRE UNIT. PROVIDE NEC-REQUIRED CLEARANCE IN FRONT OF LINE VOLTAGE CONTROL PANELS; MINIMUM 3'.
12. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON EACH PLAN IS RUN ABOVE THE CEILING ON THE FLOOR WHERE IT IS SHOWN UNLESS OTHERWISE NOTED.
13. DUCTWORK, PIPING, CONDUIT, CABLING, ETC. SHOWN ON DRAWINGS SHALL BE COORDINATED WITH AIR DISTRIBUTION DEVICES, SPECIAL CEILING, FLOOR, AND STRUCTURE CONSTRUCTION, ETC. PROVIDE ADDITIONAL RISES AND DROPS TO THOSE INDICATED ON THE DRAWINGS AS REQUIRED TO COORDINATE WITH ARCHITECTURAL, STRUCTURAL OR MEP ELEMENTS SHOWN ON THE CONTRACT DOCUMENTS. ALL UTILITIES SHALL BE ROUTED IN AN ORDERLY MANNER, GROUPED TOGETHER WHEREVER POSSIBLE, AND LOCATED SO AS TO CONSERVE BUILDING SPACE.
14. COORDINATION OF ALL TRADES IN CEILING SPACES TO ALLOW AN 8-INCH CLEAR PLANE FOR LOCATION OF LIGHTS IS OF UTMOST IMPORTANCE TO MAXIMIZE FUTURE FLEXIBILITY. REALIZING THAT THIS IS NOT POSSIBLE IN ALL CASES, DUE TO CEILING ELEVATION AND STRUCTURAL LIMITATIONS, MAXIMUM EFFORT SHALL BE GIVEN TO MAINTAINING THE 8-INCH LIGHTING PLANE UNLESS NOTED OTHERWISE.
15. MAINTAIN MINIMUM VERTICAL CLEARANCE OF 7'-6" FROM THE FLOOR TO THE BOTTOM OF DUCTWORK , PIPING, AND ASSOCIATED HANGERS AND SUPPORTS UNLESS NOTED OTHERWISE ON THE PLANS.
16. POWDER ACTUATED FASTENERS ARE NOT ALLOWED.
17. PROVIDE AND INSTALL MINIMUM 2 $\frac{1}{2}$" LONG X $\frac{3}{4}$" WIDE ENGRAVED PHENOLIC PLASTIC EQUIPMENT TAGS, BLACK LETTERS ON WHITE BACKGROUND, FOR ALL EQUIPMENT TO MATCH TAGS INDICATED ON PLANS. IF EXISTING TAGS ARE PRESENT EITHER FROM THE MANUFACTURER OR EXISTING CONDITIONS, COVER OR PAINT OVER THE OLD TAG AS REQUIRED TO ELIMINATE CONFLICTING TAG NAMES. LABEL THERMOSTATS TO MATCH UNIT DESIGNATION. INDICATE ELECTRICAL PANEL AND CIRCUIT BREAKER NUMBER IDENTIFICATION ON NAMEPLATE IN SMALLER LETTERS IN PARENTHESES.
18. U.N.O, PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED MEP EQUIPMENT. INCLUDING EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, BASE RAILS AND CONCRETE INERTIA BASES. CONTRACTOR TO COORDINATE LOCATIONS AND SIZES. REFER TO DETAIL ON THIS SHEET.
19. THE CONTRACTOR SHALL CONSULT THE ARCHITECTURAL, STRUCTURAL, ELECTRICAL, MECHANICAL, AND OTHER DRAWINGS RELATED TO THIS PROJECT FOR ADDITIONAL WORK TO BE PROVIDED.



1 HOUSE KEEPING PAD
N.T.S.

GENERAL NOTES:
1. CONTRACTOR SHALL COORDINATE FINAL MECHANICAL PAD SIZE, LOCATION AND EMBEDDED ITEMS WITH MEP DRAWINGS AND FINAL EQUIPMENT SHOP DRAWINGS.
2. CAST-IN-PLACE BASES SHALL BE 4" LARGER ON EACH SIDE THAN SUPPORTED EQUIPMENT.
3. INSTALL ANCHOR BOLTS WITH WILSON ANCHOR BOLT SLEEVES IN ACCORDANCE WITH EQUIPMENT BASE TEMPLATE AND MANUFACTURER'S INSTRUCTIONS.

CONCRETE NOTES:
- A. CONCRETE SHALL BE 3000 PSI AT 28 DAYS.
- B. COMPLY WITH ACI 301, ACI 318, AND ASTM C94.
- C. PROVIDE BROOM FINISH CONCRETE SURFACE.
- D. SET TOP OF PAD LEVEL.

MEP RESPONSIBILITY MATRIX

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	FURNISH	INSTALL	POWER	CONTROL
			120V & UP	24V
MECHANICAL EQUIPMENT HOUSEKEEPING PADS	MC	MC		
ELECTRICAL EQUIPMENT HOUSEKEEPING PADS	EC	EC		
INERTIA BASES	MC	MC		
HANGERS & SUPPORTS, INCLUDING DESIGN	ALL	ALL		
~~DUCT SMOKE DETECTORS~~	~~MC~~	~~MC~~	~~EC~~	~~CC/FA~~
~~VFD'S - FWE~~	~~FWE~~	~~FWE~~	~~EC~~	~~CC~~
~~VFD'S - NOT FWE~~	~~MC~~	~~EC~~	~~EC~~	~~CC~~
STARTERS, DISCONNECTS - FWE	FWE	FWE	EC	CC
STARTERS, DISCONNECTS - NOT FWE	EC	EC	EC	CC
~~HEAT TRACE~~	~~MC~~	~~MC~~	~~EC~~	
~~HVAC TERMINAL UNITS (120V W/ 24V XFMR)~~	~~MC~~	~~MC~~	~~EC~~	~~CC~~
~~VALVES WITH ACTUATORS~~	~~CC~~	~~MC~~	~~EC~~	~~CC~~
~~DAMPERS - FWE - PACKAGED EQUIPMENT~~	~~FWE~~	~~FWE~~		~~FWE~~
~~DAMPERS - FWE - AHU'S~~	~~FWE~~	~~FWE~~		~~CC~~
DAMPERS - SEPARATE FROM EQUIPMENT	CC	MC		CC

NOTES:
1. ~~FOLLOW THE RESPONSIBILITIES SHOWN ABOVE UNLESS NOTED OTHERWISE ON THE PLANS.~~
2. ABBREVIATIONS

FWE: FURNISHED WITH EQUIPMENT
ALL: ALL CONTRACTORS, BY DISCIPLINE
FA: FIRE ALARM CONTRACTOR
MC: MECHANICAL CONTRACTOR
EC: ELECTRICAL CONTRACTOR
CC: CONTROLS CONTRACTOR

DEMOLITION NOTES

EACH CONTRACTOR SHALL VERIFY DEMOLITION SCOPE OF WORK WITH THE GENERAL CONTRACTOR AND OWNER PRIOR TO REMOVAL OF ANY EXISTING MEP ELEMENTS SHOWN ON THE PLANS TO BE REMOVED. ROOF, WALLS, AND FLOORS AFFECTED BY DEMOLITION ARE TO BE PATCHED/REPAIRED TO MATCH EXISTING STRUCTURE. PIPES, DUCTS, OR CONDUIT IN THE FLOOR, EMBEDDED IN CONCRETE, OR OTHERWISE INACCESSIBLE ARE TO BE CUT OFF AND SEALED BELOW OR WITHIN FLOOR OR WALL LEVEL. CONFIRM THE EXTENT OF DEMOLITION WITH THE GENERAL CONTRACTOR PRIOR TO BID AND INCLUDE IN BID PROPOSAL AS DIRECTED.OWNER WILL DECONTAMINATE ALL EQUIPMENT, DUCTWORK, PIPING AND ASSOCIATED COMPONENTS, WHERE REQUIRED, PRIOR TO CONTRACTOR CUTTING AND REMOVING THESE MATERIALS.

GENERAL MECHANICAL NOTES

1. ALL DUCT SIZES ARE INSIDE CLEAR DIMENSIONS IN INCHES.
2. BALANCING DAMPERS ARE REQUIRED AT ALL SUPPLY, RETURN, AND EXHAUST BRANCH CONNECTIONS. REMOTE DAMPER OPERATOR FOR ALL DAMPERS LOCATED ABOVE HARD OR INACCESSIBLE CEILINGS.
3. FLEX DUCT AND ROUND CONNECTIONS TO MAIN DUCT OR BRANCH DUCTS SHALL BE MADE VIA SPIN-IN OR DOVE-TAILED CONICAL TAPS WITH DAMPERS. ALL RECTANGULAR DUCT BRANCHES TAP TO BE MADE WITH 45 DEG SMACNA TAP FITTING.
4. ROUTE ALL SUPPLY AIR DUCT TIGHT TO STRUCTURE UNLESS OTHERWISE NOTED. MAKE TRANSITIONS FLAT ON TOP.
5. FURNISH AND INSTALL ALL MITERED ELBOWS WITH TURNING VANES. RADIUSED RECTANGULAR ELBOWS SHALL HAVE CENTER LINE RADIUS TO WIDTH RATIO (R/W) OF 1.5 UNLESS OTHERWISE SPECIFIED. ALL ROUND ELBOWS SHALL HAVE A CENTERLINE RADIUS TO DIAMETER RATIO (R/D) OF 1.5 UNLESS SHORT RADIUS ELBOWS ARE CALLED FOR ON THE PLANS IN WHICH CASE THE R/D RATIO SHALL BE 1.0.
6. FLEXIBLE DUCTS SHALL NOT EXCEED 5' IN LENGTH. DUCT SHALL HAVE AN INTERNAL DIMENSION EQUAL TO THE CONNECTING ROUND DUCT DIMENSION.
7. INSULATE EXTERIOR OF ALL SUPPLY AIR DIFFUSERS.
8. FLEXIBLE COLLARS SHALL BE FURNISHED AND INSTALLED AT ALL CONNECTIONS BETWEEN VIBRATING EQUIPMENT (FANS, AIR HANDLERS, ROOFTOP UNITS, ETC.) AND DUCTS OR CASINGS. ALSO FURNISH AND INSTALL FLEXIBLE CONNECTIONS WHERE DUCTS CROSS BUILDING EXPANSION JOINTS.
9. LINED RETURN AIR TRANSFER BOOTS SHALL BE INSTALLED THROUGH WALLS AS REQUIRED TO PROVIDE A CONTINUOUS RETURN AIR PATH TO THE AIR HANDLING UNITS.
10. INSTALL A NEW SET OF AIR FILTERS ON ALL APPLICABLE EQUIPMENT AT COMPLETION OF PROJECT.
11. PROVIDE SECONDARY CONDENSATE DRAIN PAN AND FLOAT SWITCH FOR EQUIPMENT WITH COOLING COILS SUSPENDED ABOVE CEILING, WITH FLOAT SWITCH WIRED TO SHUT OFF UNIT.
12. AN NEBB, TABB, OR AABC CERTIFIED CONTRACTOR SHALL BALANCE ALL AIRSIDE AND WATERSIDE SYSTEMS, INCLUDING ROOM PRESSURE CASCADE DIFFERENTIAL PRESSURES, TO WITHIN +10%/-5% OF THE QUANTITIES AND FLOWRATES SHOWN ON THE DRAWINGS. FURNISH A CERTIFIED TESTING AND BALANCING REPORT TO THE ENGINEER FOR REVIEW AND APPROVAL.
13. PROVIDE AND INSTALL A LABEL ON THE CEILING GRID OR WALL DIRECTLY UNDER OR ADJACENT TO ALL CONCEALED MECHANICAL EQUIPMENT, ISOLATION VALVES, AND CONTROL DEVICES. THE LABEL SHALL CONTAIN EQUIPMENT TAG NUMBER AND POWER SOURCE (IF APPLICABLE), ISOLATION VALVE SIZE AND SYSTEM, OR CONTROL ELEMENT IDENTIFICATION NUMBER.

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GENERAL MECHANICAL DEMO NOTES

1. EXISTING EQUIPMENT, DUCTWORK & PIPING LOCATIONS AND SIZES HAVE BEEN OBTAINED FROM ORIGINAL CONSTRUCTION DRAWINGS AND FIELD INVESTIGATIONS AND ARE SCHEMATIC IN NATURE. FIELD VERIFY LOCATIONS AND SIZES.
2. ITEMS SHOWN LIGHT ARE EXISTING TO REMAIN. ITEMS SHOWN BOLD AND DASHED ARE EXISTING TO BE REMOVED.
3. DEMOLITION OF ALL PIPING AND DUCTWORK SHALL INCLUDE ALL SUPPORTS, HANGERS, INSULATION, THERMOSTATS, AND FIRE DAMPERS UNLESS OTHERWISE NOTED.
4. REMOVE MECHANICAL EQUIPMENT AND RETURN TO OWNER FOR RIGHT OF FIRST REFUSAL. DELIVER ACCEPTED ITEMS TO OWNER DESIGNATED LOCATION. ITEMS NOT KEPT BY OWNER SHALL BE STORED AND DISPOSED OF OFF SITE ACCORDING TO LOCAL REGULATIONS.
5. REFER TO ELECTRICAL DRAWINGS FOR INFORMATION ON ELECTRICAL DEMO.
6. THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND FINISHES NOT BEING REPLACED OR REMOVED.

GENERAL CONTROLS NOTES

1. CONTROLS CONTRACTOR TO REVIEW ELECTRICAL DRAWINGS FOR ADDITIONAL BAS INTEGRATION REQUIREMENTS INCLUDING PROVISIONS IN DDC PANEL LOCATIONS AND POWER.
2. ALL NEW THERMOSTATS SHOWN SHALL BE ELECTRONIC, PROGRAMMABLE TYPE CAPABLE OF TIME-OF-DAY SCHEDULING WITH MINIMUM OF 7 DAY PROGRAMS AND 4 CYCLES PER DAY, AUTOMATIC HEATING/COOLING CHANGEOVER, AND SETPOINT CONTROL. INVLUDE WIFI CAPABILITY WHERE SHOWN ON PLANS.
3. ALL WALL MOUNTED ROOM THERMOSTATS SHALL BE LOCATED 48" A.F.F. SO LONG AS OBSTRUCTIONS ARE 20" DEEP OR LESS. ALL OTHER CONDITIONS TO BE REVIEWED. THEY SHALL BE CENTERED ADJACENT TO LIGHT SWITCHES WHERE BOTH OCCUR IN THE SAME LOCATION. WHERE LOCATED ON COLUMN, THERMOSTAT SHALL BE CENTERED. TEMPERATURE SENSORS SHALL BE MOUNTED AT 70" A.F.F. SENSORS MOUNTED ON EXTERIOR COLUMNS SHALL BE MOUNTED ON INSULATED BASES. CONFIRM EXACT LOCATIONS OF THERMOSTATS WITH OWNER. THE MECHANICAL CONTRACTOR IS TO COORDINATE WITH THE OWNER AND PROGRAM ALL THERMOSTATS TO OWNER'S SPECIFIC SCHEDULE (IF APPLICABLE).

1

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MARK E. MIKULIN
107561
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PROFESSIONAL ENGINEER
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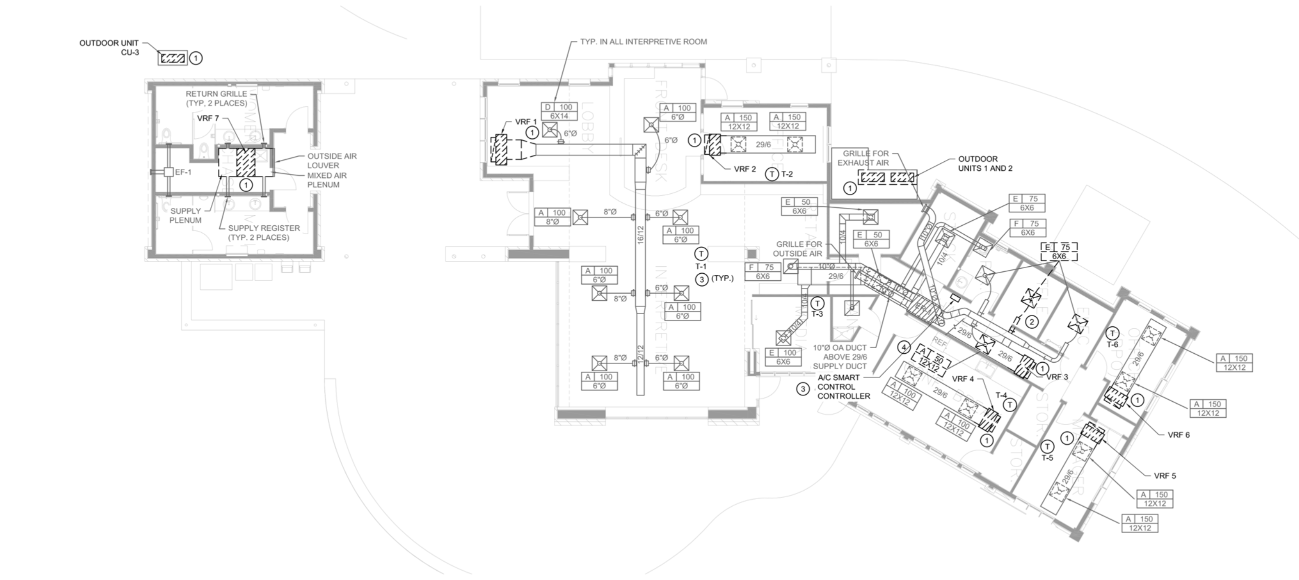
Firm Registration No. 2497

MOTHER NEFF STATE PARK
HQ HVAC RENO
PROJECT NUMBER: MR11493

DATE: 02.29.24
DESIGNED BY:
DRAWN BY:
REVIEWED BY:
REVISED: 05.29.24
ADDENDUM #3
REVISED:
REVISED:

SHEET TITLE
MEP GENERAL NOTES

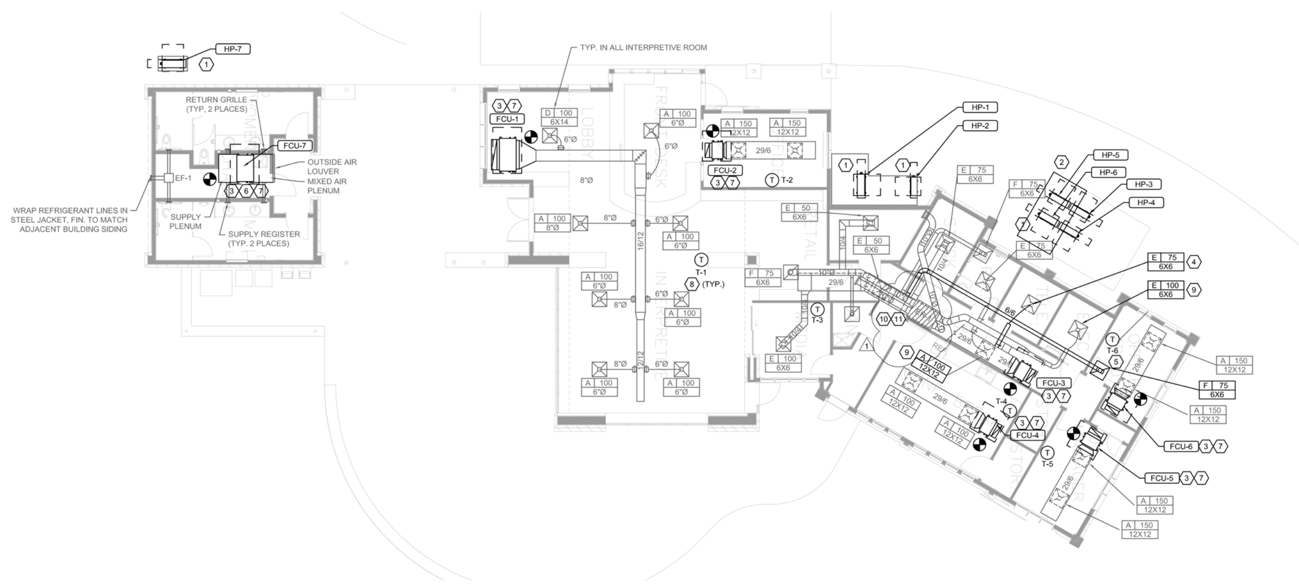
SHEET NUMBER
1
MEP0.0



1 MECHANICAL HVAC DEMOLITION PLAN

NORTH

SCALE: 1/8" = 1'-0" @ FULL SIZE



2 MECHANICAL HVAC PLAN

NORTH

SCALE: 1/8" = 1'-0" @ FULL SIZE

GENERAL NOTES:

A. REFER TO SHEET GENERAL NOTES, SCHEDULES, AND DETAILS FOR ADDITIONAL MATERIALS AND INSTALLATION INFORMATION.

B. CONTRACTOR SHALL WEATHER PROOF ALL EXTERIOR WALL PENETRATIONS.

C. CONTRACTOR TO COORDINATE ALL REQUIRED EQUIPMENT AND SYSTEM OUTAGES WITH OWNER.

D. MAINTAIN MANUFACTURER REQUIRED CLEARANCES AROUND ALL NEW EQUIPMENT.

E. INSTALL NEW REFRIGERANT PIPING PER MANUFACTURER REQUIREMENTS.

DEMOLITION KEYED NOTES: (X)

1. DEMO EXISTING VRF OUTDOOR AND INDOOR CONDENSING UNITS. EXISTING DUCT TO REMAIN AND BE REUSED. EXISTING CONDENSATE DRAIN TO REMAIN AND BE REUSED. ALL EXISTING REFRIGERANT PIPING TO BE REMOVED AND REPLACED WITH NEW.

2. REMOVE EXISTING SUPPLY DIFFUSER IN TELECOM ROOM (TELE) AND CAP BRANCH. CLOSE OFF DAMPER.

3. THERMOSTATS TO BE REMOVED. REMOVE A/C SMART CONTROL CONTROLLER.

4. DIFFUSERS TO BE REUSED AND BALANCED ACCORDING TO NEW WORK SUPPLY CFM.

KEYED NOTES: (X)

1. INSTALL HEAT PUMPS WHERE SHOWN. HEAT PUMP UNITS HP-3, HP-4, HP-5, AND HP-6 TO BE PLACED AS SHOWN TO AVOID GENERATOR CONNECTION POINT NEAR THE EXTERIOR ELECTRICAL ROOM WALL.

2. EXPAND CONCRETE PAD FOR HEAT PUMPS HP-3, HP-4, HP-5, AND HP-6.

3. INSTALL INDOOR DUCTED UNITS WHERE SHOWN IN PLACE OF EXISTING EXISTING UNITS. CONNECT TO EXITING SUPPLY AND RETURN DUCTWORK. INSTALL NEW INTERCONNECTING WIRING BETWEEN INDOOR AND OUTDOOR UNITS IN CONDUIT. PROVIDE INDOOR UNIT WITH FIELD-INSTALLED FILTER RACK TO ALLOW TOP OR SIDE REMOVAL OF FILTERS. ENSURE CLEARANCE FOR FILTER REPLACEMENT IS MAINTAINED.

4. BALANCE AIR DIFFUSER TO 75 CFM IN TELECOM ROOM (TELE.) AS INDICATED.

5. TAP INTO EXISTING EXHAUST DUCT MAIN FROM OFFICE PPO. PROVIDE BALANCING DAMPER IN DUCT.

6. CREATE SUPPLY PLENUM AND MIXING BOX FOR FCU-7. IDENTICAL TO EXISTING.

7. INDOOR UNIT CONDENSATE LINES RECONNECT TO EXISTING CONDENSATE GRAVITY DRAIN LINES.

8. INSTALL NEW THERMOSTATS AT LOCATION SHOWN. INSTALL NEW THERMOSTAT WIRING CONCEALED IN WALL. THERMOSTATS ARE TO BE MOUNTED 44" ABOVE FINISHED FLOOR.

9. BALANCE AIR DIFFUSERS SERVED BY THE ER-1 AS INDICATED. (ELEC. ROOM AND HALLWAY)

10. VERIFY ER-1 IS OPERATING AS ORIGINALLY INTENDED. CONTRACTOR TO ENSURE ER-1 IS RUNNING ON AN OCCUPANCY SCHEDULE. IN OCCUPIED MODE THE UNIT SHALL RUN CONTINUOUSLY. IF UNIT IS FOUND TO BE INOPERABLE, CONTRACTOR TO EMPLOY RENEWAIRE MANUFACTURER TO SUPPLY SPARE PARTS FOR RECOVERY OF THE EXISTING EV450 UNIT. INCLUDE $3,000 CONTINGENCY IN PRICING FOR EV REPAIRS FOR BID PURPOSES.

11. (Revision 1) ADD ~45" x 30" ACCESS PANEL IN CORRIDOR CEILING BENEATH ER-1 TO ALLOW FOR FILTER ACCESS. COORDINATE EXACT LOCATION WITH OWNER. FIELD VERIFY SIZE BEFORE ORDER. ACCESS PANEL FRAME IS TO ATTACH TO BOTTOM OF WOOD TRUSSES, AND IS TO SPAN ACROSS CENTER TRUSS. PROVIDE BLOCKING ALONG SIDES OF ACCESS PANEL BETWEEN TRUSSES FOR ATTACHMENT OF ACCESS PANEL. ACUDOR DW-5040 FLUSH DRYWALL ACCESS DOOR WITH HINGE, OR APPROVED EQUIVALENT. ACCESS PANEL TO MATCH ADJACENT CEILING COLOR.

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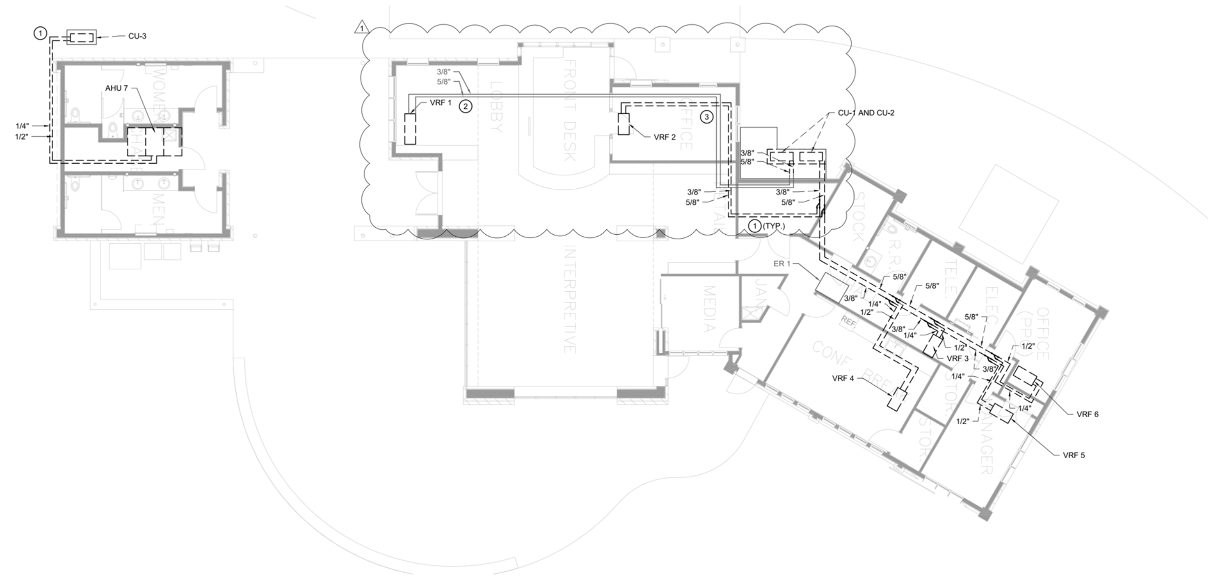
REVISED:
REVISED:

SHEET TITLE
MECHANICAL HVAC PLAN

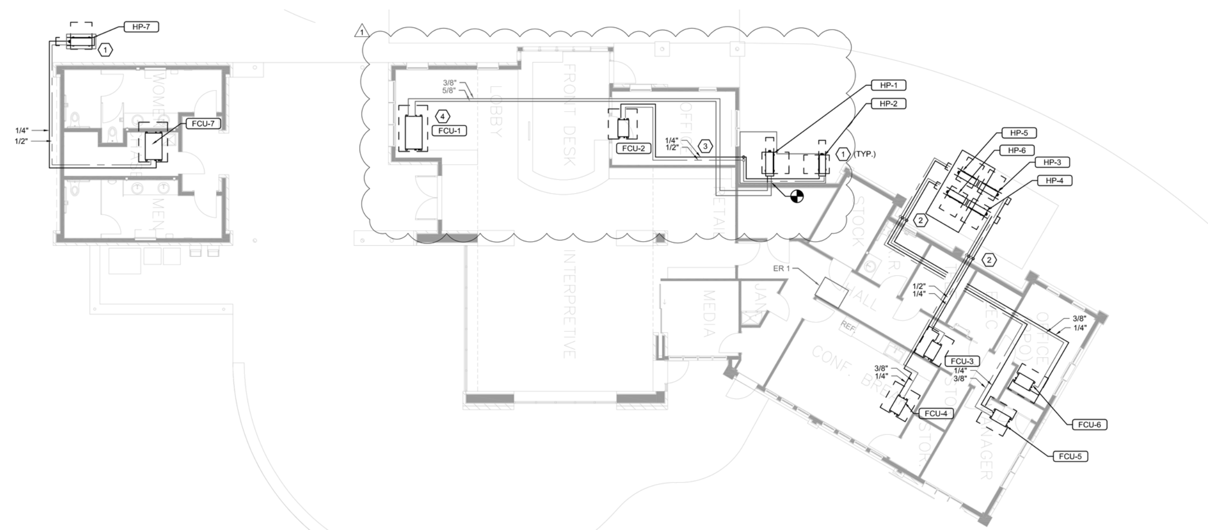
SHEET NUMBER
3
M1.0



① MECHANICAL PIPING DEMOLITION PLAN

SCALE: 1/8" = 1'-0" @ FULL SIZE

NORTH



② MECHANICAL PIPING PLAN

SCALE: 1/8" = 1'-0" @ FULL SIZE

NORTH

GENERAL NOTES:

A. REFER TO SHEET GENERAL NOTES, SCHEDULES, AND DETAILS FOR ADDITIONAL MATERIALS AND INSTALLATION INFORMATION.

B. CONTRACTOR SHALL WEATHER PROOF ALL EXTERIOR WALL PENETRATIONS.

C. CONTRACTOR TO COORDINATE ALL REQUIRED EQUIPMENT AND SYSTEM OUTAGES WITH OWNER.

D. MAINTAIN MANUFACTURER REQUIRED CLEARANCES AROUND ALL NEW EQUIPMENT.

E. INSTALL NEW REFRIGERANT PIPING PER MANUFACTURER REQUIREMENTS.

DEMOLITION KEYED NOTES: ⓧ

1. DEMO EXISTING REFRIGERANT LINES AND BRANCH SELECTOR.
2. REFRIGERANT LINES SERVING FCU/CU-1 TO REMAIN AND BE REUSED.
3. DEMOLISH CEILING PER NEW WORK KEYED NOTE 3/M2.0 TO REMOVE LINES IN CEILING AREA.

KEYED NOTES: ⓧ

1. INSTALL NEW SUCTION AND LIQUID REFRIGERANT LINES FROM HEAT PUMPS TO INDOOR FAN COIL UNITS. FOLLOW SIMILAR ROUTE AS EXISTING UNITS, RUN REFRIGERANT LINES ABOVE ROOMS IN ATTIC.
2. INSTALL NEW SUCTION AND LIQUID REFRIGERANT LINES FROM HEAT PUMPS TO INDOOR FAN COIL UNITS. REFRIGERANT LINES TO RUN TIGHT TO EXTERIOR WALL AND UP INTO THE ATTIC. LINES TO HAVE PROTECTIVE JACKET. PAINT JACKET TO MATCH EXISTING EXTERIOR COLORS.
3. CUT OPENING BETWEEN JOISTS N EXISTING DRYWALL CEILING TO ALLOW FOR REPLACEMENT OF EXISTING REFRIGERANT LINES FOR FCU-2. ROUTE NEW LINES AS SHOWN, BELOW STEEL BEAM AND THROUGH EXTERIOR WALL ADJACENT TO CONDENSATE OVERFLOW LINE. ROUTE DOWN AND ALONG EXTERIOR WALL TO HP-2. INSULATE AND JACKET, PAINT TO MATCH EXISTING EXTERIOR COLORS, AND SECURE TO WALL PER SPECIFICATIONS. PATCH DRYWALL CEILING, RETEXTURE, AND REPAINT ENTIRE CEILING.
4. RECONNECT TO EXISTING. REFRIGERANT PIPING TO REMAIN.

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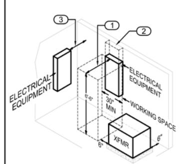
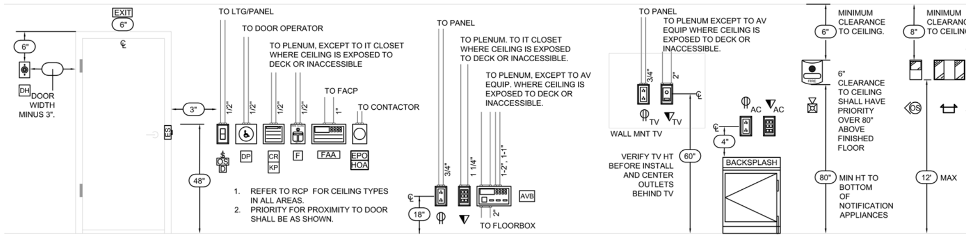
SHEET TITLE
MECHANICAL PIPING PLAN

SHEET NUMBER
4
M2.0

ELECTRICAL EQUIPMENT CLEARANCE REQUIREMENTS



KEYED NOTES:
1. 3' (0-150V TO GND),3.5' (151V-600V TO GND), 4' (OVER 150V WITH EXPOSED LIVE PARTS ON OTHER SIDE).
2. DEDICATED EQUIPMENT SPACE SHALL BE KEPT CLEAR TO 6FT ABOVE EQUIPMENT OR TO STRUCTURE OF ALL BUT CONDUIT SERVING EQUIPMENT.
3. MIN OFF SET SHALL BE DEPTH OF EQUIPMENT ON PERPENDICULAR WALL



BID NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SCOPE OF WORK UNLESS EXPLICITLY NOTED OTHERWISE. WHERE WORK IS NOTED TO BE BY SPECIALIST CONTRACTOR, THIS WORK SHALL BE PART OF THE CONTRACT UNLESS EXPLICITLY NOTED OTHERWISE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING THE COMPLETE CONTRACT DOCUMENTS AS SOME SCOPE REQUIRING ELECTRICAL WORK SUCH AS HVAC CONTROL POWER, CONTROL POWER TRANSFORMERS, DAMPERS, FLUSH VALVES, LIFT STATIONS, ETC MAY BE SHOWN ON OTHER DISCIPLINES' PLANS.
3. PRIOR TO BID, THE GENERAL CONTRACTOR (GC), ELECTRICAL, AND SPECIAL SYSTEMS CONTRACTORS SHALL COORDINATE THE PROJECT SCOPE TO VERIFY THAT ALL WORK AND EQUIPMENT NECESSARY FOR THE OPERATION OF THE IT ARE INCLUDED IN THE BID.
4. THE GC SHALL COORDINATE WITH THE MECHANICAL, CONTROLS, PROCESS, PLUMBING, AND ELECTRICAL CONTRACTOR TO CONFIRM THAT ALL ELECTRICAL EQUIPMENT NECESSARY FOR THE HVAC CONTROLS SYSTEM, AUTOMATIC FLUSH VALVES, ETC IS INCLUDED IN THE BID.
5. WHERE THE CONTRACT DOCUMENTS ARE UNCLEAR OR DO NOT SPECIFY WHO IS RESPONSIBLE FOR THE SCOPE, THE GC SHALL BE RESPONSIBLE FOR DELEGATION OF THE PROJECT SCOPE AND VERIFICATION THAT ALL SUB CONTRACTORS ARE AWARE OF WHICH COMPONENTS OF THE SCOPE ARE IN THEIR CONTRACT.
6. THE SPECIFICATION REQUIREMENTS SHOWN ON THIS PAGE ARE PROVIDED TO GIVE A GENERAL CONCEPT OF THE PROJECT REQUIREMENTS. MORE DETAILED REQUIREMENTS ARE SHOWN ON THE PLANS AND IN THE WRITTEN SPECIFICATIONS.

NAMEPLATE REQUIREMENTS

ELECTRICAL PANELS: PANEL L1 208/120V, 3PH, 4W 225A, FED FROM H1 VIA XFMR T-L1

EQUIPMENT CONTROLS: CWP-VFD 208/120V, 3PH, 4W 5HP, FED FROM L1

RECEPTACLES: PNL # CKT

J-BOXES: PWR (L1#1 120V) NO PAINT; IT (COM) ORANGE COVER; FIRE (FA NAC) RED COVER

SPECIFICATIONS
1. NAMEPLATE: 1/16" PHENOLIC PLASTIC LAMINATE, TWO FLAT HEAD SCREWS
2. FINISHED AREA WIRING DEVICES: ADHESIVE LABELS, CLEAR W/ BLACK TEXT
3. J-BOXES: USE PERMANENT INK MARKER AND PAINT AS NOTED
4. OUTDOOR AND HARSH ENVIRO WIRING DEVICES: MARKER ON INSIDE OF COVER
5. IN PUBLIC AREAS SUCH AS LOBBIES, CONF. ROOMS, ETC, LABEL INSIDE OF RECEPTACLE COVERS AND EXPOSED JBOX COVERS USING MARKER. PLACE A DOT OF PAINT ON OUTSIDE OF SPECIAL SYSTEMS BOXES.

SYMBOL NOTATIONS USED

a$2

SPECIFICATION NOTES:
- 2 = DOUBLE POLE
- 3 = THREE WAY
- 4 = FOUR WAY
- D = DIMMER
- EP = EXPLOSION PROOF
- H = HORSEPOWER RATED
- K = KEY OPERATED
- LV = LOW VOLTAGE
- M = MANUAL MOTOR STARTER
- P = PILOT LIGHT
- T = TIMER

SWITCHING INSTRUCTIONS: LOWER CASE LETTER DESIGNATES A SWITCHLEG. LETTER WILL BE SHOWN NEXT TO EACH FIXTURE CONTROLLED BY SWITCH

AC L1#1 GFI — PANEL NAME & CIRCUIT NUMBER

SPECIFICATION NOTES:
- GFI = INTEGRAL GROUND FAULT TRIP MODULE
- IG = ISOLATED GROUND
- MG = MARINE GRADE
- TL = TWIST-LOCK
- WP = WEATHER RESISTANT RECEPTACLE WITH METAL WEATHERPROOF WHILE IN USE COVER

MOUNTING REQUIREMENTS:
- 48" = MOUNT AT 48 INCHES ABOVE FINISHED FLOOR
- AC = MOUNT ABOVE COUNTER 4" ABOVE BACK-SPLASH

L1#1 E/NL:
- LUMINAIRE TAG, REFER TO SCHEDULE
- LOWER CASE LETTER INDICATES SWITCHLEG (WHERE APPLICABLE)
- PANEL NAME & CIRCUIT NUMBER
- E INDICATES BACK UP POWERED
- NL INDICATES NIGHT LIGHT

SITE ELECTRICAL

SITE WIRING
- CIRCUIT WIRING
- UNDERGROUND CIRCUIT WIRING
- EXISTING UNDERGROUND
- MULT-CONDUIT UNDERGROUND (CONCRETE ENCASED WHERE NOTED)
- UE — UNDERGROUND HV/MV UTILITY LINE
- OE — OVERHEAD HV/MV UTILITY LINE
- UT — UNDERGROUND TELECOM SERVICE
- STUB UP / TURN DOWN

EXTERIOR IN GRADE EQUIPMENT
- PB — IN GRADE 600V PULL BOX
- CP — IN GRADE COMMUNICATIONS PULL BOX
- EM — ELECTRICAL MANHOLE
- CM — COMMUNICATIONS MANHOLE
- MV PB — UNDERGROUND UTILITY PULL BOX

SPECIFICATIONS
1. ELECTRICAL BURIAL DEPTH:
   - 1.1. 24" AT VEHICLE ACCESSED AREAS.
   - 1.2. 18" AT AREAS INACCESSIBLE TO VEHICLES.
2. COMMUNICATIONS BURIAL DEPTH: 18"
3. PROVIDE 12" SEPARATION FROM UTILITIES.
4. ALL SITE UNDERGROUND RACEWAYS SHALL BE BEDDED IN SAND OR SELECT FILL, LARGE ROCKS SHALL BE REMOVED FROM BACKFILL, UNLESS NOTED TO BE CONCRETE ENCASED.
5. MANHOLES SHALL BE CONCRETE, RE-ENFORCED AS REQUIRED, GROUTED AND SEALED, EARTH GROUNDED. LIDS: ENGRAVED, BOLT DOWN COVERS, CONCRETE OR CAST IRON (SEE DETAILS)
6. PULL BOXES FOR 600V BRANCH CIRCUITS AND COMMUNICATIONS SHALL BE 24"L x 12"W x 18"D, POLYMER CONCRETE, UNO (SEE DETAILS)
7. EQUIPMENT PADS SHALL BE 10" THICK, 3000 PSI CONCRETE, WITH #3 REBAR GRID AT 9" ON CENTER, UNO (SEE DETAILS).
8. ENCLOSURES SHALL BE OUTDOOR RATED
9. EQUIPMENT MOUNTING RACKS SHALL BE GALVANIZED STEEL TUBE AND GALVANIZED SLOTTED U-CHANNEL, CONCRETE EMBEDDED OR SET ON PADS (SEE DETAILS)

EXTERIOR ABOVE GRADE EQUIPMENT
- TRANSFORMER PAD
- T — POLE MOUNTED TRANSFORMER
- UTILITY POLE
- EQUIPMENT MOUNTING RACK
- MV SW — MV PAD MOUNT SWITCH
- C — COMMUNICATIONS SERVICE ENCLOSURE

SPECIAL SYSTEMS

GENERAL SPECIAL SYSTEMS INSTALLATION REQUIREMENTS
1. PROVIDE 4" SQUARE DEEP J-BOX FOR ALL DATA OUTLETS, FIRE ALARM COMPONENTS, SECURITY, A/V AND OTHER SPECIAL SYSTEMS EQUIPMENT AND DEVICES, UNO.
2. THE GENERAL, ELECTRICAL, AND SPECIAL SYSTEMS CONTRACTORS SHALL COORDINATE SCOPE BEFORE BID AND ALL DEVICE AND EQUIPMENT LOCATIONS BEFORE ROUGH IN.
3. PROVIDE SINGLE GANG REDUCER FOR FLUSH MOUNT DEVICES THAT HAVE SINGLE GANG COVER PLATES.
4. PROVIDE RACEWAY SYSTEM FROM ALL SPECIAL SYSTEMS EQUIPMENT, DEVICES, ETC TO THEIR RESPECTIVE SOURCE EQUIPMENT, RACK, ETC.
5. WHERE SPECIAL SYSTEMS CABLING IS PERMITTED TO BE ROUTED IN AIR THROUGH ACCESSIBLE ABOVE CEILING SPACE, USE J-HOOKS AND CABLE TIES TO GROUP, SECURE AND NEATLY ROUTE CABLE TO SOURCE. ROUTE PARALLEL/PERPENDICULAR TO STRUCTURAL ELEMENTS. PROVIDE SLEEVES THROUGH INACCESSIBLE SECTIONS OF HOME-RUNS.

TELECOM OUTLETS & DEVICES
- DATA OUTLET
- COMINATION DATA AND VOICE OUTLET
- VOICE OUTLET
- FLOOR MOUNTED DATA OUTLET
- AVB — AUDIO VIDEO INPUT JACK BOX
- WAP — WIRELESS ACCESS POINT
- A/V OUTLET BOX
- TV — TV/CATV OUTLET

FIRE ALARM AND (VOICE/ MASS) NOTIFICATION DEVICES
- HORN
- COMBINATION HORN/STROBE
- COMBINATION SPEAKER/STROBE
- S — SPEAKER, WALL MOUNT; C - CEILING MOUNT; WP - WEATHERPROOF
- cd — VISUAL ONLY, CEILING MOUNTED, CLEAR LENS, cd=CANDELA RATING/SETTING
- cd — VISUAL ONLY, WALL MOUNTED, CLEAR LENS, cd=CANDELA RATING/SETTING
- cd — MNS, CEILING MOUNTED, AMBER LENS, cd=CANDELA RATING/SETTING
- cd — MNS, WALL MOUNTED, AMBER LENS, cd=CANDELA RATING/SETTING
- W cd C — COMBINATION SPEAKER/VISUALS, CEILING MOUNTED, AMBER AND CLEAR LENS, cd=CANDELA RATING/SETTING, W=WATTAGE
- W cd — COMBINATION SPEAKER/VISUALS, WALL MOUNTED, AMBER AND CLEAR LENS, cd=CANDELA RATING/SETTING, W=WATTAGE
- W cd WP — COMBINATION SPEAKER/VISUALS, WALL MOUNTED, WEATHERPROOF, AMBER AND CLEAR LENS, cd=CANDELA RATING/SETTING, W=WATTAGE

FIRE DETECTION DEVICES
- F — MANUAL PULL STATION
- S — AREA SMOKE DETECTOR
- S SB — AREA SMOKE DETECTOR WITH SOUNDER BASE
- CARBON MONOXIDE DETECTOR
- AREA HEAT DETECTOR
- S — DUCT MOUNTED SMOKE DETECTOR
- H — HOOD FIRE SUPPRESSION SYSTEM RELAY
- VS — VALVE SUPERVISORY SWITCH
- WF — WATER FLOW SWITCH

FIRE ALARM SYSTEM CONTROLS
- FACP — FIRE DETECTION & ALARM CONTROL PNL
- MNS — MASS NOTIFICATION SYSTEM
- NAC — NOTIFICATION CIRCUIT EXPANSION PNL
- FAA — FACP REMOTE ANNUNCIATOR PANEL
- LOC — LOCAL OPERATOR CONSOLE
- HFS — KITCHEN HOOD FIRE SUPPRESSION PNL
- AO — ADDRESSABLE OUTPUT CONTROL MODULE
- MOTORIZED SMOKE FIRE DAMPER
- LT — LOW TEMPERATURE SWITCH
- MM — MONITOR MODULE

ACCESS CONTROL (ACS) & INTRUSION DETECTION SYSTEMS
- CR — CARD READER FOR CAC SMART CARD
- KP — KEY PAD
- P1 — CONCEALED DOOR POSITION SWITCH
- P2 — OVERHEAD DOOR POSITION SWITCH
- REX — REQUEST TO EXIT
- E1 — ELECTRIFIED EXIT PUSH BAR
- DP — DOOR OPEN PUSHBUTTON
- CCTV — CCTV CAMERA, INFRASTRUCTURE ONLY

LIGHTING

LIGHTING SYMBOLOGY GENERAL NOTES
1. USING THE LUMINAIRE TAG FOR REFERENCE, REFER TO THE LUMINAIRE (FIXTURE) SCHEDULE FOR THE DESCRIPTION OF EACH FIXTURE TYPE.
2. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR ADDITIONAL INFORMATION ABOUT LUMINAIRES, THE CEILING, MOUNTING HEIGHTS, ETC.

- LUMINAIRE TAG, REFER TO SCHEDULE
- LOWER CASE LETTER INDICATES SWITCHLEG (WHERE APPLICABLE)
- NUMBER INDICATES DAY LIGHTING CONTROL GROUP

EXIT LIGHTING
- EXIT SIGN - SINGLE FACE
- EXIT SIGN - DUAL FACE

SPECIFICATIONS
1. EDGE LIT, LED EXIT SIGNS.
2. INTEGRAL 90 MIN BATTERY PACK
3. SELF DIAGNOSTIC
4. INTEGRAL TEST SWITCH

- DUAL HEAD EMERGENCY LT WITH INTEGRAL BATTERY PACK
- E/NL — EMERGENCY/EGRESS LIGHTING SHOWN HATCHED AND/OR TAGGED WITH "E" (AS IN "AE") UNSWITCHED WHERE NOTED NL

1. EMERGENCY/EGRESS LIGHTING SHALL USE SELF CONTAINED BATTERY PACKS, UNO.
2. INTEGRAL 90 MIN BATTERY PACK
3. SELF DIAGNOSTIC
4. INTEGRAL TEST SWITCH

GENERAL SPECIAL SYSTEMS INSTALLATION REQUIREMENTS
1. ROUTE UNSWITCHED CIRCUIT LET TO ALL EMERGENCY/EGRESS LIGHTING AND EXIT SIGNS FOR BATTERY CHARGING AND TRANSFER CONTROL.
2. EMERGENCY LIGHTING TO BE SWITCHED WITH ADJACENT AREA LIGHTING, UNLESS NOTED "NL" FOR NIGHT LIGHT.

LIGHTING CONTROLS

WALL SWITCHES
- $ — SINGLE POLE, SINGLE THROW SWITCH
- $2 — TWO POLE, SINGLE THROW
- $3 — SINGLE POLE, DOUBLE THROW 3-WAY
- $4 — TWO POLE, DOUBLE THROW 4-WAY
- D — SLIDE DIMMER, COMMERCIAL GRADE
- $TS — TIME SWITCH, 60 MIN. OVERRIDE U.N.O.

SPECIFICATIONS
1. 20A, 120V/277V RATED
2. SCREW TYPE TERMINALS, W/ GND TERM.
3. NYLON COVER PLATE
4. FINISHED AREAS: COMMERCIAL GRADE, ROCKER TYPE SWITCH
5. UNFINISHED AREAS: HEAVY DUTY TOGGLE SWITCH
6. DEVICE AND COVER PLATE COLOR PER ARCHITECT

OCCUPANCY/VACANCY SENSORS
- OCC WALL MOUNTED W/ PUSHBUTTON
- OCC AIMABLE WALL MOUNTED
- OCC 360° CEILING MOUNTED, CNTR IN RM
- VAC WALL MOUNTED W/ PUSHBUTTON
- VAC AIMABLE WALL MOUNTED
- VAC 360° CEILING MOUNTED, CNTR IN RM
- DAYLIGHT SENSOR
- DOOR FRAME SWITCH

SPECIFICATIONS
1. COMBINATION INFRARED AND ULTRASONIC
2. ADJUSTABLE OFF DELAY, SET AT 15 MIN.
3. DAYLIGHT SENSING, ADJUSTABLE SENSITIVITY
4. WALL MNT: PUSH ON, AUTO OFF "VACANCY TYPE"
5. CLNG MNT: 360°, 1,000 SQ FT COVERAGE
6. AIMABLE WALL MNT SHALL BE ON ADJUSTABLE MOUNTING ASSEMBLY AT 18" BELOW CEILING AIMED AWAY FROM TRAFFIC PASSING THE SPACE.

AUTOMATED CONTROLS
- LC — LIGHTING CONTACTOR
- PC — PHOTOCELL
- TC — TIMECLOCK
- LCP — LIGHTING CONTROL PANEL
- LCS — LIGHTING CONTROL STATION
- WDP — WALL MOUNTED DIMMER PANNEL

SPECIFICATIONS
1. SCREW CLAMP, CONCEALED TERMINALS
2. TIME CLOCKS: 24 HR, 7 DAY, ASTRONOMICAL & HOLIDAY PROGRAMMING, BATTERY BACK UP.
3. LCP: PROGRAMMABLE, MULTI-CIRCUIT DIMMER PANEL WITH SINGLE INPUT AND MULTIPLE 20A OUTPUT CIRCUITS WITH INDIVIDUAL OCPDs; AND DIMMER MODULES OR ON/OFF CONTACTS AS REQUIRED.
4. LCS: WALL MOUNTED CONTROL STATION WITH ON/OFF, SCENE SELECTION, & LV CABLE TO CENTRAL LCP OR ADDRESSIBLE POWER PACKS. LCS SHALL BE ABLE TO COMMUNICATE DISCRETE COMMANDS TO MULTIPLE POWER PACKS OR "SWITCHLEGS" TO SET THEM AT DIFFERENT DIMMING LEVELS
5. WDP: WALL MNT LOCAL DIMMER PANEL WITH SINGLE 20A INPUT AND 4 OR MORE DIMMABLE OUTPUTS, AND MULTIPLE PROGRAMMED SETTING OPTIONS.
6. PROVIDE START UP AND PROGRAMMING FOR ALL LIGHTING CONTROL SYSTEMS AND DEVICES.

ELECTRICAL ONE LINE

ONE LINE
- MOLDED/INSULATED CASE BREAKER
- DRAWOUT CIRCUIT BREAKER, AIR TYPE
- DRAWOUT CIRCUIT BREAKER, VAC TYPE
- THERMAL OVERLOAD
- FUSED DISCONNECT SWITCH
- FUSE, HOLDER & PULLER
- POTENTIAL TRANSFORMER
- CURRENT TRANSFORMER
- CT ENCLOSURE
- M — UTILITY METER
- SPD — SURGE PROTECTION DEVICE
- GEN — GENERATOR REMOTE ANNUNCIATION PNL
- X — MOTOR, "X" INDICATING HORSE POWER
- AUTOMATIC TRANSFER SWITCH
- ST — SHUNT TRIP (K=KIRK KEY INTERLOCK, RT=REMOT TRIP)
- K — KIRK-KEY

SPECIFICATIONS
1. CIRCUIT BREAKERS SHALL BE BOLT ON TYPE, WITH OVERLOAD AND INSTANTANEOUS TRIP COMPONENTS.
2. DISTRIBUTION BREAKERS SHALL HAVE DIGITAL TRIP UNITS WITH ADJUSTABLE LSIG TRIP SETTINGS.
3. CONTROL POWER TRANSFORMERS SHALL BE ENCLOSED/ENCAPSULATED, MIN .5% ACCURACY
4. CURRENT TRANSFORMERS SHALL BE TORROIDAL OR RECTANGLE WINDOW, SINGLE RATIO, W/ POLARITY MARKS.
5. PROVIDE UTILITY METER HOUSING PER UTILITY SPECIFICATIONS FOR SERVICES UP TO 225A
6. PROVIDE CT ENCLOSURE FOR SERVICES OVER 225A. PROVIDE MIN 36"W x 36"H X 16"D UTILITY PROVIDER APPROVED ENCLOSURE. NOTE THAT LARGER SIZE MAY B REQUIRED FOR SERVICES OVER 800As.
7. ATSs SHALL BE 4 POLE, NEUTRAL SWITCHING TYPE, UNO.

ABBREVIATIONS

A.	AMPERE	LOTO	LOCK OUT TAG OUT
AC	ABOVE COUNTER	LTG	LIGHT OR LIGHTING
AFF	ABOVE FINISHED FLOOR	MCB	MAIN CIRCUIT BREAKER
AIC	AMP INTERRUPTING CAPACITY	MCC	MOTOR CONTROL CENTER
A/V	AUDIO VISUAL	MCP	MOTOR CIRCUIT PROTECTOR
ATS	AUTOMATIC TRANSFER SWITCH	MIN	MINIMUM
BLDG	BUILDING	MH	METAL HALIDE
C	CONDUIT	MLO	MAIN LUGS ONLY
CKT	CIRCUIT	MNS	MASS NOTIFICATION SYSTEM
CM	CONTROL MODULE	MRS	MOTOR RATED SWITCH
CONN	CONNECT OR CONNECTION	MSB	MAIN SWITCH BOARD
CT	CURRENT TRANSFORMER	MTD	MOUNTED
DIM	DIMENSION	MTS	MANUAL TRANSFER SWITCH
EA	EACH	MV	MEDIUM VOLTAGE
EC	ELECTRICAL CONTRACTOR	N.I.C.	NOT IN CONTRACT
EF	EXHAUST FAN	NL	NIGHT LIGHT (UNSWITCHED)
ELEC	ELECTRIC,ELECTRICAL	NTS	NOT TO SCALE
EMER	EMERGENCY	Ø	PHASE
EPO	EMERGENCY POWER OFF	OL	OVERLOAD
EWC	ELECTRIC WATER COOLER	OE	OVER HEAD ELECTRIC
FACP	FIRE ALARM CONTROL PANEL	PS	PULL STRING
FLA	FULL LOAD AMPS	RECPT	RECEPTACLE
FS	FLOW SWITCH	RGS	RIGID GALVANIZED STEEL
FSD	FIRE SMOKE DAMPER	SPD	SURGE PROTECTION DEVICE
GC	GENERAL CONTRACTOR	TS	TAMPER SWITCH
GFI	GROUND FAULT INTERRUPTER	TYP.	TYPICAL
GND	GROUND	UG	UNDERGROUND
HOA	HAND-OFF-AUTO	UNO	UNLESS NOTED OTHERWISE
HP	HORSEPOWER	V	VOLTAGE
HPS	HIGH PRESSURE SODIUM	WH	WATER HEATER
HTR	HEATER	WP	WEATHER PROOF
J-BOX	JUNCTION BOX	WR	WEATHER RATED
KCMIL	THOUSAND CIRCULAR MILLS	XFMR	TRANSFORMER

RECEPTACLES

RECEPTACLES
- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- QUADRAPLEX RECEPTACLE
- FLOOR MOUNTED RECEPTACLE
- CEILING MOUNTED RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE
- SWITCHED RECEPTACLE - 1/2 SWITCHED
- SWITCHED QUAD RECEPTACLE - 1/2 SWITCHED
- USB RECEPTACLE

SPECIFICATIONS
1. 20A, 120V RATED, SCREW TYPE TERMINALS, W/ GND TERM.
2. NYLON COVER PLATE
3. FINISHED AREAS: COMMERCIAL GRADE
4. LABS, HALLS, MECHANICAL ROOMS, ETC: HEAVY DUTY
5. PATIENT CARE AREAS: HOSPITAL GRADE.
6. DAMP LOCATIONS: GFCI TYPE
7. WET LOCATIONS: GFCI TYPE, METAL WEATHERPROOF WHILE IN USE COVER.
8. OCC. SENSOR CONTROLLED: PROVIDE WITH SYMBOL
9. DEVICE AND COVER PLATE COLOR PER ARCHITECT
10. USB TYPE: TAMPER RESISTANT DUPLEX WITH 5A, 5V USB OUTPUT. USB PORTS RATED FOR 10,000 CYCLES MIN.

EQUIPMENT CONTROLLERS

DISCONNECTS AND OCPD
- CB — ENCLOSED CIRCUIT BREAKER
- DISCONNECT SWITCH
- $H — HORSE POWER RATED TOGGLE SWITCH
- $M — MANUAL MOTOR STARTER W/ OVERLOADS
- DISCONNECT MOUNTED ON UNISTRUT

SPECIFICATIONS
1. HEAVY DUTY
2. ALL ENCLOSED CBs, SWITCHES, AND DISCONNECTS SHALL HAVE INTEGRAL LOCK OUT DEVICES.
3. ENCLOSED CIRCUIT BREAKERS: OVERLOAD AND INSTANTANEOUS TRIP COMPONENTS, LOCK OUT PROVISIONS, AND INTEGRAL SHUNT TRIP MODULES
4. DISCONNECTS: QUICK-MAKE/BREAK LOAD INTERRUPTER KNIFE SWITCH, HINGED METAL ENCLOSURE, EXTERNAL OPERABLE HANDLE, LOCKABLE ON OR OFF.

MOTOR AND EQUIPMENT CONTROLS
- MAGNETIC STARTER - FVNR U.N.O.
- COMBINATION STARTER & DISCONNECT
- MAGNETIC CONTACTOR (LTG CONTACTOR)
- VFD — VARIABLE FREQUENCY DRIVE
- EPO — EMERGENCY POWER OFF PUSHBUTTON
- HOA — "HAND-OFF-AUTO" CONTROL SELECTOR

SPECIFICATIONS
1. STARTERS: N.O. & N.C. AUXILLARY CONTACTS, FUSED CPT, ADJUSTABLE OVERLOAD, SIZED PER MOTOR HP, REMOTE START INPUT, HOA SWITCH
2. LIGHTING CONTACTORS: 20A MIN PER POLE, 120/277V RATED, HOA SWITCH, HINGED METAL ENCLOSURE, SCREW TERMINALS, QTY OF POLES AS NOTED.
3. PROVIDE INTEGRAL DISCONNECT FOR STARTERS, VFDs, ETC, LOCKABLE ON OR OFF.
4. EMERGENCY POWER OFF PUSHBUTTON SHALL BE A RED MUSHROOM HEAD, LATCHING CONTACT, ENGRAVED.

ELECTRICAL EQUIPMENT

DISTRIBUTION EQUIPMENT
- ELECTRICAL BRANCH PANEL
- TRANSFORMER
- J — JUNCTION BOX
- FB# — FLOORBOX
- SURFACE RACEWAY
- EQUIP MOUNTED ON CHANNEL RACK

SPECIFICATIONS
1. PANELS: COPPER PH, N, G BUSSING, HINGED DOOR, REMOVABLE FRONT COVER
2. TRANSFORMERS: COPPER, 2 WINDING, 3-PHASE DELTA TO WYE ON CONCRETE PAD WITH ISOLATORS, UNLESS NOTED TO BE SUSPENDED.
3. ALL FLOOR-BOXES SHALL BE PROVIDED WITH RECEPTACLES, AND WHERE APPLICABLE, DATA MOUNTING PLATES.
4. ALL TRANSFORMERS SHALL MEET U.S. DEPARTMENT OF ENERGY 2016 MANDATED MINIMUM EFFICIENCY.

Digitally Signed

MICHAEL S. GATH 90963 LICENSED PROFESSIONAL ENGINEER — STATE OF TEXAS

Michael Gath, PE
2024.05.29 15:31:00-05'00'

TEXAS PARKS & WILDLIFE

EEA CONSULTING ENGINEERS

MOTHER NEFF STATE PARK
HQ HVAC RENO
PROJECT NUMBER: MR11493

DATE: 02.29.24
DESIGNED BY: MS
DRAWN BY: MS
REVIEWED BY: SB
REVISED: 05.29.24 ADDENDUM #3
REVISED:
REVISED:

SHEET TITLE: ELECTRICAL SYMBOLS

SHEET NUMBER: 6 E0.0

GENERAL ELECTRICAL REQUIREMENTS

CODE REQUIREMENTS

1. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF LAWS, RULES, REGULATIONS, CODES STANDARDS, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION, AND ALL EQUIPMENT AND MATERIALS SHALL COMPLY WITH SAID AUTHORITIES WHETHER INDICATED ON THE CONTRACT DOCUMENTS OR NOT.
2. ALL WORK SHALL BE PERFORMED PER:
   - 2.1. 2021 INTERNATIONAL ENERGY CONSERVATION CODE - IECC
   - 2.2. 2020 NATIONAL ELECTRICAL CODE - NEC
   - 2.3. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
3. THE PUBLICATIONS AND STANDARDS OF THE FOLLOWING AUTHORITIES, IN ADDITION TO THOSE SPECIFIED IN RELATED SUPPLEMENTARY CONDITIONS, SHALL BE OBSERVED DURING CONSTRUCTION AND ARE REFERENCED IN THE DOCUMENTATION BY THE ABBREVIATIONS NOTED:
   - 3.1. UNITED STATES OF AMERICA STANDARDS INSTITUTE - USASI
   - 3.2. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS - IEEE
   - 3.3. NATIONAL ELECTRICAL CODE - NEC
   - 3.4. NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
   - 3.5. UNDERWRITER'S LABORATORY - UL
   - 3.6. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION - NEMA
   - 3.7. CERTIFIED BALLAST MANUFACTURERS - CBM
   - 3.8. AMERICAN SOCIETY FOR TESTING AND MATERIALS - ASTM
   - 3.9. OCCUPATIONAL SAFETY AND HEALTH ACT - OSHA
4. U.N.O., EQUIPMENT AND DEVICES SHALL BE MOUNTED PER ADA AND TAS REQUIREMENTS.
   - 4.1. OPERABLE DEVICES (SWITCHES, CARD READERS, ETC) AT OR BELOW 48" AFF
   - 4.2. RECEPTACLES, TELEPHONE AND DATA OUTLETS AT 18" AFF (15" MIN TO BOTTOM OF DEVICE), UNO

1

SCOPE OF WORK

1. THE SCOPE OF WORK SHALL INCLUDE COMPLETE PROVISIONS FOR DEVICES AND EQUIPMENT SHOWN ON THE CONSTRUCTION DOCUMENTS. NOTE: NOT ALL ITEMS ON THIS SHEET ARE IN THIS PROJECT AND ARE LEFT IN FOR REFERENCE.
   - 1.1. PROVISIONS INCLUDE, BUT ARE NOT LIMITED TO, ALL SUPPLIES, MATERIALS, EQUIPMENT, TOOLS AND LABOR.
   - 1.2. PROVISIONS ALSO INCLUDE ALL MISCELLANEOUS MATERIALS REQUIRED TO COMPLETE THE WORK SHOWN INCLUDING, BUT NOT LIMITED TO, SUPPORTS, HANGERS, RACEWAYS, BOXES, SLEEVES, SEALS, EQUIPMENT PADS, WIRING CONNECTORS, TERMINALS, LABELS, SIGNS, AND MARKERS.
   - 1.3. THE CONSTRUCTION DOCUMENTS INCLUDE ALL PLANS, ELEVATIONS, DETAILS, DIAGRAMS, SCHEDULES, AND NOTES ON THE DRAWINGS AND THE WRITTEN SPECIFICATIONS INCLUDING ANY ITEMS MENTIONED IN EITHER THE SPECIFICATIONS OR ON THE DRAWINGS BUT NOT IN THE OTHER.
   - 1.4. WHERE USED ON THE PLANS AND IN THE SPECIFICATIONS AND WHERE NOT SPECIFICALLY NOTED OTHERWISE, THE TERM "PROVIDE" AND THE TERM "INSTALL" SHALL MEAN FURNISH, INSTALL, CONNECT AND TEST.
   - 1.5. UNLESS EXPLICITLY NOTED "BY OTHERS" OR "EXISTING", ALL ITEMS SHOWN GRAPHICALLY OR SPECIFIED BY NOTES AND DETAILS ON THE PLANS SHALL BE FURNISHED, INSTALLED, CONNECTED, AND TESTED AS NEEDED.
2. ADDITIONALLY, THE SCOPE OF WORK SHALL INCLUDE
   - 2.1. APPLICATION FOR TEMPORARY AND PERMANENT ELECTRICAL SERVICE, PERMITTING, INSPECTION, AND PAYMENT OF ALL ASSOCIATED FEES.
   - 2.2. TESTING AND COMMISSIONING OF ELECTRICAL SYSTEMS.
   - 2.3. EQUIPMENT RENTAL.
   - 2.4. TEMPORARY CONSTRUCTION POWER AND LIGHTING.
   - 2.5. PROVISIONS FOR MAINTAINING THE FUNCTIONALITY OF EXISTING TO REMAIN BUILDING COMMUNICATIONS, FIRE ALARM, SECURITY/ACCESS CONTROL, PUBLIC ADDRESS, AND BELL SYSTEMS THAT WILL BE AFFECTED BY THE WORK.

SUBMITTALS

1. PRODUCT DATA: SUBMIT CATALOG DATA SHOWING MANUFACTURER'S NAME AND CONTACT INFORMATION, ALL STANDARD FEATURES, AMPERAGE, VOLTAGE, AIC RATINGS, DIMENSIONS, WEIGHTS, LISTINGS & PRODUCT LABELS, MATERIAL TYPES, FINISHES AND CLEARLY INDICATING WHICH OPTIONAL FEATURES WILL BE PROVIDED.
   - 1.1. WHERE MULTIPLE SIZES ARE LISTED, INDICATE SIZES TO BE USED.
   - 1.2. WHERE MULTIPLE PRODUCTS ARE SHOWN ON THE SAME PAGE, INDICATE WHICH PRODUCTS TO BE USED.
2. SHOP DRAWINGS (WHERE APPLICABLE): MANUFACTURER OR CONTRACTOR PREPARED DRAWINGS SHOWING ALL RELEVANT DIMENSIONS, WEIGHTS, ELECTRICAL & MECHANICAL CONNECTION REQUIREMENTS, CONDUIT ENTRY POINTS, ASSEMBLY REQUIREMENTS, LIFTING REQUIREMENTS, LIFTING POINTS, REQUIRED CLEARANCES. INCLUDE PLAN VIEWS & ELEVATIONS.
   - 2.1. INCLUDE ALL RELEVANT ELECTRICAL DIAGRAMS INCLUDING SCHEMATIC AND INTERCONNECTION DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING.

COORDINATION

1. ALL POWER OUTAGES SHALL BE COORDINATED IN WRITING WITH OWNER SEVEN (7) BUSINESS DAYS (MIN) PRIOR TO THE OUTAGE.
2. COOPERATE FULLY WITH THE OWNER OR THEIR REPRESENTATIVE DURING CONSTRUCTION OPERATIONS TO MINIMIZE CONFLICTS AND TO FACILITATE OWNER USAGE SO AS NOT TO INTERFERE WITH THE OWNER'S OPERATIONS.
3. THE DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW SWITCHES, POWER AND DATA OUTLETS, SPECIAL SYSTEMS COMPONENTS (FA, ACCESS CONTROL, A/V, ETC), ELECTRICAL EQUIPMENT, EQUIPMENT CONNECTIONS, REQUIRED RACEWAY, ETC. IN THEIR EXACT DIMENSIONED LOCATIONS. THE CONTRACTOR MUST CAREFULLY REVIEW THE ARCHITECTURAL, STRUCTURAL MECHANICAL, PLUMBING, FIRE PROTECTION, AND SPECIAL SYSTEMS PLANS TO IDENTIFY CONFLICTS AND AREAS THAT REQUIRE COORDINATION.
4. COORDINATE ELECTRICAL AND SPECIAL SYSTEMS EQUIPMENT ROUGH-IN WITH FURNITURE, MILLWORK, SIGNS, MECHANICAL AND PLUMBING SYSTEMS, SPRINKLER SYSTEMS, ARCHITECTURAL AND STRUCTURAL ELEMENTS, AND THE OWNER'S REPRESENTATIVE. MINOR CHANGES IN ELECTRICAL EQUIPMENT LOCATIONS AND LAYOUT THAT ARE REQUIRED BY SITE CONDITIONS OR ORDERED BY THE DESIGN TEAM PRIOR TO PERFORMANCE OF WORK SHALL BE MADE BY THE CONTRACTOR WITHOUT ADDITIONAL CHARGES TO THE OWNER.
5. MAINTAIN REQUIRED NEC WORKING SPACE AND DEDICATED EQUIPMENT SPACE AROUND ALL ELECTRICAL EQUIPMENT, CONTROLS PANELS, ETC THAT ARE SUBJECT TO MAINTENANCE, TESTING, OR USER INTERFACE. COORDINATE WITH OTHER TRADES. IF CLEARANCE CANNOT BE PROVIDED, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO ROUGH-IN.
6. COORDINATE COLOR SELECTIONS FOR LUMINAIRES AND ALL DEVICE PLATES WITH ARCHITECT.
7. COORDINATE POWER REQUIREMENTS FOR HVAC CONTROLS, FIRE ALARM, SECURITY, AND OTHER SPECIAL SYSTEMS TO MAKE SURE THAT ALL WORK IS COVERED IN THE BID

QUALIFICATIONS

1. MANUFACTURER: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SHOWN ON THE CONSTRUCTION DOCUMENTS WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE
2. INSTALLER: A STATE LICENSED ELECTRICIAN WITH DOCUMENTED EXPERIENCE INSTALLING ALL EQUIPMENT SPECIFIED HERE IN SHALL DIRECTLY SUPERVISE ALL WORK. WHERE NOTED IN THE SPECIFICATIONS, REQUIRED BY CODE, OR REQUIRED BY THE MANUFACTURER, INSTALLER SHALL BE A MANUFACTURER TRAINED AND/OR CERTIFIED INSTALLER OF THE SPECIFIC PRODUCT TO BE INSTALLED.
3. WHERE TESTING IS REQUIRED BY THE CONSTRUCTION DOCUMENTS, EQUIPMENT MANUFACTURER, OR CODE; TESTING SHALL BE PERFORMED BY AN AGENCY WITH DOCUMENTED EXPERIENCE AND PROPERLY CALIBRATED, FULLY FUNCTIONING EQUIPMENT, THAT IS A MEMBER OF THE INTERNATIONAL ELECTRICAL TESTING ASSOCIATION, MANUFACTURER CERTIFIED, OR IS A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), AND IS ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION.

QUALITY ASSURANCE

1. UNLESS OTHERWISE APPROVED, ALL EQUIPMENT SHALL BE NEW, PROPERLY DESIGNED, FROM A REPUTABLE MANUFACTURER MEETING THE SPECIFICATION QUALIFICATIONS, IN COMPLIANCE WITH THE SPECIFICATION REQUIREMENTS, AND IN FULL WORKING ORDER.
2. WHERE TWO OR MORE ITEMS OF THE SAME CLASS OF EQUIPMENT ARE REQUIRED, THESE ITEMS SHALL BE PRODUCTS OF A SINGLE MANUFACTURER; HOWEVER, THE COMPONENT PARTS OF THE ITEM NEED NOT BE THE PRODUCTS OF THE SAME MANUFACTURER UNLESS STATED IN THE TECHNICAL SECTION.
3. LISTING AND LABELING: WHERE REQUIRED, ALL ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES SHALL BE LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AND MARKED FOR THE INTENDED USE. TESTING AGENCY SHALL BE UL UNLESS NOTED OTHERWISE OR PRE-APPROVED BY OWNER AND AHJ.
4. ALL EQUIPMENT USED FOR TESTING SHALL BE IN FULL WORKING ORDER AND CALIBRATED PER THE MANUFACTURER'S RECOMMENDATIONS.

DELIVERY AND STORAGE

1. STORE ALL ELECTIRCAL/SPECIAL SYSTEMS EQUIPMENT/MATERIALS IN CLEAN, DRY SPACE LOCATED ABOVE GRADE. PROTECT FROM DIRT, WATER, CONSTRUCTION DEBRIS, TRAFFIC, FREEZE, AND DETERIORATION FROM SUN LIGHT.
2. MAINTAIN FACTORY WRAPPING OR PROVIDE APPROPRIATE COVER FOR ALL LARGE ELECTRICAL EQUIPMENT. FOLLOW ALL MANUFACTURER RECOMMENDATIONS FOR HUMIDITY AND MAX/MIN TEMPERATURES FOR STORING ELECTRICAL EQUIPMENT.

IDENTIFICATION

1. PROVIDE APPROPRIATE LABELS AND WARNING SIGNS FOR ALL EQUIPMENT, WIRING DEVICES, CONDUCTORS, CABLES, BOX, AND ENCLOSURES. PROVIDE BURIED DETECTABLE WARNING TAPE FOR UNDERGROUND CONDUITS.
2. CONDUCTOR TAGGING: TAG ALL CONDUCTORS AT MOTOR CONTROLS, PANELS, TERMINAL CABINETS AND JUNCTION BOXES. TAG CIRCUITS WHICH PASS THROUGH OTHER DEVICES SUCH AS LIGHTING CONTACTORS.
3. PROVIDE A TYPED PANEL DIRECTORY FOR EACH PANEL PROVIDED OR MODIFIED FOR THIS PROJECT. DIRECTORY SHALL IDENTIFY THE CIRCUIT NUMBER, LOADS SERVED, AND LOCATION OF LOADS BY ROOM NUMBER. MOUNT ON INSIDE OF EACH PANEL AND FILE THEM WITH THE OWNER WHEN THE WORK IS COMPLETED.
4. PROVIDE EACH PANEL WITH A MANUFACTURER PREPARED ARC FLASH HAZARD WARNING LABEL.
5. ALL ELECTRICAL EQUIPMENT SHALL BE IDENTIFIED BY MEANS OF 3"X1" (MIN)NAMEPLATES PERMANENTLY ATTACHED TO THE EQUIPMENT, PLATES SHALL BE METAL, PLASTIC, OR SIMILAR, BLACK WITH 1/4"h (MIN) ENGRAVED WHITE LETTERS.
6. JUNCTION AND PULL BOXES SHALL BE LABELED WITH PANEL NAME, CIRCUIT #, AND VOLTAGE.
7. RECEPTACLES SHALL BE LABELED WITH THE PANEL NAME AND CIRCUIT #. USE WHITE LABELS WITH BLACK TEXT. RECEPTACLES IN LOBBIES AND OTHER "HIGH END" AREAS SHALL BE LABELED BEHIND THE FACEPLATE.
8. FIRE ALARM, EMERGENCY/CRITICAL PWR, LIFE SAFETY LABELS, INCLUDING RECEPTACLES, SHALL BE COLOR CODED & ENGRAVED.

INSTALLATION

GENERAL REQUIREMENTS

1. THE CONTRACTOR SHALL PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT. THE CONCRETE SHALL PROTRUDE 3" PAST THE EDGE OF THE ELECTRICAL EQUIPMENT ON ALL SIDES. THE CONCRETE PAD SHALL BE 6" TALL AND CONTAIN A 1/2" CHAMFER ON ALL SIDES. PROVIDE A MINIMUM OF 3000 PSI CONCRETE AND #4 REBAR.
2. ALL TERMINALS, LUGS AND BUS JOINTS SHALL BE TIGHTENED PER THE MANUFACTURER'S TORQUE RECOMMENDATIONS.
3. NO FOREIGN SYSTEMS SUCH AS PIPING, DUCT WORK, ETC SHALL BE INSTALLED ABOVE ELECTRICAL EQUIPMENT.
4. PROVIDE SLEEVES FOR PENETRATIONS THROUGH WALLS/FLOORS. SEAL ALL OPENINGS. USE FIRE-RATED SEALANT FOR OPENINGS IN RATED WALLS.
5. PERFORM GROUND PENETRATING RADAR SCAN BEFORE CUTTING EXISTING STRUCTURES. COORDINATE LOCATIONS WITH STRUCTURAL ENGINEER/ARCHITECT.

CONDUCTORS AND CABLES

1. ALL BUILDING WIRING SHALL BE INSULATED COPPER CONDUCTORS RUN FROM LOAD TO SOURCE INSIDE RACEWAY, CONTINUOUS (WITHOUT SPLICES) BETWEEN JUNCTION AND PULL BOXES, AND EXPOSED INSIDE PANELS ONLY.
2. ALL SINGLE POLE CIRCUITS SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR ROUTED TO THE SOURCE PANEL.
3. FIELD VERIFY WHETHER A NEUTRAL IS REQUIRED FOR ALL TWO AND THREE POLE CIRCUITS. FOR ALL LOADS EXCEPT MOTORS, A NEUTRAL IS ASSUMED TO BE REQUIRED UNLESS FIELD DETERMINED TO BE UNNECESSARY.
4. ALL POWER & CONTROL WIRING ROUTED THROUGH RETURN AIR PLENUMS SHALL BE PLENUM RATED.
5. UP TO 3-20A CIRCUITS MAY SHARE A RACEWAY FOR HOMERUNS WHERE SUITABLE & PER NEC CONDUIT FILL RULES.
6. 120V, 20A. HOME RUNS LONGER THAN 100' AND 277V, 20A. HOME RUNS LONGER THAN 150' SHALL BE #10 MIN.

GROUNDING AND BONDING

1. ALL RACEWAYS AND CIRCUITS SHALL BE PROVIDED WITH A NEC 250 COMPLIANT GREEN GROUND CONDUCTOR.
2. ALL EQUIPMENT SHALL BE PROPERLY BONDED.
3. UPON COMPLETION OF THE WORK, ALL PARTS OF THE ELECTRICAL INSTALLATION SHALL BE MEGGER TESTED AND PROVED TO BE FREE OF UNWANTED GROUNDS AND OTHER DEFECTS.

HANGERS AND SUPPORTS

1. SUPPORT RACEWAYS USING GALVANIZED STEEL OR MALLEABLE IRON STRAPS; CHANNEL OR PIPE CLAMPS AS APPROPRIATE.
2. PROVIDE SUPPORTS AT ALL BOXES, ELEC. EQUIP., LOADS, & AT CODE REQUIRED INTERVALS ALONG RACEWAYS.
3. GROUP RELATED RACEWAYS AND SUPPORT USING STEEL CHANNEL CONDUIT RACKS WITH 25% SPARE CAPACITY.
4. SUPPORT LTG, ELEC. EQUIP., RACEWAYS/BOXES, ETC. INDEPENDENTLY. DO NOT USE CEILING SUPPORT WIRES, PIPING SYSTEMS, ETC.

RACEWAY AND BOXES

1. PROVIDE COMPLETE RACEWAY SYSTEMS FROM SOURCE TO ALL LOADS WITH DEDICATED SUPPORTS FOR EACH RACEWAY ELEMENT.
2. PROVIDE ALL REQUIRED BOXES & SUPPORTS FOR WIRING DEVICES, TELECOMMUNICATIONS, FIRE ALARM, ACCESS CONTROL, CONTROLS EQUIPMENT, ALARMS, SENSORS, ETC.
3. PROVIDE PULL BOXES AT APPROPRIATE LOCATIONS FOR ALL POWER AND SPECIAL SYSTEMS RACEWAYS WHETHER SHOWN ON PLANS OR NOT. INSTALL IN CONCEALED, ACCESSIBLE LOCATIONS.
4. DO NOT INSTALL RACEWAY WITH MORE THAN THE EQUIVALENT OF THREE NINETY DEGREE BENDS BETWEEN PULL POINTS.
5. THE CONDUIT ROUTING SHOWN ON THESE PLANS IS DIAGRAMMATIC.
6. COORDINATE INTERIOR ROUTING WITH OTHER TRADES; STRUCTURE; NEW AND EXISTING UTILITIES, DUCTWORK, PIPING; AND OTHER EXISTING CONDITIONS AS REQUIRED FOR A COMPLETE, CONFLICT FREE INSTALLATION.
7. COORDINATE SITE ROUTING WITH OTHER TRADES; STRUCTURE; NEW AND EXISTING BURIED UTILITIES, PAVED AREAS, CONDUIT SLEEVES, AND LANDSCAPING BEFORE DIGGING TO AVOID CONFLICTS, DAMAGE, AND TO ALLOW FOR FUTURE INSTALLATIONS.
8. ROUTE RACEWAYS PARALLEL AND PERPENDICULAR TO WALLS, FLOORS, AND CEILINGS.
9. ROUTE EXPOSED CONDUIT PARALLEL AND TIGHT TO STRUCTURAL ELEMENTS. FOLLOW ALL SURFACE CONTOURS; DO NOT ROUTE IN FREE AIR FROM POINT TO POINT.
10. INSTALL RACEWAYS SO THAT IT DRAINS TO JUNCTION AND PULL BOXES TO AVOID MOISTURE TRAPS AT LOW POINTS; INSTALL JUNCTION BOX WITH DRAIN FITTING AT LOW POINTS IN CONDUIT SYSTEM.
11. INSTALL FITTINGS TO ACCOMMODATE EXPANSION AND DEFLECTION WHERE RACEWAY CROSSES SEISMIC, CONTROL, AND EXPANSION JOINTS.
12. INSTALL SUITABLE PULL STRING OR CORD IN EACH EMPTY RACEWAY, LABEL, AND CAP.
13. CLOSE ENDS AND UNUSED OPENINGS IN SURFACE RACEWAYS, WIREWAY, BOXES, AND ENCLOSURES.
14. WHERE POSSIBLE, ALL CONDUIT ROUTED THROUGH ROOF STRUCTURE SHALL SHARE COMMON PENETRATIONS AS MECHANICAL DUCTWORK OR PIPING. COORDINATE WITH MECHANICAL CONTRACTOR.
15. ALL ROOF AND WALL PENETRATIONS SHALL BE FLASHED AND SEALED TO MAINTAIN THE FIRE RATING AND WATERPROOFING OF THE STRUCTURE PER THE MANUFACTURER OF THE MATERIAL'S RECOMMENDED PRACTICES.
16. USE MULTI-GANG BOXES IN ALL POSSIBLE LOCATIONS.
17. PAINT EXPOSED RACEWAYS AND BOXES TO MATCH THE SURFACE TO WHICH THEY ARE ATTACHED.
18. ALL CONDUIT SHALL HAVE AN NEC COMPLIANT GROUND AND AN INSULATED THROAT BUSHING IN PLACE FOR PULLING CONDUCTORS.
19. ALL CONNECTIONS TO MOTORS, INSTRUMENTS, MACHINES, AND EQUIPMENT SUBJECT TO MOVEMENT OR VIBRATION SHALL BE MADE USING LIQUID-TIGHT, FLEXIBLE METAL CONDUIT (LFMC), (3FT MAX).

WIRING DEVICES

1. DUPLEX RECEPTACLES MOUNTED ON OPPOSITE SIDES OF A COMMON WALLS SHALL BE A MINIMUM OF 12" APART. (NO BACK TO BACK OUTLETS) TO REDUCE NOISE TRANSFER, JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE INSTALLED IN THE SAME WALL CAVITY. SEPARATE ALL JUNCTION BOXES BY AT LEAST ONE FRAMING MEMBER.
2. PROVIDE GFI RECEPTACLES & DIMMERS WITH DEDICATED NEUTRALS INDEPENDENT OF OTHER LOADS ON THE CIRCUIT.

ENCLOSED SWITCHES AND CONTACTORS

1. TO FACILITATE SAFE REPAIR AND REPLACEMENT OF EQUIPMENT, PROVIDE ALL STARTERS AND DISCONNECTS WITH LOTO PROVISIONS.
2. MOUNT STARTERS AND DISCONNECTS SERVING HVAC EQUIPMENT TO STRUCTURE ADJACENT TO EQUIPMENT SERVED RATHER THAN MOUNTING DIRECTLY TO THE EQUIPMENT. THIS INCLUDES U-CHANNEL SUPPORT AND 120V MAINTENANCE RECEPTACLE FOR ROOF MOUNTED EQUIPMENT. PROVIDE WORKING SPACE PER NEC REQUIREMENTS.

LIGHTING

1. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LIGHT FIXTURE LOCATIONS AND QUANTITIES.
2. EXAMINE THE AREA OF INSTALLATION TO VERIFY ADEQUATE SPACE AND MOUNTING PROVISIONS ARE PROVIDED FOR THE SPECIFIED LUMINAIRE PRIOR TO ORDERING LUMINAIRES.
3. VERIFY THAT LUMINAIRES WILL NOT INTERFERE WITH REQUIRED CLEARANCES FOR EQUIPMENT INCLUDING FILTER PULL SPACE, NEC WORKING SPACE IN FRONT OF DISCONNECTS, CONTROL PANELS, ETC.
4. COORDINATE EXIT LIGHT LOCATIONS WITH STRUCTURE AND BUILDING SYSTEMS TO INSURE EXIT SIGNS ARE VISIBLE.
5. PROVIDE GROUND WIRE AND ONE NEUTRAL CONDUCTOR PER CIRCUIT IN ALL LIGHTING CONDUIT.
6. LABEL ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING.
7. UNO, ALL EXIT SIGNS, EMERGENCY EGRESS PATHWAY LIGHT FIXTURES, LIGHTS NOTED "xE", AND LIGHTS SHOWN CROSS HATCHED SHALL BE CONNECTED TO THE SWITCHED AREA LIGHTING CIRCUIT FOR NORMAL OPERATION AND AN UNSWITCHED CIRCUIT FROM THE SAME OCPD TO AUTOMATICALLY CONTROL POWER TRANSFER TO AN INTEGRAL BATTERY PACK FOR 90 MINUTES OF EMERGENCY OPERATION WHEN LOSS OF NORMAL POWER IS SENSED ON THE UNSWITCHED CIRCUIT. PROVIDE A BATTERY STATUS INDICATOR MOUNTED IN A VISIBLE LOCATION.
8. INSTALL FIXTURES PLUMB, SQUARE AND LEVEL WITH CEILINGS AND WALLS AND SECURE FIXTURES PER MANUFACTURER'S PRINTED INSTRUCTIONS.
9. ADJUST AIMABLE FIXTURES, CLEAN, AND PROVIDED ALL FIXTURES WITH LAMPS PRIOR TO OWNER OCCUPANCY.
10. U.N.O., LIGHTING SWITCHES IN ROOMS SHALL CONTROL ONLY FIXTURES IN THAT ROOM.
11. WHEN MORE THAN ONE(1) LIGHTING SWITCH IS SHOWN AT A LOCATION THEY SHALL BE GANGED TOGETHER.
12. LUMINAIRE WHIPS MAY BE FMC, 6FT MAX. SECURE TO STRUCTURE USING LISTED SUPPORTS

LIGHTING CONTROL REQUIREMENTS

1. OCCUPANCY SENSOR OFF DELAY SHALL BE SET BY EC AT END OF PROJECT TO 15 MINUTES. AMBIENT LIGHT OVERRIDE SHALL BE SET SUCH THAT THE LUMINAIRES ARE SWITCHED OFF WHEN APPROPRIATE FC LEVEL IS MEASURED ON THE FLOOR (REGARDLESS OF THE FOOTCANDLES MEASURED AT THE OCCUPANCY SENSOR).
2. INSTALL DIMMER SWITCHES ON THE LOAD SIDE OF OCCUPANCY SENSORS AND OTHER CONTROLS.

PRODUCT SPECIFICATIONS

GENERAL REQUIREMENTS

1. COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF PROVIDING EQUIPMENT THAT IS NEW, PROPERLY DESIGNED, FROM A REPUTABLE MANUFACTURER, AND IN FULL WORKING ORDER.
2. IF CONFLICTS BETWEEN THE SPECIFICATIONS AND DRAWINGS OCCUR, THE HIGHER QUALITY OR QUANTITY SHALL BE PROVIDED AND INSTALLED. WHEN CONFLICTS EXIST, CONTRACTOR SHALL PROVIDE A WRITTEN REQUEST FOR CLARIFICATION FROM THE ENGINEER. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ADDITIONAL EXPENSES INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO OBTAIN CLARIFICATION.
3. ALL ELECTRICAL EQUIPMENT ENCLOSURES SHALL BE 16 GAUGE SHEET METAL (MIN). PROVIDED WITH MANUFACTURER'S CORROSION RESISTANT PAINT SYSTEM, PROVIDED WITH CONTINUOUSLY HINGED, LATCHING DOORS (UNO).
4. EQUIPMENT TO BE INSTALLED OUTDOORS SHALL HAVE NEMA 3R ENCLOSURES MIN. EQUIPMENT IN CORROSIVE OR HAZARDOUS ENVIRONMENTS SHALL BE RATED FOR THE INTENDED USE.
5. CONDUCTORS AND CABLES SHALL BE THHN/THWN SOFT DRAWN, STRANDED COPPER, XHHW FOR UG, USE SOLID COPPER FOR #10 & SMALLER, MIN SIZE #12
6. FULLY ENCLOSED RACEWAYS AND BOXES REQUIRED FOR ALL WIRING. TYPE REQUIRED IS BY LOCATION.

WIRING DEVICES

1. WIRING DEVICES SHALL BE COMMERCIAL GRADE (MIN), GROUNDING, AND RATED FOR LOAD (20A MIN). NOTE THAT SOME LOCATIONS REQUIRE WEATHER RATED, INDUSTRIAL OR HEAVY DUTY, AND HOSPITAL GRADE DEVICES.
2. SURFACE MOUNTED RACEWAY FOR RECEPTACLES AND DATA OUTLETS SHALL BE DUAL CHANNEL, METAL RACEWAYS, TWO PIECE DESIGN WITH METAL BASE AND SNAP-ON METAL COVER. ASSEMBLED BASE AND COVER SHALL BE A MINIMUM OF 4" WIDE BY 1.5" DEEP. DEVICE BRACKETS AND COVER PLATES THAT WILL ACCEPT DUPLEX RECEPTACLES AND STANDARD DATA JACK MOUNTING PLATES WITHOUT FIELD CUTTING MUST BE AVAILABLE FROM THE RACEWAY MANUFACTURER.

ENCLOSED SWITCHES AND CONTACTORS

1. DISCONNECTS SHALL BE QUICK MAKE/BREAK LOAD INTERRUPTING KNIFE SWITCHES WITH EXTERNAL HANDLE LOCKABLE IN ON AND OFF POSITIONS, FULLY HINGED DOOR THAT IS LOCKED WHEN ENERGIZED AND PROVIDED WITH A DEFEATER MECHANISM TO OPEN ENCLOSURE WHEN ENERGIZED.
2. ENCLOSED MOTOR STARTERS SHALL HAVE REMOTE START SIGNAL INPUT, FULL SIZED OVERLOADS, CONTROL XFMR WITH PRIMARY & SECONDARY FUSING, HAND-OFF-AUTO SELECTOR SWITCH, (2) NORMALLY OPEN AND (2) NORMALLY CLOSED AUX. DRY CONTACTS. COORDINATE CPT VOLTAGE WITH CONTRACTOR PROVIDING EQUIPMENT TO BE CONTROLLED.

LIGHTING

1. ALL LIGHT FIXTURES/LAMPS SHALL BE UL LISTED AND CONFORM TO ALL APPLICABLE UL, ANSI AND NFPA STANDARDS.
2. REFER TO LUMINAIRE SCHEDULE FOR FIXTURE, BALLAST, AND LAMP SPECIFICATIONS. SUBSTITUTIONS SHOULD BE APPROVED PRIOR TO BID.

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RACEWAY AND BOX SPECIFICATIONS BY LOCATION

GENERAL REQUIREMENTS

1. PROVIDE RACEWAY AND BOXES AS SPECIFIED BELOW FOR POWER, LIGHTING, COMMUNICATIONS, FIRE ALARM, ACCESS CONTROL/SECURITY, CONTROLS, AND OTHER SPECIAL SYSTEMS.
2. PROVIDE RACEWAY AND BOXES FOR ALL EQUIPMENT; LIGHTING; WIRING DEVICES; COMMUNICATIONS EQUIPMENT AND OUTLETS; FIRE ALARM EQUIPMENT, APPLIANCES, AND DEVICES; ACCESS CONTROL/SECURITY POINTS; CONTROLS POINTS; AND OTHER SPECIAL SYSTEMS SHOWN ON PLANS.
3. PROVIDE RACEWAY BOXES AT OTHER LOCATIONS AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, AND COMPLIANCE WITH REGULATORY REQUIREMENTS. RACEWAY AND BOXES ARE SHOWN IN APPROXIMATE LOCATIONS UNLESS DIMENSIONED. PROVIDE RACEWAY TO COMPLETE WIRING SYSTEM.
4. PROVIDE COMPRESSION CONNECTIONS FOR ALL METAL RACEWAYS.

UNDERGROUND:

1. PROVIDE WRAPPED RIGID STEEL CONDUIT WHERE ENTERING/EXITING SLABS OR GRADE; FOR ELBOWS 1" AND LARGER.
2. PROVIDE THICKWALL NONMETALLIC CONDUIT FOR STRAIGHT RUNS THAT ARE BURIED AND/OR IN CONCRETE.
3. PROVIDE CAST METAL BOXES OR POLYMER CONCRETE BOXES. COORDINATE WITH ENGINEER.
4. PROVIDE BOXES FOR UTILITY SERVICE CONDUIT OR CABLING PER UTILITY PROVIDER'S SPECIFICATIONS
5. NONMETALLIC HANDHOLES MAY BE USED FOR SITE LIGHTING AND CONTROLS CIRCUITS
6. PROVIDE RIGID STEEL CONDUIT WITHIN 5 FT OF BUILDING FOUNDATION.

IN CONCRETE

1. PROVIDE WRAPPED RIGID STEEL CONDUIT WHERE ENTERING OR EXITING CONCRETE; FOR ELBOWS 1" AND LARGER.
2. PROVIDE THICKWALL NONMETALLIC CONDUIT FOR STRAIGHT RUNS IN CONCRETE.
3. PROVIDE CAST METAL BOXES. NONMETALLIC MAY BE USED ONLY WITH ENGINEER APPROVAL.
4. USE CONCRETE TIGHT, MASONRY RATED BOXES AND FITTINGS WHERE INSTALLED IN CONCRETE, STONE, BRICK, CMU.

EXTERIOR ABOVE GRADE AND WET/DAMP INTERIOR LOCATIONS:

1. PROVIDE RIGID STEEL CONDUIT AND FITTINGS.
2. PROVIDE CAST METAL OUTLET, JUNCTION, AND PULL BOXES, GASKETED, RATED NEMA 3R MIN.

CONCEALED DRY INTERIOR LOCATIONS:

1. PROVIDE RIGID STEEL CONDUIT, INTERMEDIATE METAL CONDUIT, OR ELECTRICAL METALLIC TUBING.
2. PROVIDE SHEET-METAL BOXES.

EXPOSED DRY INTERIOR LOCATIONS:

1. PROVIDE RIGID STEEL CONDUIT BELOW 10 FT, AND RIGID STEEL, INTERMEDIATE METAL, OR ELECTRICAL METALLIC TUBING ABOVE 10 FT.

Digitally Signed

STATE OF TEXAS
MICHAEL S. GATH
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LICENSED
PROFESSIONAL ENGINEER

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PROJECT NUMBER: MR11493

DATE: 02.29.24
DESIGNED BY: MS
DRAWN BY: MS
REVIEWED BY: SB
REVISED: 05.29.24
ADDENDUM #3
REVISED:
REVISED:

SHEET TITLE
ELECTRICAL GENERAL NOTES

SHEET NUMBER
7
E0.1