

| MECHANICAL SYMBOLS LIST |                                     |                                  |
|-------------------------|-------------------------------------|----------------------------------|
| EQUIPMENT SYMBOL        | CONTROLS AND SENSORS                |                                  |
|                         | POINT OF NEW CONNECTION TO EXISTING | THERMOSTAT                       |
| AIR DEVICES             |                                     |                                  |
|                         | CEILING DIFFUSER SUPPLY             | HUMIDISTAT                       |
|                         | CEILING DIFFUSER RETURN             | MANUAL ON/OFF SWITCH             |
|                         | CEILING DIFFUSER EXHAUST            | DUCT SMOKE DETECTOR              |
|                         | SIDEWALL GRILLE-SUPPLY              | CO DETECTOR                      |
|                         | SIDEWALL GRILLE-RETURN              | TEMPERATURE SENSOR               |
| DUCT ACCESSORIES        |                                     |                                  |
|                         | VOLUME DAMPER W/ ACCESS DOOR        | AIR DUCT W/ 1" ACOUSTICAL LINING |
|                         | FIRE DAMPER W/ ACCESS DOOR          | FLEXIBLE DUCT                    |
|                         | MOTORIZED DAMPER W/ ACCESS DOOR     | RECTANGULAR DUCT (WIDTH X DEPTH) |
|                         | BACKDRAFT DAMPER                    | ROUND DUCT (DIAMETER)            |

| MECHANICAL ABBREVIATIONS |                                  |
|--------------------------|----------------------------------|
| AFF                      | ABOVE FINISHED FLOOR             |
| AL                       | ACOUSTIC LINING                  |
| BOB                      | BOTTOM OF BEAM                   |
| BOD                      | BOTTOM OF DUCT                   |
| BOE                      | BOTTOM OF EQUIPMENT              |
| CDS                      | CEILING DIFFUSER SUPPLY          |
| CDR                      | CEILING DIFFUSER RETURN          |
| CFM                      | CUBIC FEET OF AIR PER MINUTE     |
| EF                       | EXHAUST FAN                      |
| DN                       | DOWN                             |
| EG                       | EXHAUST GRILLE                   |
| FC                       | FLEXIBLE CONNECTION              |
| FD/AD                    | FIRE DAMPER W/ACCESS DOOR        |
| MD                       | MOTORIZED DAMPER                 |
| RTU                      | ROOF TOP UNIT                    |
| RG                       | RETURN GRILLE                    |
| RA                       | RETURN AIR                       |
| SEER                     | SEASONAL ENERGY EFFICIENCY RATIO |
| SG                       | SUPPLY GRILLE                    |
| SA                       | SUPPLY AIR                       |
| VD                       | VOLUME DAMPER                    |
| BD                       | BACKDRAFT DAMPER                 |
| EF                       | EXHAUST FAN                      |
| WH                       | WALL HEATER                      |
| TD                       | TRANSFER DUCT                    |
| TG                       | TRANSFER AIR GRILLE              |

| MECHANICAL DRAWING LIST |                                                        |
|-------------------------|--------------------------------------------------------|
| M0.10                   | MECHANICAL GENERAL NOTES, SYMBOLS LIST & ABBREVIATIONS |
| M0.20                   | MECHANICAL SPECIFICATION                               |
| M1.00                   | MECHANICAL FLOOR PLAN                                  |
| M1.10                   | MEZZANINE FLOOR PLAN                                   |
| M1.20                   | MECHANICAL ROOF PLAN                                   |
| M3.10                   | MECHANICAL DETAILS                                     |
| M4.10                   | MECHANICAL SCHEDULES                                   |

| CODE COMPLIANCE                                                                                                                                                                                                                                                                      |                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT: |                                                              |
| a.                                                                                                                                                                                                                                                                                   | 2021 INTERNATIONAL BUILDING CODE WITH AMENDMENTS             |
| b.                                                                                                                                                                                                                                                                                   | 2021 INTERNATIONAL EXISTING BUILDING CODE WITH AMENDMENTS    |
| c.                                                                                                                                                                                                                                                                                   | 2021 INTERNATIONAL MECHANICAL CODE WITH AMENDMENTS           |
| d.                                                                                                                                                                                                                                                                                   | 2018 NORTH DAKOTA PLUMBING CODE (UNIFORM PLUMBING CODE 2018) |
| e.                                                                                                                                                                                                                                                                                   | 2023 NATIONAL ELECTRICAL CODE                                |
| f.                                                                                                                                                                                                                                                                                   | 2021 INTERNATIONAL FUEL GAS CODE WITH AMENDMENTS             |
| f.                                                                                                                                                                                                                                                                                   | 2021 INTERNATIONAL ENERGY CONSERVATION CODE WITH AMENDMENTS  |

## NORTH DAKOTA BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2021 INTERNATIONAL BUILDING CODE, ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

- ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE / ACCA 183.
- VENTILATION FOR ALL AREA SHALL COMPLY WITH 2021 INTERNATIONAL MECHANICAL CODE CHAPTER 4.
- TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2021 IMC REQUIREMENTS AS OUTLINES IN SECTION.
- THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.
- TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE 2021 INTERNATIONAL MECHANICAL CODE:  
A. VENTILATION SYSTEM - BALANCING 2021 INTERNATIONAL MECHANICAL CODE - 403.3
- THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:  
A. STANDARDS OF HEATING: 2021 IMC 309.1  
B. DUCT CONSTRUCTION AND INSTALLATION: 2021 IMC 603  
C. AIR INTAKES, EXHAUSTS AND RELIEF: 2021 IMC 401.5  
D. AIR FILTERS: 2021 IMC 605
- MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
- A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2021 INTERNATIONAL MECHANICAL CODE - 403.3
- THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
- THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.
- THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

## GENERAL NOTES

- CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER PRIOR TO SUBMITTING A PROPOSAL. IF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS, ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
- BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
- THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
- THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
- CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
- DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
- WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
- CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.
- PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.

- SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 3000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
- PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.

- SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).

- INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

- ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACES BETWEEN SPACES AND SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.

- REMOVABLE ACCESS TILE AND/OR ACCESS DOOR ARE REQUIRED IN HUNG CEILINGS, SHAFTS AND WALLS FOR ALL VOLUME AND FIRE DAMPERS, AUTOMATIC DAMPERS AND ALL OTHER MECHANICAL EQUIPMENT AND DEVICES. HVAC CONTRACTOR TO FURNISH ACCESS LOCATION REQUIREMENTS TO GENERAL CONTRACTOR. ACCESS TILE IDENTIFICATION: PROVIDE OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.

- THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

- UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

- MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

- ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE

- ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FAILURE OF ANY DUCTWORK SYSTEM OR EQUIPMENT TO FUNCTION PROPERLY UPON COMPLETION OF HIS WORK UPON SAID SYSTEM OR EQUIPMENT.

- SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.

- ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

- SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT AND MATERIALS, AND WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIMENSIONS. SUCH AN EXAMINATION OF THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.

- INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

- THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.

- SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES, WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.

- WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY.

## DEFINITIONS:

- "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
- "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
- "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

## NOTE TO CONTRACTOR

- THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLAN(S) DESIGN, DETAIL DRAWINGS, NOTES, RPT'S, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.

- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFOR. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

- THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

## GENERAL HVAC NOTES

### GENERAL:

- PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.

- CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.

- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.

- WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.

- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.

- INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.

- WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.

- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.

- ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.

- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.

- LOCATE ALL TEMPERATURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.

- WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.

- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.

- PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, FOR SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.

- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.

- ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.

- ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BEAM JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.

- LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.

- ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.

- ALL CONDENSATE DRAIN LINES FROM EACH ROOF TOP UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.

- REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.

- ALL TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING INSULATION IS APPLIED.

- TESTING, ADJUSTING, AND BALANCING AGENCY SHALL BE A MEMBER OF THE ASSOCIATED AIR BALANCE COUNCIL (AABC) OR THE NATIONAL ENVIRONMENTAL BALANCING BUREAU (NEBB). TESTING, ADJUSTING, AND BALANCING SHALL BE PERFORMED IN ACCORDANCE WITH THE AABC STANDARDS.

## SCOPE OF WORK

- EXISTING RTU's SHALL BE RE-USED FOR PROVIDING HEATING, AIR CONDITIONING AND VENTILATION.

- FURNISH AND INSTALL EXHAUST FANS FOR THE TOILET AND KITCHEN SPACE.

- ALL HVAC WORKS SHALL BE IN ACCORDANCE WITH THE DRAWING AND SPECIFICATION.

### HVAC DUCTWORK -- SHEET METAL

- CERTAIN ITEMS SUCH AS RISES AND DROPS IN DUCTWORK, ACCESS DOORS, VOLUME DAMPERS, ETC., ARE INDICATED ON THE CONTRACT DOCUMENT DRAWINGS FOR CLARITY FOR A SPECIFIC LOCATION REQUIREMENT AND SHALL NOT BE INTERPRETED AS THE EXTENT OF THE REQUIREMENTS FOR THESE ITEMS.

- CONTRACTOR TO CHECK AND CORRECT ANY AND ALL DEFICIENCIES IN EXISTING DUCTS. ALL NEW DUCTWORK SHALL COMPLY WITH THE LATEST SMACNA GUIDELINES AND CONFORM WITH REQUIREMENTS OF THE LATEST HANDBOOKS PUBLISHED BY ASHRAE.

- PROVIDE VOLUME DAMPER AT EACH TAP TO MAIN DUCT AND WHERE NECESSARY TO PROPERLY BALANCE SYSTEM.

- SUPPLY AND RETURN DUCTWORK 20" FROM ALL HVAC UNITS SHALL BE LINED WITH 1.5" ACOUSTICAL LINING.

- RE-INSULATE ALL DUCTWORK AND PIPING IN WHICH INSULATION HAS BEEN REMOVED OR DAMAGED WITH INSULATION EQUAL TO THE EXISTING INSULATION.

- CONTRACTOR SHALL SUPPLY AND INSTALL ALL NECESSARY SUPPLY DIFFUSERS AND RETURN AIR REGISTERS WHERE INDICATED ON THE DRAWING. COORDINATE LOCATION OF DIFFUSERS AND REGISTERS WITH REFLECTED CEILING PLAN.

- IN CORRIDORS WHERE CEILING SPEAKERS AND AIR DIFFUSERS ARE INDICATED BETWEEN THE SAME LIGHT FIXTURES, INSTALL BOTH DEVICES AT THE QUARTER POINTS BETWEEN THE FIXTURES.

- UNLESS OTHERWISE SHOWN, LOCATE ALL ROOM THERMOSTATS 4'-0" (CENTER LINE) ABOVE THE FINISHED FLOOR. NOTIFY THE ENGINEER OF ANY ROOMS WHERE THE PRECEDING LOCATION CANNOT BE MAINTAINED OR WHERE THERE IS A QUESTION ON LOCATION.

- ALL DUCTWORK SHALL CLEAR DOORS AND WINDOWS.

- ALL DUCTWORK DIMENSIONS, AS SHOWN ON THE DRAWINGS, ARE INTERNAL CLEAR DIMENSIONS AND DUCT SIZE SHALL BE INCREASED TO COMPENSATE FOR DUCT LINING THICKNESS.

- PROVIDE ALL 90-DEGREE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING VANES UNLESS OTHERWISE INDICATED. ELBOWS IN DISHWASHER, KITCHEN, AND LAUNDRY EXHAUSTS SHALL BE OF UN-VANED SMOOTH RADIUS CONSTRUCTION WITH A RADIUS EQUAL TO 1-1/2 TIMES THE WIDTH OF THE DUCT. PROVIDE ACCESS DOORS UPSTREAM OF ALL ELBOWS WITH TURNING VANES.

- COORDINATE DIFFUSER, REGISTER, AND GRILL LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLANS, LIGHTING, AND OTHER CEILING ITEMS AND MAKE MINOR DUCT MODIFICATIONS TO SUIT.

- ALL ROOF TOP UNITS SHALL OPERATE WITHOUT MOISTURE CARRYOVER.

- LOCATE ALL MECHANICAL EQUIPMENT FOR UNOBSTRUCTED ACCESS TO UNIT ACCESS PANELS, CONTROLS, AND VALVING.

- PROVIDE FLEXIBLE CONNECTIONS IN ALL DUCTWORK SYSTEMS (SUPPLY, RETURN, AND EXHAUST) CONNECTED TO AIR HANDLING UNITS, FANS, AND OTHER EQUIPMENT THAT REQUIRE VIBRATION ISOLATION. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AT THE POINT OF CONNECTION TO THE EQUIPMENT UNLESS OTHERWISE INDICATED.

- UNLESS OTHERWISE NOTED, ALL DUCTWORK IS OVERHEAD, TIGHT TO THE UNDERSIDE OF THE STRUCTURE, WITH SPACE FOR INSULATION IF NEEDED.
- RUNS OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FT.
- ALL DUCTWORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN DUCTS, INCLUDING DIVIDED DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

- PROVIDE ACCESS DOORS IN DUCTWORK TO PROVIDE ACCESS FOR ALL SMOKE DETECTORS, FIRE DAMPERS, SMOKE DAMPERS, VOLUME DAMPERS, COILS, AND OTHER ITEMS LOCATED IN THE DUCTWORK THAT REQUIRE SERVICE AND/OR INSPECTION.

- PROVIDE ACCESS DOORS IN DUCTWORK FOR THE OPERATION, ADJUSTMENT, AND MAINTENANCE OF ALL FANS, VALVES, AND MECHANICAL EQUIPMENT.

- ALL DUCTS SHALL BE GROUNDED ACROSS FLEXIBLE CONNECTIONS WITH FLEXIBLE COPPER GROUNDING STRAPS. GROUNDING STRAPS SHALL BE BOLTED OR SOLDERED TO BOTH THE EQUIPMENT AND THE DUCT.

- SMOKE DETECTORS SHALL BE FURNISHED AND WIRED BY THE ELECTRICAL CONTRACTOR. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR MOUNTING THE SMOKE DETECTOR IN DUCTWORK AS SHOWN ON THE DRAWINGS AND IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTRUCTIONS.

- SEE SPECIFICATIONS FOR DUCTWORK GAUGES, BRACING, HANGERS, AND OTHER REQUIREMENTS.

NRG ADVENTURE PARK

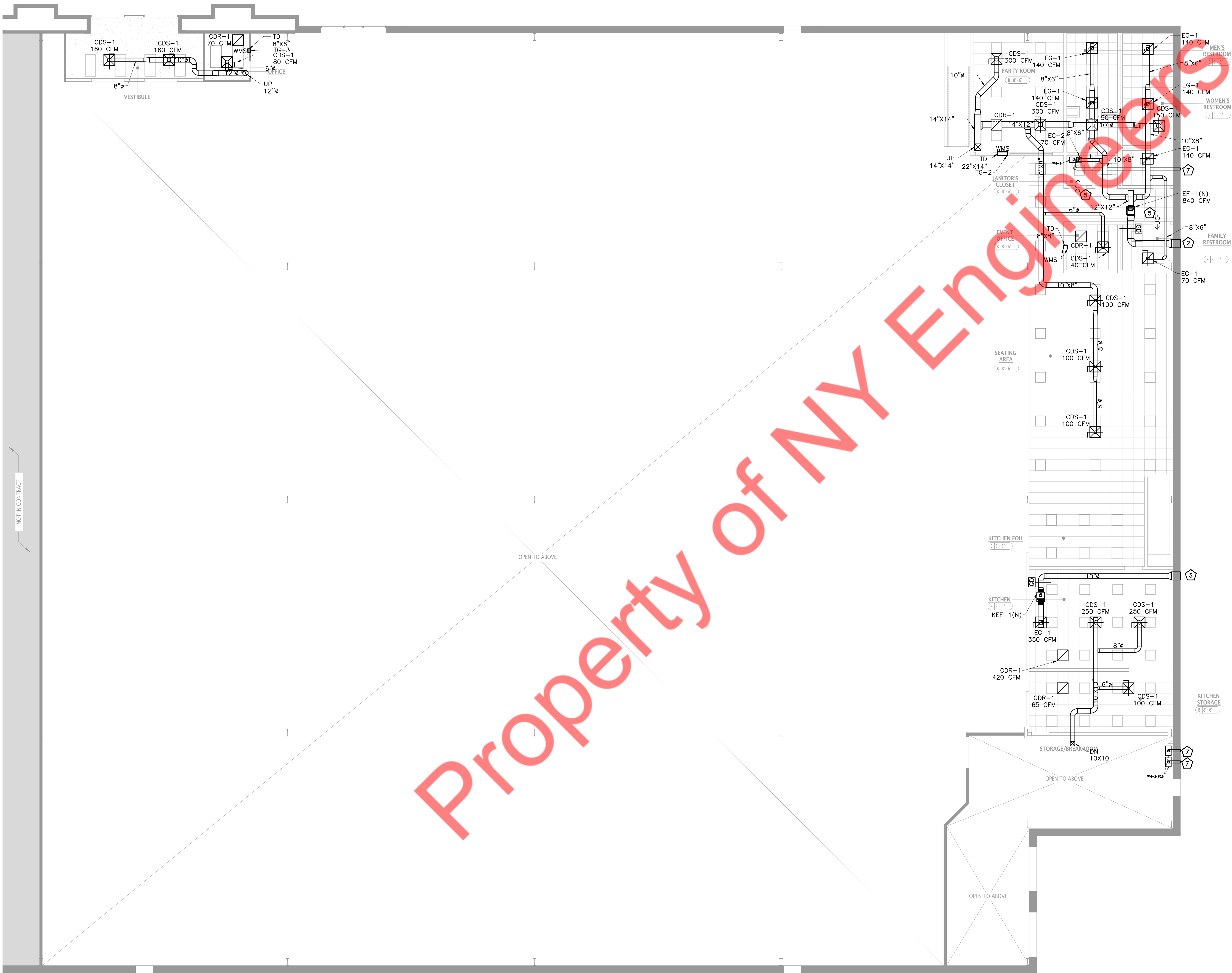
## MECHANICAL GENERAL NOTES, SYMBOLS LIST & ABBREVIATIONS

DATE: 2025.05.09  
DRAWN BY: NYE  
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| <div><div>SECTION 0101 — QUALITY OF WORK</div><div><div>1.1 WORKMANSHIP</div><div><div>A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.</div><div>B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.</div><div>C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.</div></div></div><div><div>1.2 CODE COMPLIANCE</div><div><div>A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.</div></div></div><div><div>END OF SECTION 0101</div><div>SECTION 0102 —REQUIRED DOCUMENTS</div><div><div>1.1 SHOP DRAWINGS</div><div><div>A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.</div></div></div><div><div>1.2 SUBMITTALS</div><div><div>A. EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.</div></div></div><div><div>1.3 RECORD DRAWINGS</div><div><div>A. UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER, DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.</div></div></div><div><div>1.4 EQUIPMENT OPERATING INSTRUCTIONS</div><div><div>A. ON COMPLETION AND ACCEPTANCE OF WORK, THIS CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS,EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.</div><div>B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE-RING BINDERS WITH CLEAR ACETATE COVERS. THE CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE ELECTRONIC COPY TO THE ENGINEER.</div><div>C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.</div></div></div><div><div>END OF SECTION 0102</div><div>SECTION 230517 — SLEEVES AND SLEEVE SEALS FOR HVAC PIPING</div><div><div>1.1 SLEEVE-SEAL SYSTEMS</div><div><div>A. FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANNULAR SPACE BETWEEN PIPING AND SLEEVE.</div><div><div>1. SEALING ELEMENTS: EPDM RUBBER OR NBR.</div><div>2. PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.</div><div>3. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.</div></div><div><div>B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:</div><div><div>1. ADVANCE PRODUCTS &amp; SYSTEMS, INC.</div><div>2. CALPICO, INC.</div><div>3. METRAFLEX COMPANY (THE).</div><div>4. PIPELINE SEAL AND INSULATOR, INC.</div></div></div></div><div><div>1.2 SLEEVE-SEAL FITTINGS</div><div><div>A. MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.</div></div></div><div><div>1.3 GROUT</div><div><div>A. NON-SHRINK, FACTORY PACKAGED.</div></div></div><div><div>1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE</div><div><div>A. USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:</div><div><div>1. INTERIOR PARTITIONS:</div><div><div>a. PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.</div><div>b. PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.</div></div></div></div></div><div><div>END OF SECTION 230517</div><div>SECTION 230518 — ESCUTCHEONS FOR HVAC PIPING</div><div><div>PART 2 — PRODUCTS</div><div><div>2.1 ESCUTCHEONS</div><div><div>A. ONE-PIECE, CAST-BRASS TYPE: WITH POLISHED, CHROME-PLATED AND ROUGH-BRASS FINISH AND SETSCREW FASTENER.</div></div></div><div><div>2.2 FLOOR PLATES</div><div><div>A. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.</div></div></div><div><div>PART 3 — EXECUTION</div><div><div>3.1 INSTALLATION</div><div><div>A. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS.</div><div>B. INSTALL ESCUTCHEONS WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.</div></div></div><div><div>3.2 FIELD QUALITY CONTROL</div><div><div>A. REPLACE BROKEN AND DAMAGED ESCUTCHEONS AND FLOOR PLATES USING NEW MATERIALS.</div></div></div><div><div>END OF SECTION 230518</div><div>SECTION 230529 — HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT</div><div><div>1.1 PERFORMANCE REQUIREMENTS</div><div><div>A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.</div><div>B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.</div></div></div><div><div>DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND 3.DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.</div></div><div><div>1.2 SUBMITTALS</div><div><div>A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER</div></div></div><div><div>1.3 QUALITY ASSURANCE</div><div><div>A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE — STEEL."</div></div></div><div><div>1.4 COMPONENTS</div><div><div>A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL</div><div>B. FIBERGLASS PIPE HANGERS: -CLEVIS, CENTURY COMPOSITES, COOPER B-LINE</div><div>D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER</div><div>E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE</div><div>F. THERMAL-HANGER SHIELD INSERTS:</div><div>G. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS</div><div>H. PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYPE</div><div>I. EQUIPMENT SUPPORTS.</div></div></div><div><div>END OF SECTION 230529</div><div>SECTION 230548 — VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT</div><div><div>PART 1 — GENERAL</div><div><div>1.1 COMPONENTS</div><div><div>A. VIBRATION ISOLATORS:</div><div><div>1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS</div><div>2. MOUNTS: DOUBLE-DEFLECTION TYPE.</div><div>3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.</div><div>4. SPRING ISOLATORS: FREESTANDING, Laterally STABLE, OPEN-SPRING TYPE.</div><div>5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.</div><div>6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.</div><div>7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.</div><div>8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.</div><div>9. SPRING HANGERS WITH VERTICAL-LIMIT STOP: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL-LIMIT STOP.</div><div>10.PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.</div><div>11.RESILIENT PIPE GUIDES.</div></div></div></div></div><div><div>B. AIR-MOUNTING SYSTEMS:</div><div><div>1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWS.</div><div>2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.</div><div>C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.</div><div>D. VIBRATION ISOLATION EQUIPMENT BASES:</div><div><div>1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.</div><div>2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE</div></div></div></div><div><div>1.2 FIELD QUALITY CONTROL</div><div><div>A. TESTING: BY EITHER: OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.</div></div></div><div><div>PART-2 PRODUCTS</div><div><div>1.1 VIBRATION ISOLATORS &amp; SEISMIC-RESTRAINT DEVICES</div><div><div>A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:</div><div>B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:</div><div><div>1. ACE MOUNTINGS CO., INC.</div><div>2. AMBER/BOOTH COMPANY, INC.</div><div>3. CALIFORNIA DYNAMICS CORPORATION.</div><div>4. HILTI, INC.</div><div>5. ISOLATION TECHNOLOGY, INC.</div><div>6. KINETICS NOISE CONTROL.</div><div>7. LOOS &amp; CO.; CABLEWARE DIVISION.</div><div>8. MASON INDUSTRIES.</div><div>9. TOLCO INCORPORATED; A BRAND OF NIBCO INC.</div><div>10. UNISTRUT; TYCO INTERNATIONAL LTD.</div></div></div></div></div><div><div>END OF SECTION 230548</div><div>SECTION 230593 — TESTING, ADJUSTING, AND BALANCING FOR HVAC</div><div><div>1.1 SUMMARY</div><div><div>A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:</div><div><div>1. AIR SYSTEMS: CONSTANT AND VARIABLE VOLUME SYSTEMS.</div><div>2. MOTORS.</div></div></div></div><div><div>1.2 QUALITY ASSURANCE</div><div><div>A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.</div></div></div><div><div>1.3 EXECUTION</div><div><div>A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR AND HYDRONIC SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.</div><div>B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR AND HYDRONIC SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.</div><div>C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.</div><div>D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.</div><div>E. THE CONTRACTOR SHALL HAVE FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.</div><div>F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS SECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.</div><div>G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.</div><div>H. TOLERANCES: ±10% OF DESIGN VALUES INDICATED ON THE FLOOR PLAN AND SCHEDULES.</div><div>I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.</div><div>J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.</div></div></div><div><div>END OF SECTION 230593</div><div>SECTION 230713 — DUCT INSULATION</div><div><div>1.1 QUALITY ASSURANCE</div><div><div>SURFACE-BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME-SPREAD INDEX OF 25, AND SMOKE-DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE-DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS; ACCORDING TO ASTM E 84.</div></div></div><div><div>1.2 FIELD QUALITY CONTROL</div><div><div>A. FIELD INSPECTIONS: BY OWNER-ENGAGED AGENCY.</div></div></div><div><div>1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE;</div><div><div>A. CONCEALED, RECTANGULAR, ROUND AND FLAT-OVAL SUPPLY-RETURN, OUTDOOR-AND EXHAUST-AIR DUCT AND AIR PLENUM INSULATION:</div><div>B. FLEXIBLE ELASTOMERIC, MINERAL-FIBER BLANKET, MINERAL-FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS: UNCONDITIONED SPACES WITHIN BUILDING: R-6 WITHIN BUILDING ENVELOPE ASSEMBLY: R-12 OUTSIDE OF BUILDING: R-12</div></div></div><div><div>1.4 ITEMS NOT INSULATED:</div><div><div>1. FIBROUS-GLASS DUCTS.</div><div>2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE ANDASHRAE/IESNA 90.1.</div><div>3. FACTORY-INSULATED FLEXIBLE DUCTS.</div><div>4. FACTORY-INSULATED PLENUMS AND CASINGS.</div><div>5. FLEXIBLE CONNECTORS.</div><div>6. VIBRATION-CONTROL DEVICES.</div><div>7. FACTORY-INSULATED ACCESS PANELS AND DOORS.</div><div>8. DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.</div></div></div><div><div>1.5 PRODUCTS</div><div><div>A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:</div><div><div>1. JOHNS-MANVILLE</div><div>2. OWENS-CORNING</div></div></div></div><div><div>1.6 ACOUSTICAL TREATMENT</div><div><div>1. WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R-6 AS MANUFACTURED BY DUCTMATE, 1-1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER. LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED,</div></div></div><div><div>END OF SECTION 230713</div><div>SECTION 233113 — METAL DUCTS</div><div><div>1.1 CONSTRUCTION</div><div><div>A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.</div><div>B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 2" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:</div><div><div>1. DUCTWORK SHALL BE TRANSVERSELY JOINTED BY CONNECTING SEAMS OF COPLANAR ANGLES, FORMED FROM 1-1/2"x1-1/2"x1/8" GALVANIZED ANGLES, TACK-WELDED OR RIVETED TO THE DUCT. THE ANGLE FRAME SHALL BE CONTINUOUSLY FLANGED UP INTO UPRIGHT OF ANGLE AND EACH CORNER SHALL BE FILLED IN AND GROUND SMOOTH. JOINTS SHALL BE GASKETED WITH 1/8" THICK REINFORCED GASKET OVERLAPPED AT CORNERS. GASKET SIMILAR TO 3M-1202 OR APPROVED EQUAL.</div><div>2. RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.</div><div>3. HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 6' CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.</div><div>4. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.</div><div>5. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM A5.5; AWS A5.2.</div><div>6. ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.</div></div></div><div><div>C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:</div><div><div>USG MAX. SIDE INCHES TRANSVERSE JOINTS AND BRACING</div><div>22 UP TO 12 8" SLIP, DRIVE SLIP, ONE INCH POCKET LOCK ON 8 FOOT CENTERS</div><div>22 13 TO 24 1"x1"x1/8" ANGLES ON 4 FOOT CENTERS</div><div>20 25 TO 35 1"x1"x1/8" ANGLES ON 2 FOOT CENTERS</div></div></div><div><div>D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:</div><div><div>1. UPSTREAM OF EACH REHEAT COIL AND VAV BOX.</div><div>2. DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.</div></div></div><div><div>E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.</div></div><div><div>F. ALL DUCTWORK SHALL BE SEALED TO CLASS "A" AND LEAK TESTED TO MEAT SMACNA CLASS 6 FOR RECTANGULAR AND CLASS 3 FOR ROUND DUCTS.</div></div><div><div>1.2 MATERIALS</div><div><div>A. GALVANIZED SHEET STEEL.</div><div>B. SINGLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.</div><div>C. SHEET METAL MATERIALS:</div><div><div>1. GALVANIZED SHEET STEEL.</div><div>2. STAINLESS-STEEL SHEETS.</div><div>3. ALUMINUM SHEETS.</div><div>4. FACTORY-APPLIED ANTI-MICROBIAL COATING.</div></div></div><div><div>D. DUCT LINER:</div><div><div>1. FIBROUS GLASS, TYPE I, FLEXIBLE.</div><div>a. WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.</div><div>2. FLEXIBLE ELASTOMERIC.</div><div>3. NATURAL FIBER.</div></div></div><div><div>E. SEALANT MATERIALS:</div><div><div>1. TWO-PART TAPE SEALING SYSTEM.</div><div>2. WATER-BASED JOINT AND SEAM SEALANT.</div><div>3. SOLVENT-BASED JOINT AND SEAM SEALANT.</div><div>4. FLANGED JOINT SEALANT.</div><div>5. FLANGE GASKETS.</div></div></div><div><div>6. ROUND DUCT JOINT O-RING SEALS.</div></div><div><div>1.3 DUCT CLEANING</div><div><div>A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.</div><div>B. CLEAN THE FOLLOWING ITEMS:</div><div><div>1. AIR OUTLETS AND INLETS.</div><div>2. SUPPLY, RETURN, AND EXHAUST FANS.</div><div>3. AIR-HANDLING UNITS.</div><div>4. COILS AND RELATED COMPONENTS.</div><div>5. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.</div><div>6. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.</div><div>7. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.</div></div></div></div><div><div>1.4 DUCT SCHEDULE</div><div><div>A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:</div><div>B. MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.</div></div></div><div><div>END OF SECTION 233113</div><div>SECTION 233713 — DIFFUSERS, REGISTERS, AND GRILLES</div><div><div>1.1 PRODUCTS</div><div><div>A. DIFFUSERS, REGISTERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.</div><div>B. MANUFACTURERS: TITUS</div><div><div>1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:</div><div><div>a. CARNES.</div><div>b. HART &amp; COOLEY INC.</div><div>c. KRUEGER.</div><div>d. METALAIR, INC.</div><div>e. NAILOR INDUSTRIES INC.</div><div>f. RUSKIN.</div></div><div>C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.</div><div>D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.</div></div></div><div><div>END OF SECTION 233713</div><div>THERMOSTATIC CONTROLS:</div><div><div>C403.4.1 THERMOSTATIC CONTROLS (MANDATORY)</div><div><div>THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.</div><div>EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:</div><div><div>1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).</div><div>2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.</div></div></div><div><div>C403.4.1.2 DEADBAND (MANDATORY)</div><div><div>WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.</div></div></div><div><div>EXCEPTIONS:</div><div><div>1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.</div><div>2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.</div></div></div><div><div>C403.4.1.3 SETPOINT OVERLAP RESTRICTION (MANDATORY)</div><div><div>WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.4.1.2.</div></div></div><div><div>C403.4.1.4 HEATED OR COOLED VESTIBULES (MANDATORY)</div><div><div>THE HEATING SYSTEM FOR HEATED VESTIBULES AND AIR CURTAINS WITH INTEGRAL HEATING SHALL BE PROVIDED WITH CONTROLS CONFIGURED TO SHUT OFF THE SOURCE OF HEATING WHEN THE OUTDOOR AIR TEMPERATURE IS GREATER THAN 45°F (7°C), VESTIBULE HEATING AND COOLING SYSTEMS SHALL BE CONTROLLED BY A THERMOSTAT LOCATED IN THE VESTIBULE CONFIGURED TO LIMIT HEATING TO A TEMPERATURE NOT GREATER THAN 60°F (16°C) AND COOLING TO A TEMPERATURE NOT LESS THAN 85°F (29°C).</div><div>EXCEPTION: CONTROL OF HEATING OR COOLING PROVIDED BY SITE-RECOVERED ENERGY OR TRANSFER AIR THAT WOULD OTHERWISE BE EXHAUSTED.</div></div></div><div><div>C403.4.2 OFF-HOUR CONTROLS (MANDATORY)</div><div><div>EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.</div></div></div><div><div>EXCEPTIONS:</div><div><div>1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.</div><div>2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.</div></div></div><div><div>C403.4.2.1 THERMOSTATIC SETBACK (MANDATORY)</div><div><div>THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).</div></div></div><div><div>C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN (MANDATORY)</div><div><div>AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.</div></div></div></div></div><div data-bbox="2890 1432 2923 1537" data-label="Image"></div><div data-bbox="35 2066 189 2076" data-label="Page-Footer"><p>ORIGINAL SHEET SIZE: 30" X 42" ARCH E1</p></div><div data-bbox="2745 1946 2873 1992" data-label="Page-Footer"><p>M0.20</p></div><div data-bbox="2766 2018 2849 2037" data-label="Page-Footer"><p>PERMIT SET</p></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div></div> |
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#### MECHANICAL FLOOR PLAN KEY NOTES

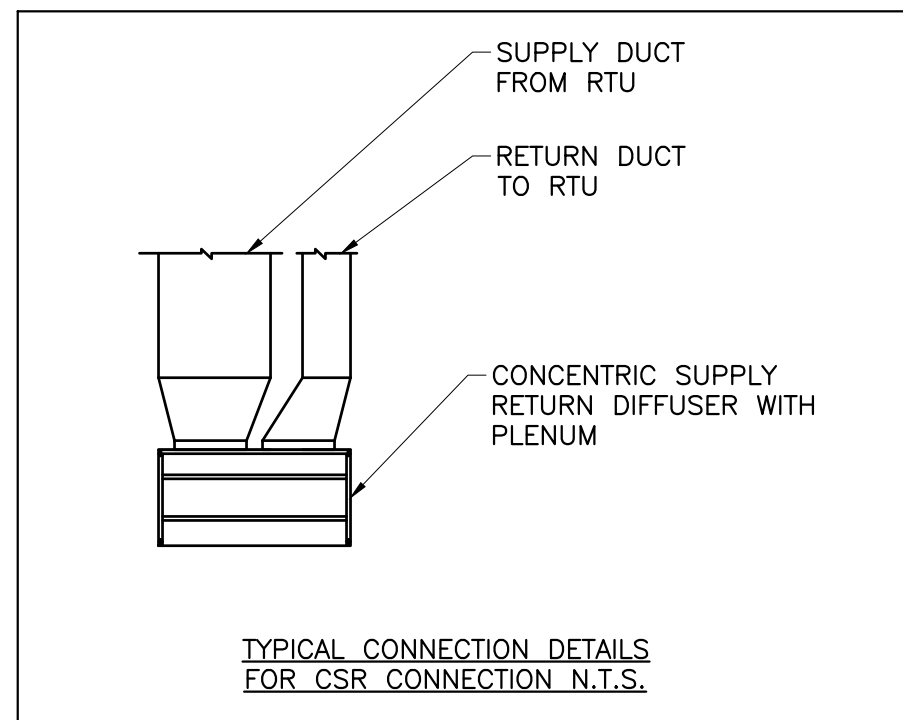
- EXISTING WALL THERMOSTATS TO REMAIN. CONTRACTOR TO ENSURE THERMOSTAT AND/OR TEMPERATURE SENSOR FOR THE EXISTING UNIT IS IN PROPER WORKING CONDITION. CONTRACTOR SHALL REPLACE THE THERMOSTAT/TEMPERATURE SENSOR IF REQUIRED. RELOCATE IN FIELD IF REQUIRED.
- INSTALL INLINE TOILET EXHAUST FAN (EF-1). CONTRACTOR TO PROVIDE EXHAUST LOUVER OF 18"X14" OR 2.0 SQFT FREE AREA. LOUVER TO BE TERMINATED 3' VERTICLE AWAY FROM ANY OPENING AND 10' HORIZONTAL AWAY FROM ANY AIR INTAKE.
- INSTALL INLINE KITCHEN EXHAUST FAN (KEF-1). CONTRACTOR TO PROVIDE EXHAUST LOUVER OF 18"X10" OR 1.2 SQFT FREE AREA. LOUVER TO BE TERMINATED 3' VERTICLE AWAY FROM ANY OPENING AND 10' HORIZONTAL AWAY FROM ANY AIR INTAKE.
- PROVIDE 1" UNDERCUT TO ALLOW FOR AIR PASSAGE.
- PROVIDE Ø3"/Ø5" CONCENTRIC VENT FOR EXHAUST / COMBUSTION AIR INTAKE FROM WATER HEATER AND TERMINATE THROUGH SIDE WALL. PROVIDE WITH MANUFACTURER APPROVED TERMINATION KIT. ROUTE VENT PIPING WITH MINIMAL AMOUNT OF BENDS AND MINIMUM LENGTH AS PER MANUFACTURER REQUIREMENTS.

#### GENERAL FLOOR PLAN NOTES:

- ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
- THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND / OR INSTALLATION.
- DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
- ALL METAL DUCT AND AIR DISTRIBUTION DEVICES SHALL BE INSULATED WITH R-6, 75 DENSITY FOIL-BACKED INSULATION WITH FIRE AND SMOKE RATING 25-50.
- ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTACTOR PANEL.
- PROVIDE AND INSTALL SMOKE DUCT DETECTORS IN EACH AIR CONDITIONING UNIT RETURN AIR DUCT GREATER THAN 2000 CFM. CONTRACTOR SHALL PROVIDE INTERCONNECTION AND WIRE TO THE FIRE ALARM CONTROL PANEL IF REQUIRED. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS LOCATED NEAR THE RESPECTIVE THERMOSTATS. VERIFY CODE REQUIREMENTS FOR DUCT DETECTORS IN BOTH THE SUPPLY AND RETURN AIR STREAMS.
- THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS AS PER LOCAL CODE. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- PROVIDE VOLUME DAMPER AT EACH SUPPLY, RETURN AND EXHAUST DUCTWORK BRANCH.
- THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
- PROVIDE CORD-OPERATED DAMPERS IN INACCESSIBLE CEILINGS.
- INSTALL SPIRAL/ROUND DUCT IN OPEN AREAS AND RECTANGULAR DUCTING IN CEILING AREAS. PROVIDE INTERNAL INSULATION FOR EXPOSE DUCTING AND EXTERNAL INSULATION FOR DUCTING IN CEILING SPACE.
- USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SPACE SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84 OR UL 723.

#### MECHANICAL DUCT INSTALLATION NOTES:

- QC TO RUN ALL DUCTWORK BETWEEN STRUCTURE AS FEASIBLE AND/OR TIGHT TO UNDERSIDE OF STRUCTURE.
- QC TO PROVIDE SHOP DRAWING FOR REVIEW AND APPROVAL BY ARCHITECT AND OWNER TO CONFIRM FINAL LAYOUT IS ACCEPTABLE.



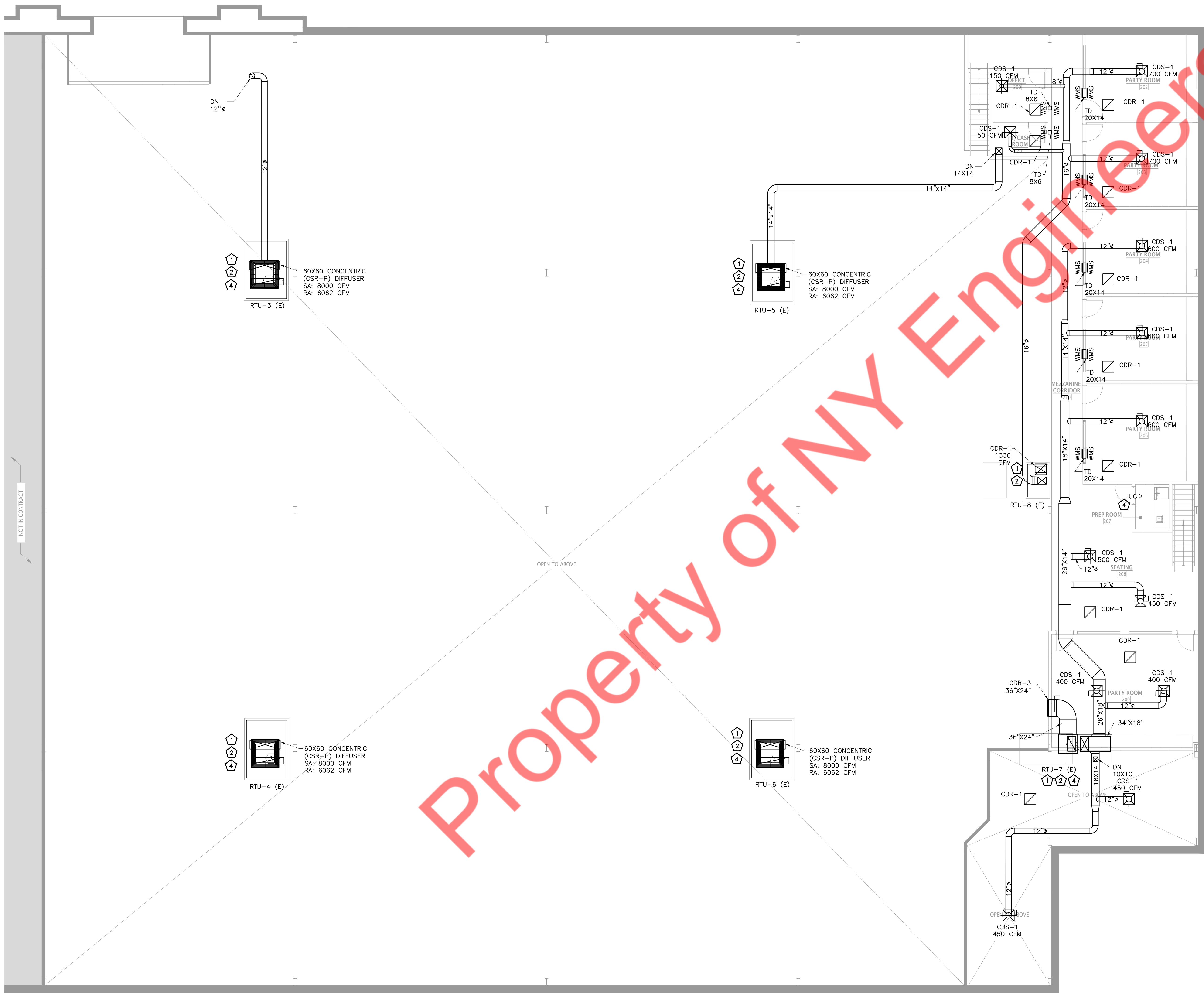
NRG ADVENTURE PARK

MECHANICAL FLOOR PLAN

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DRAWN BY: NYE  
REVISIONS:

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**MECHANICAL FLOOR PLAN KEY NOTES**

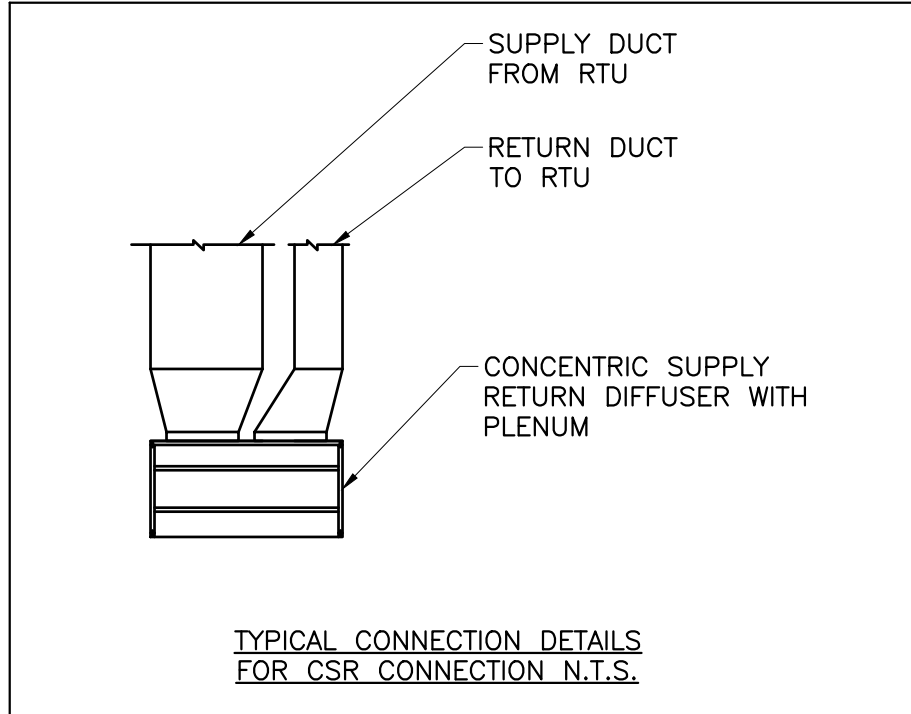
- EXISTING THERMOSTATS TO BE REMAIN. CONTRACTOR TO ENSURE THERMOSTAT AND/OR TEMPERATURE SENSOR FOR THE EXISTING UNIT IS IN PROPER WORKING CONDITION. CONTRACTOR SHALL REPLACE THE THERMOSTAT/TEMPERATURE SENSOR IF REQUIRED. RELOCATE IN FIELD IF REQUIRED.
- EXTEND FULL SIZE SUPPLY AND RETURN DUCTWORK FROM EXISTING ROOFTOP UNITS TO SPACE. PROVIDE 1.5" THICK ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
- PROVIDE 1" UNDERCUT TO ALLOW FOR AIR PASSAGE.
- CONTRACTOR SHALL CLEAN AND REFURBISH EXISTING SMOKE DETECTOR TO "LIKE NEW" CONDITION. CONTRACTOR TO ENSURE SMOKE DETECTOR IS IN GOOD WORKING CONDITION, IF NOT PROVIDE NEW AS REQUIRED.

**GENERAL FLOOR PLAN NOTES:**

- ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
- THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
- THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
- THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
- THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND / OR INSTALLATION.
- DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
- ALL METAL DUCT AND AIR DISTRIBUTION DEVICES SHALL BE INSULATED WITH R=6, 75 DENSITY FOIL-BACKED INSULATION WITH FIRE AND SMOKE RATING 25-50.
- ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
- THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTACTOR PANEL.
- PROVIDE AND INSTALL SMOKE DUCT DETECTORS IN EACH AIR CONDITIONING UNIT RETURN AIR DUCT GREATER THAN 2000 CFM. CONTRACTOR SHALL PROVIDE INTERCONNECTION AND WIRE TO THE FIRE ALARM CONTROL PANEL IF REQUIRED. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS LOCATED NEAR THE RESPECTIVE THERMOSTATS. VERIFY CODE REQUIREMENTS FOR DUCT DETECTORS IN BOTH THE SUPPLY AND RETURN AIR STREAMS.
- THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
- ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN  $\pm 10\%$  OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS AS PER LOCAL CODE. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- PROVIDE VOLUME DAMPER AT EACH SUPPLY, RETURN AND EXHAUST DUCTWORK BRANCH.
- THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
- PROVIDE CORD-OPERATED DAMPERS IN INACCESSIBLE CEILINGS.
- INSTALL SPIRAL/ROUND DUCT IN OPEN AREAS AND RECTANGULAR DUCTING IN CEILING AREAS. PROVIDE INTERNAL INSULATION FOR EXPOSE DUCTING AND EXTERNAL INSULATION FOR DUCTING IN CEILING SPACE.
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**MECHANICAL DUCT INSTALLATION NOTES:**

- GC TO RUN ALL DUCTWORK BETWEEN STRUCTURE AS FEASIBLE AND/OR TIGHT TO UNDERSIDE OF STRUCTURE.
- GC TO PROVIDE SHOP DRAWING FOR REVIEW AND APPROVAL BY ARCHITECT AND OWNER TO CONFIRM FINAL LAYOUT IS ACCEPTABLE.



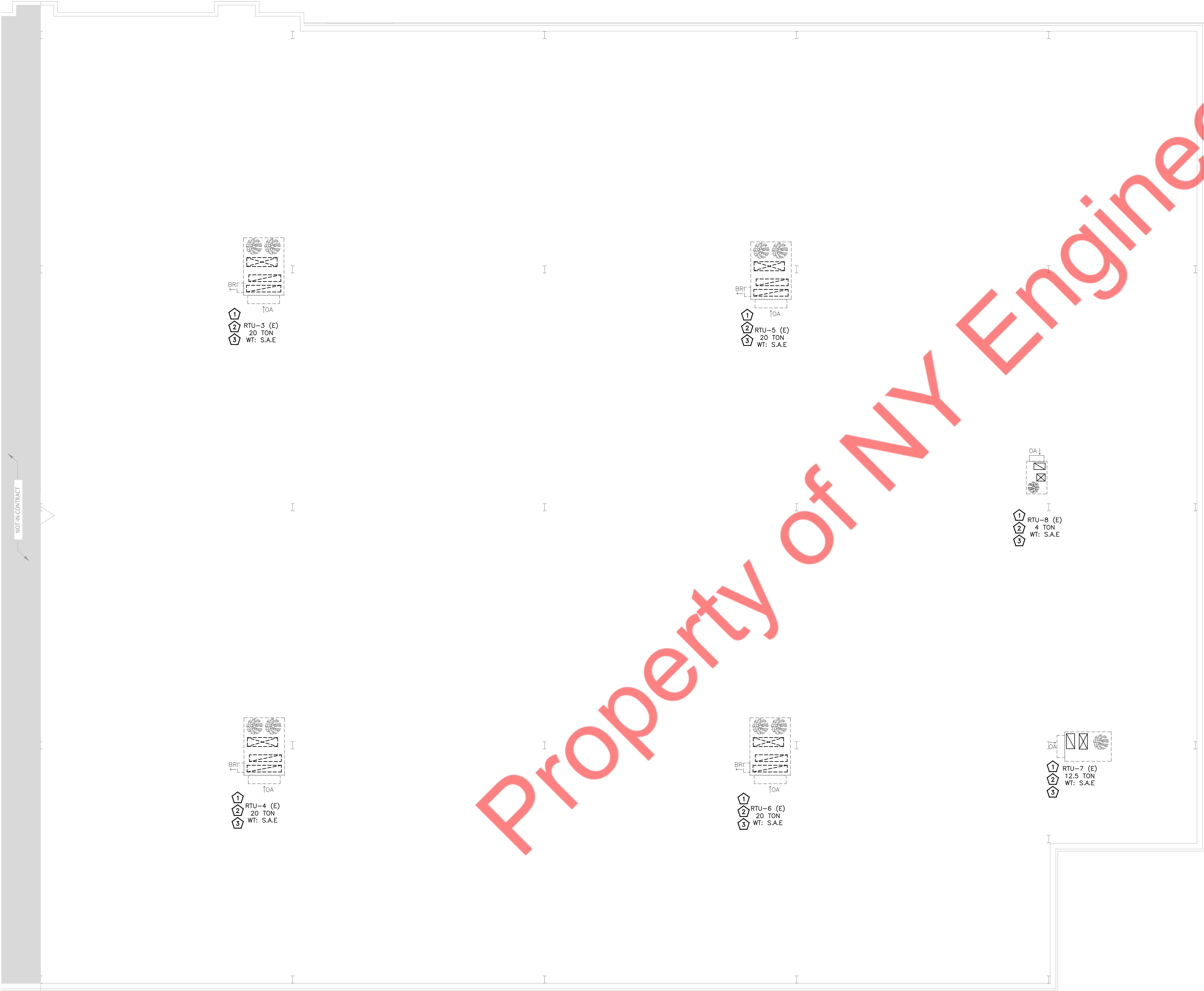
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MEZZANINE FLOOR PLAN

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DRAWN BY: NYE  
REVISIONS:

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**MECHANICAL ROOF PLAN KEY NOTES**

- EXISTING ROOFTOP UNIT TO REMAIN. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES.
- MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. CONTRACTOR TO FIELD VERIFY THAT LOCATION OF ANY EXHAUST SOURCE SHOULD BE AT LEAST 10' AWAY FROM THE RTU'S OUTSIDE AIR INTAKE.
- EXISTING ROOFTOP UNITS TO REMAIN. CONTRACTOR TO VERIFY THE CONDITION AND LOCATION OF THE UNIT. CONTRACTOR SHALL CLEAN AND REFURBISH THE UNIT TO "LIKE-NEW" CONDITION. REPAIR AND/OR REPLACE ANY ACCESSORIES AS REQUIRED TO PROVIDE A FULLY FUNCTIONING UNIT. NOTIFY ARCHITECT/ENGINEER OF ANY DISCREPANCIES PRIOR TO BID AND START OF WORK. EXISTING CONDENSATE DRAIN FOR THE UNIT TO REMAIN.

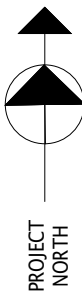
**MECHANICAL ROOF PLAN GENERAL NOTES**

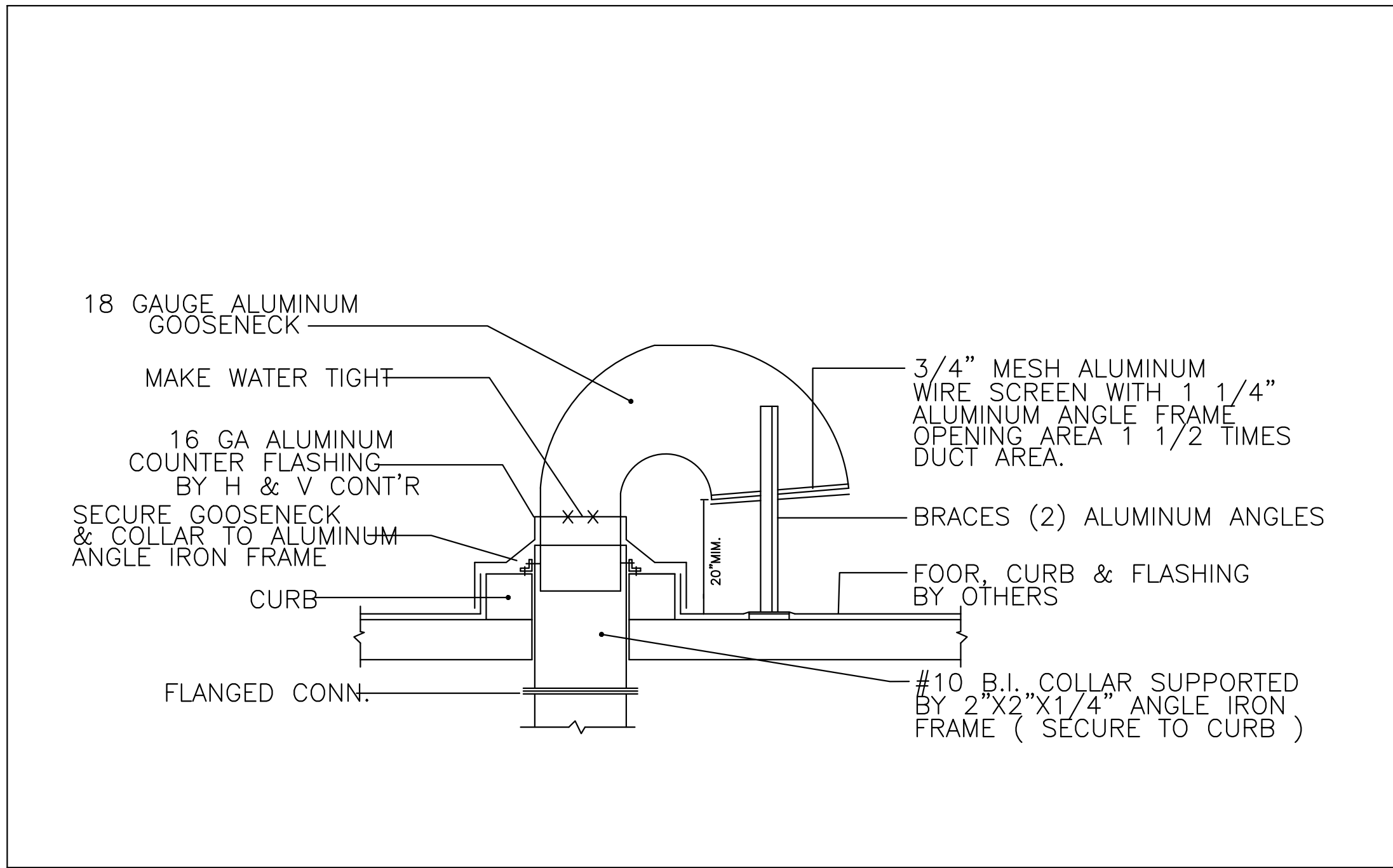
- ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.
- TEST AND BALANCE AIR SYSTEMS AS PER MECHANICAL SCHEDULE. PROVIDE REPORT TO G.C AND OWNER.

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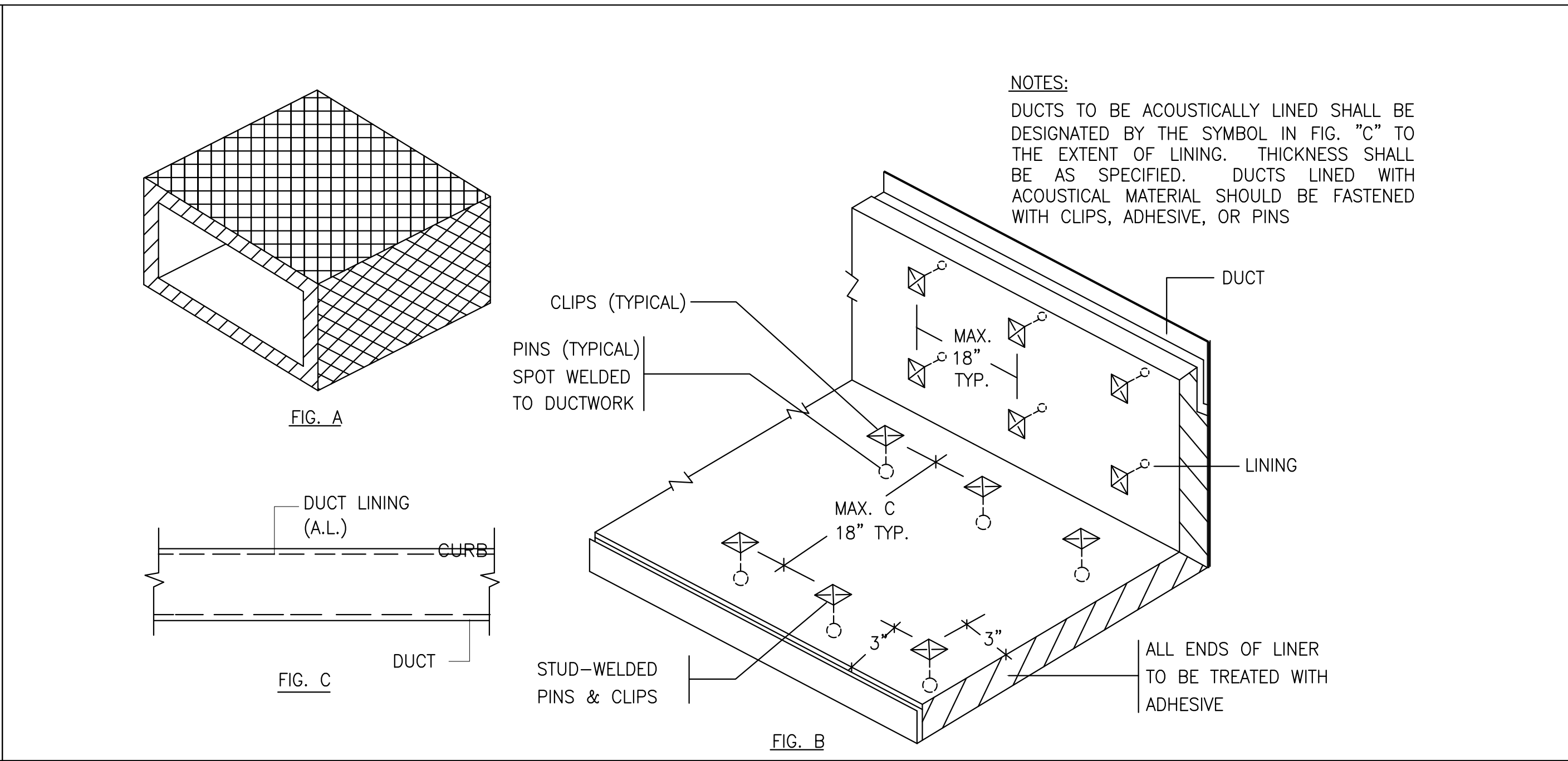
MECHANICAL ROOF PLAN

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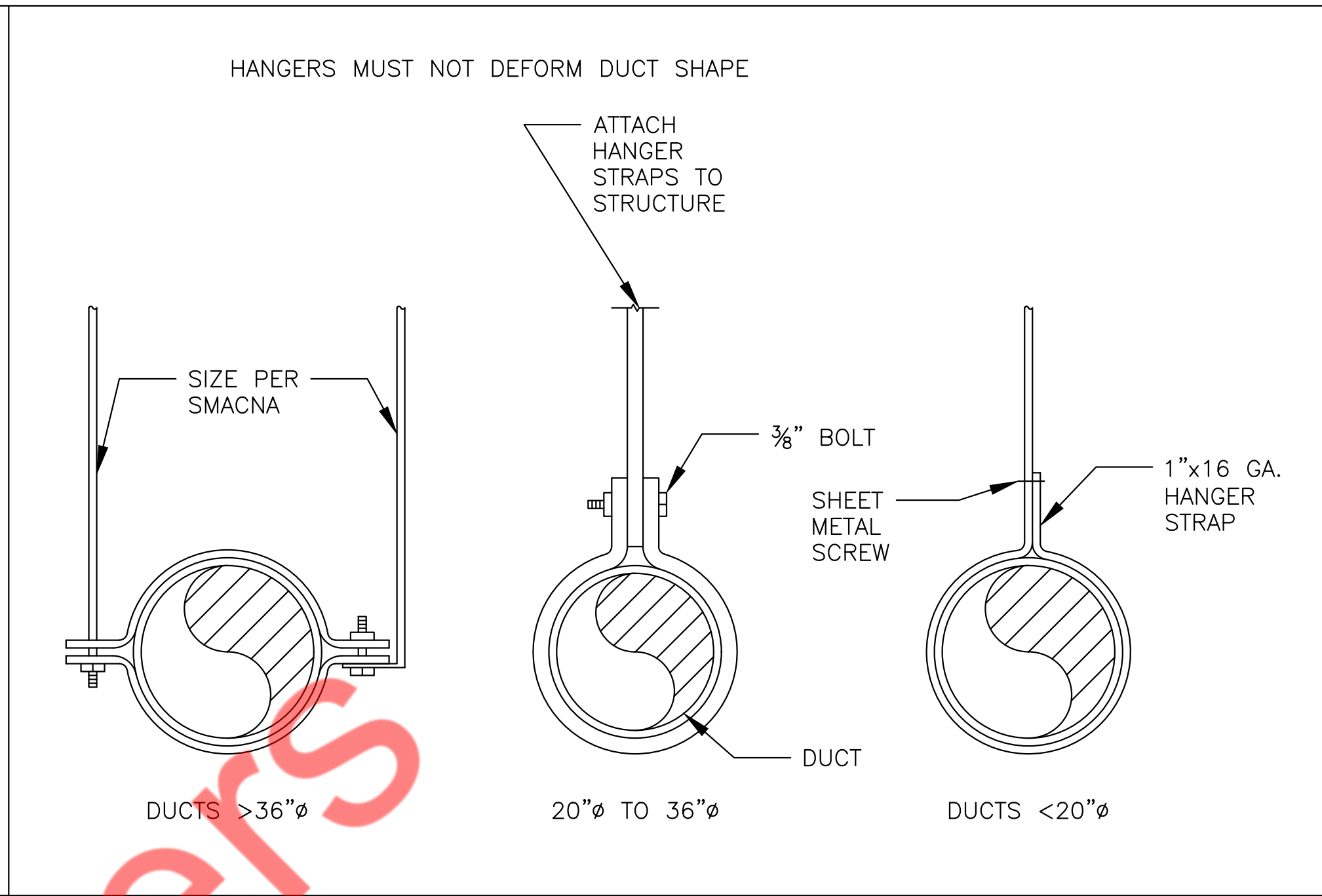




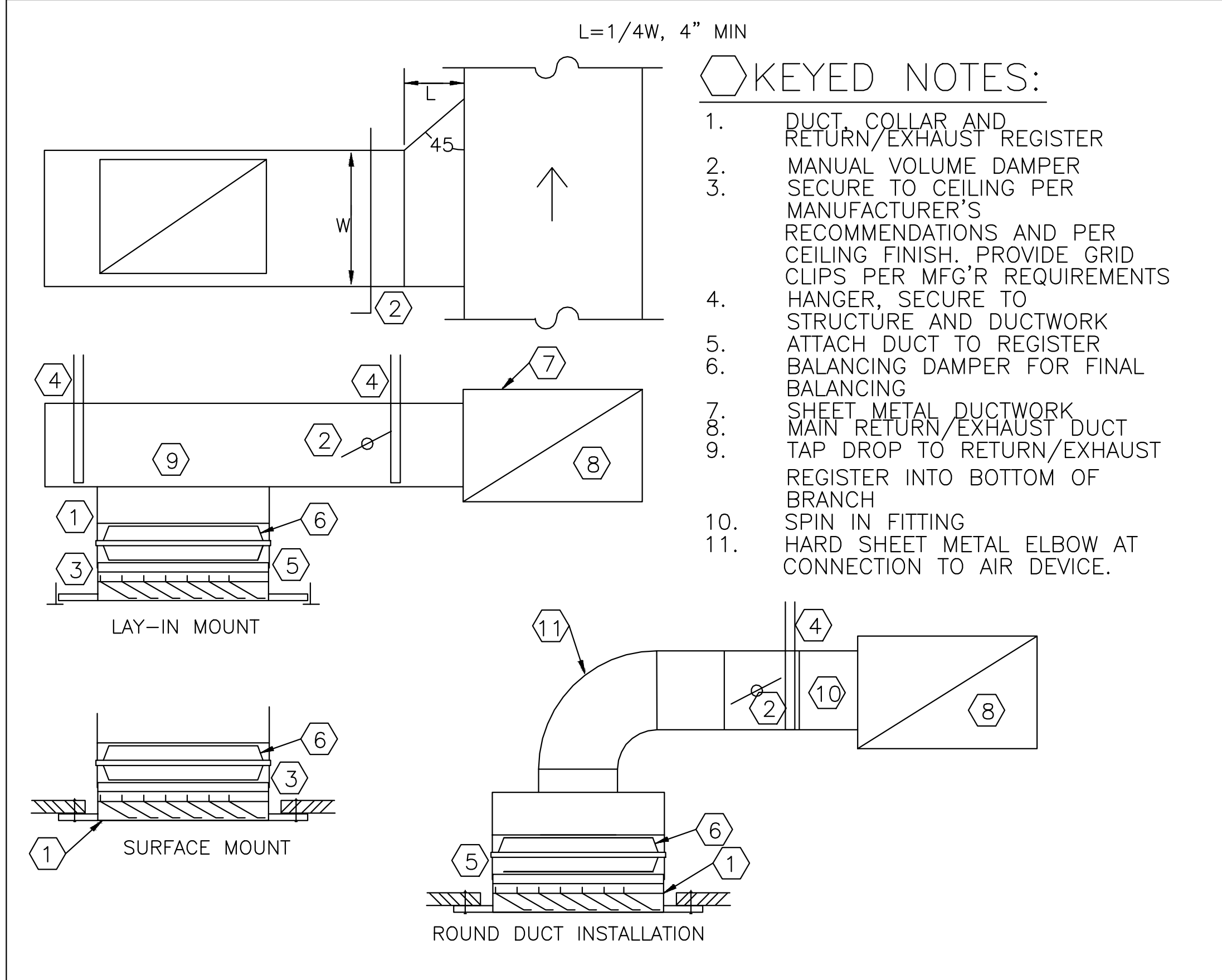
1 GOOSENECK DETAIL  
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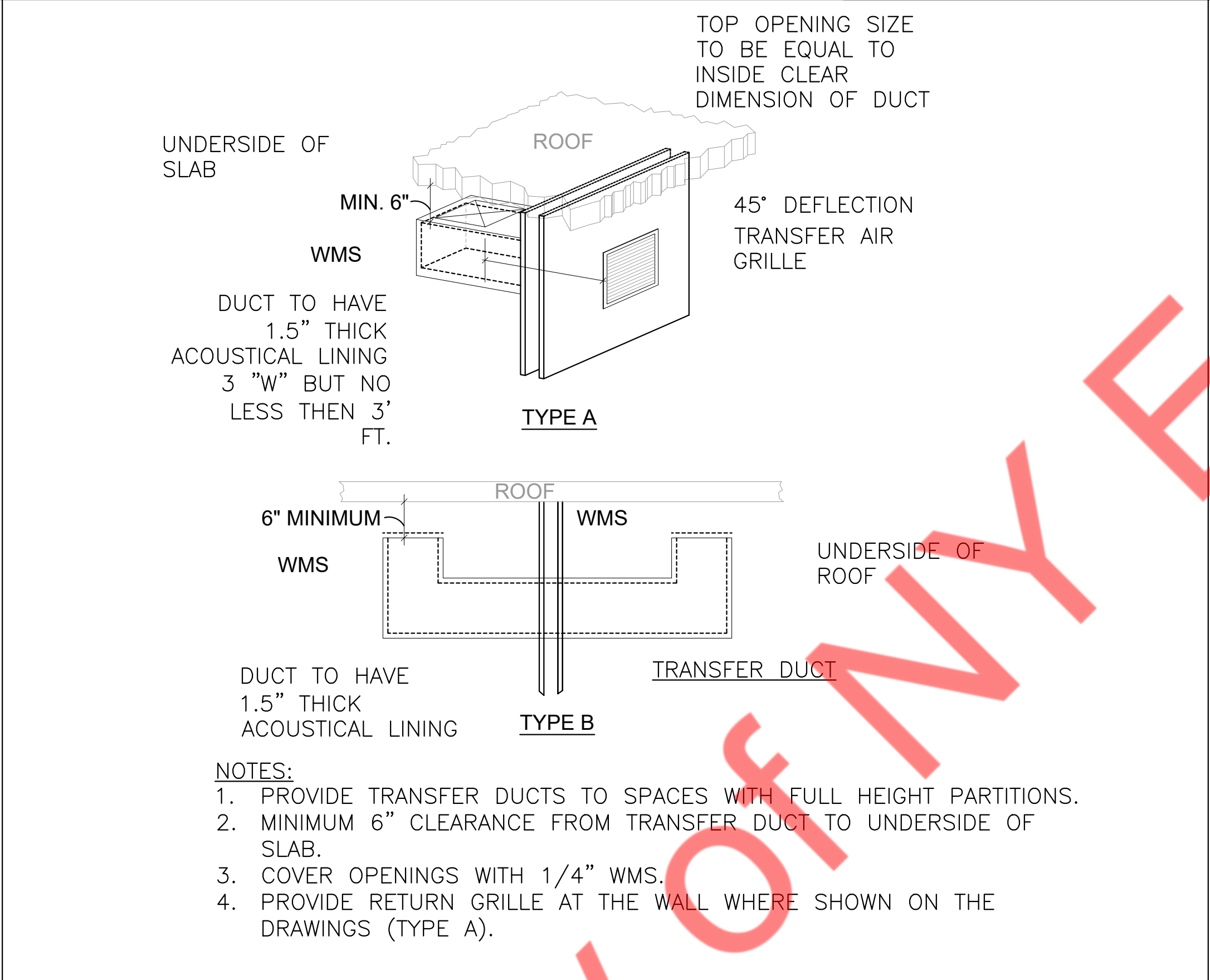
2 ACOUSTICAL TREATMENT DUCT LINING  
N.T.S



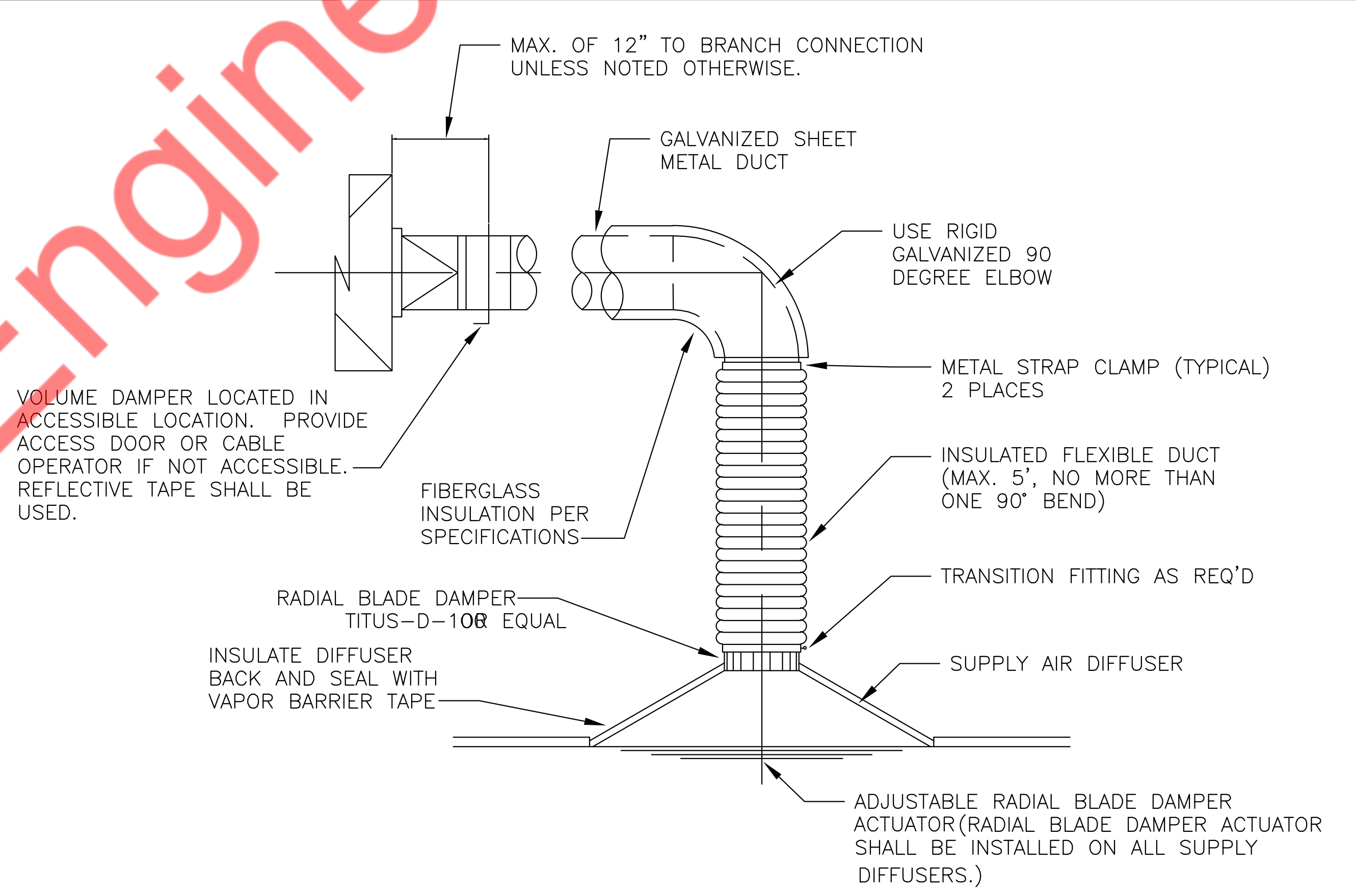
3 ROUND DUCT SUPPORT DETAIL  
N.T.S



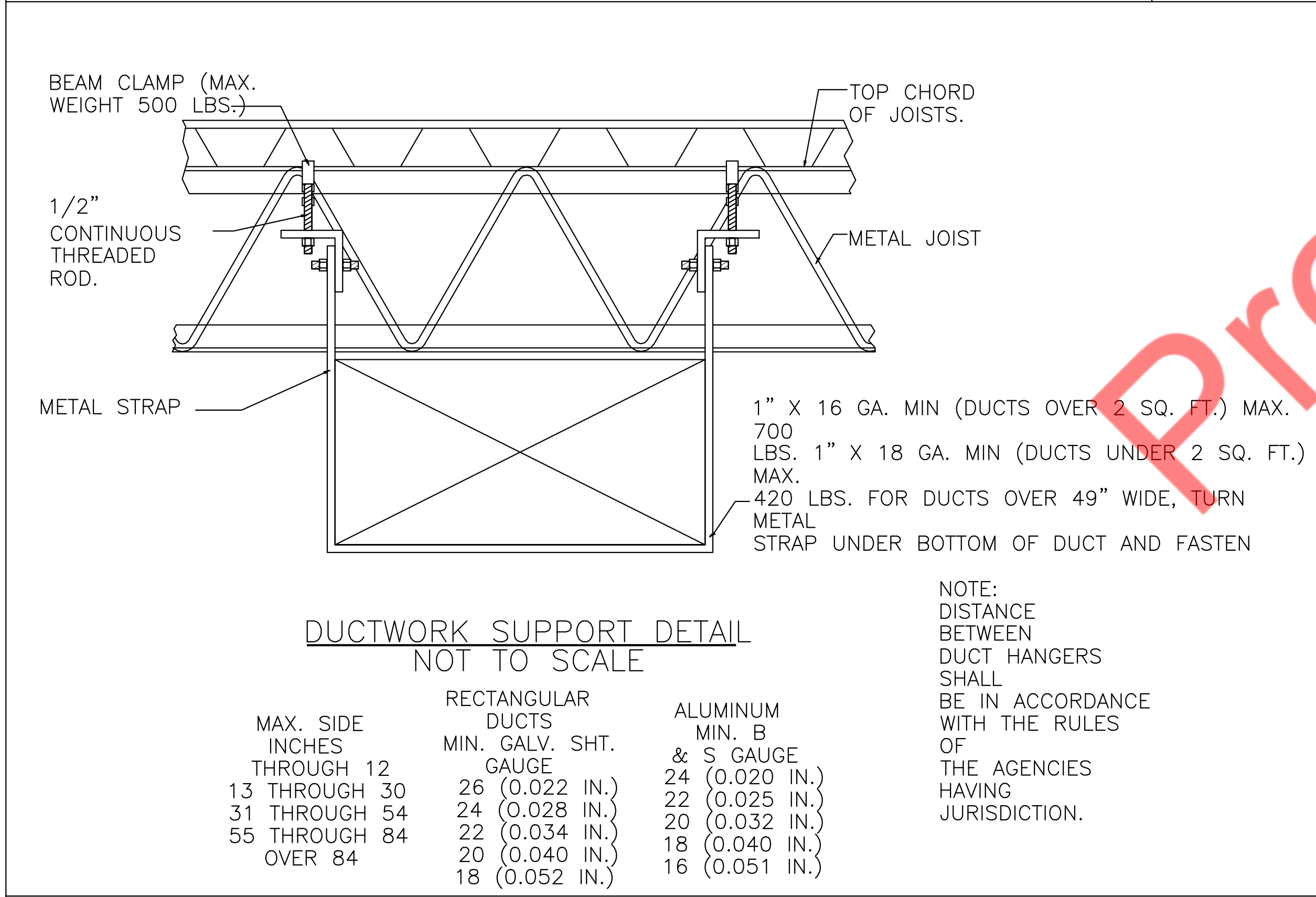
4 RETURN/EXHAUST REGISTER INSTALLATION  
N.T.S



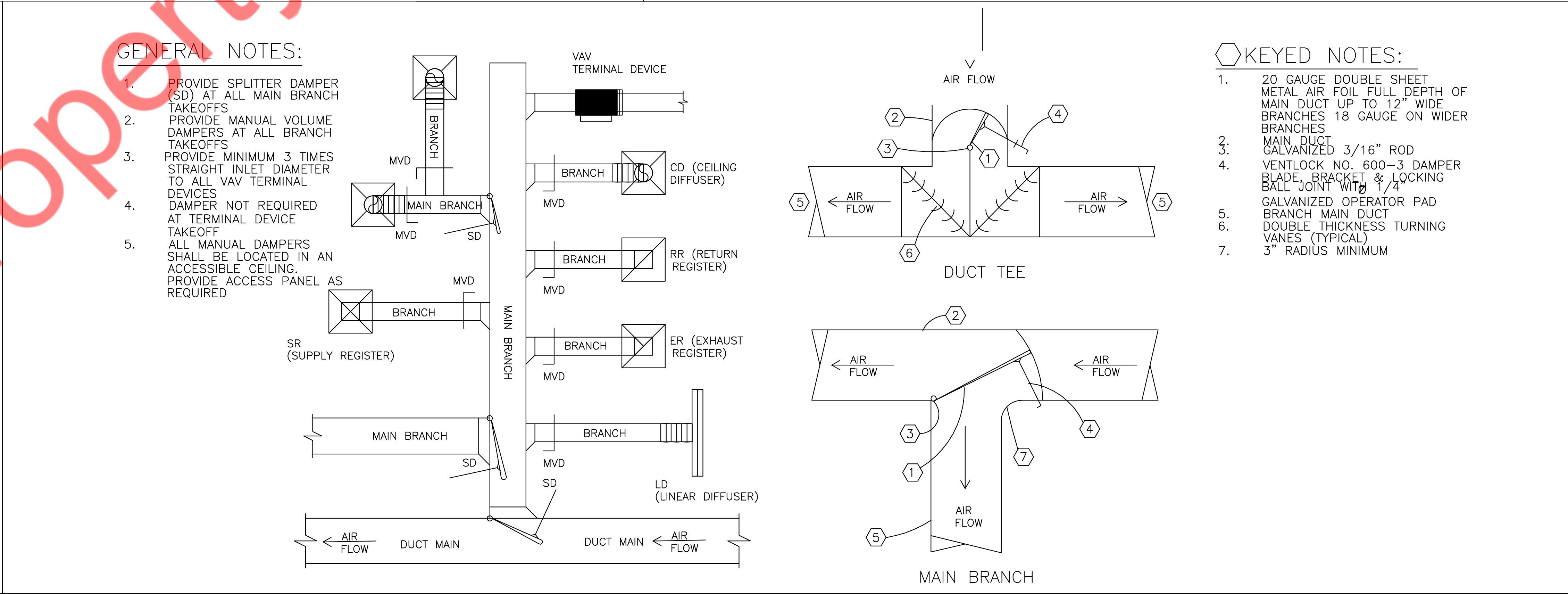
5 TRANSFER AIR DUCT DETAILS  
N.T.S



6 SUPPLY DIFFUSER INSTALLATION  
N.T.S



7 DUCT SUPPORT DETAILS  
N.T.S



8 MANUAL DAMPER DETAIL  
N.T.S

NRG ADVENTURE PARK

MECHANICAL DETAILS

DATE: 2025.05.09  
DRAWN BY: NTE  
REVISIONS:

M3.10

PERMIT SET

| ROOF TOP UNIT SCHEDULE                                                                                                                                                    |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|------------------------|-------------|--------------|------------|---------|-----------------|--------------|--------------|--------------------|-----------|-------|----------|---------|--------------|-------------|------------|------------|------------|-------|-------|-------|------------------------|-------|
| MARK                                                                                                                                                                      | MANUFACTURER | MODEL NO.              | AREA SERVED | NOMINAL TONS | SUPPLY FAN |         |                 |              | GAS HEATING  |                    |           |       | COOLING  |         |              |             | ELECTRICAL |            |            |       | EER   | IEER  | OPERATING WEIGHT (LBS) | NOTES |
|                                                                                                                                                                           |              |                        |             |              | TOTAL      | OUTSIDE | EXTERNAL STATIC | CAPACITY MBH | CAPACITY MBH | THERMAL EFFICIENCY | TEMP RISE | TOTAL | SENSIBLE | AMBIENT | ENTERING     | VOLTS       | PHASE      | MCA (A)    | MOP (A)    |       |       |       |                        |       |
|                                                                                                                                                                           |              |                        |             |              | CFM        | AIR CFM | (IN. W.G.)      | INPUT        | OUTPUT       | (%)                | (°F)      | MBH   | MBH      | DB (°F) | DB / WB (°F) |             |            |            |            |       |       |       |                        |       |
| RTU-3 (E)                                                                                                                                                                 | TRANE        | GCC240A4EHA00 (V.I.F)  | SEE PLAN    | 20.0         | 8000       | 2330    | 1.6 (V.I.F)     | 380 (V.I.F)  | 307 (V.I.F)  | S.A.E              | S.A.E     | S.A.E | S.A.E    | S.A.E   | S.A.E        | 460 (V.I.F) | 3 (V.I.F)  | 49 (V.I.F) | 60 (V.I.F) | S.A.E | S.A.E | S.A.E | 1-3                    |       |
| RTU-4 (E)                                                                                                                                                                 | TRANE        | GCC240A4EHA00 (V.I.F)  | SEE PLAN    | 20.0         | 8000       | 2330    | 1.6 (V.I.F)     | 380 (V.I.F)  | 307 (V.I.F)  | S.A.E              | S.A.E     | S.A.E | S.A.E    | S.A.E   | S.A.E        | 460 (V.I.F) | 3 (V.I.F)  | 49 (V.I.F) | 60 (V.I.F) | S.A.E | S.A.E | S.A.E | 1-3                    |       |
| RTU-5 (E)                                                                                                                                                                 | TRANE        | GCC240A4EHA00 (V.I.F)  | SEE PLAN    | 20.0         | 8000       | 2330    | 1.6 (V.I.F)     | 380 (V.I.F)  | 307 (V.I.F)  | S.A.E              | S.A.E     | S.A.E | S.A.E    | S.A.E   | S.A.E        | 460 (V.I.F) | 3 (V.I.F)  | 49 (V.I.F) | 60 (V.I.F) | S.A.E | S.A.E | S.A.E | 1-3                    |       |
| RTU-6 (E)                                                                                                                                                                 | TRANE        | GCC240A4EHA00 (V.I.F)  | SEE PLAN    | 20.0         | 8000       | 2335    | 1.6 (V.I.F)     | 380 (V.I.F)  | 307 (V.I.F)  | S.A.E              | S.A.E     | S.A.E | S.A.E    | S.A.E   | S.A.E        | 460 (V.I.F) | 3 (V.I.F)  | 49 (V.I.F) | 60 (V.I.F) | S.A.E | S.A.E | S.A.E | 1-3                    |       |
| RTU-7 (E)                                                                                                                                                                 | TRANE        | YSJ150A450H02D (V.I.F) | SEE PLAN    | 12.5         | 5000       | 925     | 2 (V.I.F)       | 250 (V.I.F)  | 202 (V.I.F)  | S.A.E              | S.A.E     | S.A.E | S.A.E    | S.A.E   | S.A.E        | 460 (V.I.F) | 3 (V.I.F)  | 33 (V.I.F) | 45 (V.I.F) | S.A.E | S.A.E | S.A.E | 1-3                    |       |
| RTU-8 (E)                                                                                                                                                                 | TRANE        | YSC048G4EH02F0 (V.I.F) | SEE PLAN    | 4.0          | 1600       | 270     | 1.2 (V.I.F)     | 130 (V.I.F)  | 105 (V.I.F)  | S.A.E              | S.A.E     | S.A.E | S.A.E    | S.A.E   | S.A.E        | 460 (V.I.F) | 3 (V.I.F)  | 12 (V.I.F) | 15 (V.I.F) | S.A.E | S.A.E | S.A.E | 1-3                    |       |
| NOTES / ACCESSORIES -                                                                                                                                                     |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| S.A.E: SAME AS EXISTING                                                                                                                                                   |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| V.I.F: VERIFY IN FIELD                                                                                                                                                    |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| 1 EXISTING RTU WITH ALL ACCESSORIES TO REMAIN SAME AND TO BE REUSED.                                                                                                      |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| 2 CONTRACTOR SHALL PROVIDE 100% OUTSIDE AIR ECONOMIZER ACCESSORY FOR ALL THE RTUS.                                                                                        |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| 3 CONTRACTOR TO FIELD VERIFY IF RTU IS WORKING AT ITS 100% RATED CAPACITY. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION. |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| 4 CONTRACTOR TO REBALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING RTU TO MATCH VALUES MENTIONED IN ABOVE TABLE                                                       |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |
| 5 REPLACE WITH NEW FILTERS                                                                                                                                                |              |                        |             |              |            |         |                 |              |              |                    |           |       |          |         |              |             |            |            |            |       |       |       |                        |       |

| FAN SCHEDULE                                      |              |         |     |        |        |         |              |                   |          |       |       |     |     |          |                  |                     |
|---------------------------------------------------|--------------|---------|-----|--------|--------|---------|--------------|-------------------|----------|-------|-------|-----|-----|----------|------------------|---------------------|
| UNIT ID                                           | MANUFACTURER | MODEL   | CFM | TYPE   | DRIVE  | FAN RPM | WEIGHT (LBS) | E.S.P. (IN. W.G.) | MOTOR HP | VOLTS | PHASE | MCA | MOP | SERVICE  | INTERLOCKED WITH | NOTES / ACCESSORIES |
| KEF-1 (N)                                         | GREENHECK    | BSQ-90  | 350 | INLINE | BELT   | 1238    | 77           | 0.5               | 0.12     | 460   | 3     | 1.4 | 15  | KITCHEN  | RTU-6 (E)        | 1,2,3,4             |
| EF-1 (N)                                          | GREENHECK    | SQ-9-M1 | 840 | INLINE | DIRECT | 1750    | 52           | 0.67              | 0.19     | 460   | 3     | 1.4 | 15  | SEE PLAN | RTU-5 (E)        | 1,2,3,4             |
| NOTES / ACCESSORIES:                              |              |         |     |        |        |         |              |                   |          |       |       |     |     |          |                  |                     |
| 1. AMCA SEAL & UL CERTIFIED                       |              |         |     |        |        |         |              |                   |          |       |       |     |     |          |                  |                     |
| 2. PROVIDE WITH THERMAL OVERLOAD PROTECTION       |              |         |     |        |        |         |              |                   |          |       |       |     |     |          |                  |                     |
| 3. PROVIDE VIBRATION ISOLATORS, CANVAS CONNECTION |              |         |     |        |        |         |              |                   |          |       |       |     |     |          |                  |                     |
| 4. PROVIDE BACKDRAFT DAMPER                       |              |         |     |        |        |         |              |                   |          |       |       |     |     |          |                  |                     |

| MECHANICAL AIR TERMINAL SCHEDULE                                                     |         |                            |              |        |                 |        |
|--------------------------------------------------------------------------------------|---------|----------------------------|--------------|--------|-----------------|--------|
| TAG                                                                                  | SIZE    | DESCRIPTION                | CONSTRUCTION | FINISH | BASIS OF DESIGN |        |
|                                                                                      |         |                            |              |        | MANUFACTURER    | MODEL  |
| CSR                                                                                  | 60"x60" | SUPPLY/RETURN AIR DIFFUSER | ALUMINUM     | WHITE  | TITUS           | CSR-P  |
| CDS-1                                                                                | 24"x24" | SUPPLY AIR DIFFUSER        | ALUMINUM     | WHITE  | TITUS           | TMS-AA |
| SG-1                                                                                 | 18"x18" | SUPPLY AIR GRILLE          | ALUMINUM     | WHITE  | TITUS           | 300FL  |
| RG-1                                                                                 | 24"x10" | RETURN AIR GRILLE          | ALUMINUM     | WHITE  | TITUS           | 50F    |
| CDR-1                                                                                | 24"x24" | RETURN AIR GRILLE          | STEEL        | WHITE  | TITUS           | 50F    |
| CDR-2                                                                                | 6"x6"   | RETURN AIR GRILLE          | STEEL        | WHITE  | TITUS           | 50F    |
| CDR-3                                                                                | 36"x24" | RETURN AIR GRILLE          | STEEL        | WHITE  | TITUS           | 50F    |
| TG-1                                                                                 | 8"x8"   | TRANSFER GRILLE            | STEEL        | WHITE  | TITUS           | 50F    |
| TG-2                                                                                 | 22"x14" | TRANSFER GRILLE            | STEEL        | WHITE  | TITUS           | 50F    |
| TG-3                                                                                 | 8"x6"   | TRANSFER GRILLE            | STEEL        | WHITE  | TITUS           | 50F    |
| EG-1                                                                                 | 24"x24" | EXHAUST AIR GRILLE         | STEEL        | WHITE  | TITUS           | 50F    |
| EG-2                                                                                 | 12"x12" | EXHAUST AIR GRILLE         | STEEL        | WHITE  | TITUS           | 50F    |
| NOTES:                                                                               |         |                            |              |        |                 |        |
| 1. MAX. NC LEVEL 20 OR LESS.                                                         |         |                            |              |        |                 |        |
| 2. COORDINATE WITH ARCHITECT/OWNER FOR FINAL MOUNTING, FRAME TYPE, PAINT AND FINISH. |         |                            |              |        |                 |        |
| 3. PROVIDE INSULATED BACKS ON ALL DIFFUSERS/GRILLE.                                  |         |                            |              |        |                 |        |
| FOR ROUND NECK DIFFUSERS:                                                            |         |                            |              |        |                 |        |
| 6" DIA: 0-120 CFM                                                                    |         |                            |              |        |                 |        |
| 8" DIA: 125-220CFM                                                                   |         |                            |              |        |                 |        |
| 10" DIA: 225-400 CFM                                                                 |         |                            |              |        |                 |        |
| 12" DIA: 405-550 CFM                                                                 |         |                            |              |        |                 |        |
| 14" DIA: 550-650 CFM                                                                 |         |                            |              |        |                 |        |

| VENTILATION CALCULATIONS |                   |               |                                            |                                  |                                     |                  |                                         |      |          |              |                                        |                      |                          |
|--------------------------|-------------------|---------------|--------------------------------------------|----------------------------------|-------------------------------------|------------------|-----------------------------------------|------|----------|--------------|----------------------------------------|----------------------|--------------------------|
| ZONE                     | ROOM NAME         | AREA (SQ.FT.) | NUMBER OF PEOPLE/1000sq.ft AS PER 2021 IMC | NUMBER OF PEOPLE AS PER 2021 IMC | NUMBER OF PEOPLE AS PER ARCH LAYOUT | FINAL PEOPLE NO. | MIN OUTSIDE AIR AS PER ASHRAE 62.1-2019 |      | REQ. OSA | PROVIDED OSA | EXHAUST AIRFLOW RATE (CFM)/(CFM/SQ.FT) | REQ. EXHAUST AIRFLOW | PROVIDED EXHAUST AIRFLOW |
| 106                      | PARTY ROOM-1      | 357           | 120                                        | 43                               | 24                                  | 24               | 5                                       | 0.06 | 141      | 150          | -                                      | -                    | -                        |
| 107                      | MEN'S RESTROOM    | 199           | -                                          | -                                | -                                   | -                | -                                       | -    | -        | -            | 70.0                                   | 280                  | 280                      |
| 108                      | WOMEN'S RESTROOM  | 254           | -                                          | -                                | -                                   | -                | -                                       | -    | -        | -            | 70.0                                   | 420                  | 420                      |
| 109                      | JANITOR           | 25            | -                                          | -                                | -                                   | -                | -                                       | -    | -        | -            | 70.0                                   | 70                   | 70                       |
| 110                      | OFFICE-2          | 75            | 5                                          | 1                                | 1                                   | 1                | 5                                       | 0.06 | 10       | 10           | -                                      | -                    | -                        |
| 111                      | FAMILY RESTROOM   | 75            | -                                          | -                                | -                                   | -                | -                                       | -    | -        | -            | 70.0                                   | 70                   | 70                       |
| 100                      | VESTIBLE          | 253           | 10                                         | 3                                | -                                   | -                | 5                                       | 0.06 | 15       | 15           | -                                      | -                    | -                        |
| 101                      | ENTRY STANDING    | 1288          | 10                                         | 13                               | 48                                  | 48               | 5                                       | 0.06 | 317      | 320          | -                                      | -                    | -                        |
| 102                      | OFFICE            | 68            | 5                                          | 1                                | 1                                   | 1                | 5                                       | 0.06 | 9        | 10           | -                                      | -                    | -                        |
| 103                      | RECEPTION         | 410           | 30                                         | 13                               | 3                                   | 3                | 5                                       | 0.06 | 40       | 40           | -                                      | -                    | -                        |
| 117                      | PLAY AREA-1       | 6714          | 7                                          | 47                               | 154                                 | 134              | 7.5                                     | 0.18 | 2214     | 2215         | -                                      | -                    | -                        |
| 118                      | PLAY AREA-2       | 13364         | 7                                          | 94                               | 173                                 | 144              | 7.5                                     | 0.18 | 3486     | 3490         | -                                      | -                    | -                        |
| 105                      | ARCADÉ            | 6497          | 20                                         | 130                              | 122                                 | 122              | 7.5                                     | 0.18 | 2084     | 2085         | -                                      | -                    | -                        |
| 112                      | SEATING AREA      | 2802          | 70                                         | 197                              | 75                                  | 65               | 7.5                                     | 0.18 | 992      | 990          | -                                      | -                    | -                        |
| 114                      | KITCHEN           | 477           | 20                                         | 10                               | 3                                   | 3                | 7.5                                     | 0.12 | 80       | 80           | 0.7                                    | 334                  | 380                      |
| 115                      | KITCHEN STORAGE   | 287           | -                                          | -                                | 1                                   | 1                | -                                       | 0.12 | 34       | 35           | -                                      | -                    | -                        |
| 116                      | STORAGE/BREAKROOM | 1018          | -                                          | -                                | 16                                  | 16               | -                                       | 0.12 | 122      | 125          | -                                      | -                    | -                        |
| 200                      | OFFICE-3          | 88            | 5                                          | 1                                | 1                                   | 1                | 5                                       | 0.06 | 10       | 10           | -                                      | -                    | -                        |
| 201                      | IT/CASH ROOM      | 53            | 5                                          | 1                                | 1                                   | 1                | 5                                       | 0.06 | 8        | 10           | -                                      | -                    | -                        |
| 202                      | PARTY ROOM-2      | 300           | 120                                        | 36                               | 21                                  | 21               | 5                                       | 0.06 | 123      | 125          | -                                      | -                    | -                        |
| 203                      | PARTY ROOM-3      | 300           | 120                                        | 36                               | 21                                  | 21               | 5                                       | 0.06 | 123      | 125          | -                                      | -                    | -                        |
| 204                      | PARTY ROOM-4      | 300           | 120                                        | 36                               | 21                                  | 21               | 5                                       | 0.06 | 123      | 125          | -                                      | -                    | -                        |
| 205                      | PARTY ROOM-5      | 300           | 120                                        | 36                               | 21                                  | 21               | 5                                       | 0.06 | 123      | 125          | -                                      | -                    | -                        |
| 206                      | PARTY ROOM-6      | 347           | 120                                        | 42                               | 24                                  | 24               | 5                                       | 0.06 | 141      | 125          | -                                      | -                    | -                        |
| 207                      | PREP ROOM         | 48            | -                                          | -                                | -                                   | -                | -                                       | -    | -        | -            | -                                      | -                    | -                        |
| 208                      | SEATING ROOM      | 1163          | 50                                         | 59                               | 15                                  | 15               | 7.5                                     | 0.06 | 182      | 185          | -                                      | -                    | -                        |
| 209                      | PARTY ROOM-7      | 529           | 120                                        | 64                               | 18                                  | 18               | 5                                       | 0.06 | 122      | 125          | -                                      | -                    | -                        |
| TOTAL                    |                   | 37591         | -                                          | -                                | -                                   | 705              | -                                       | -    | -        | 10520        | -                                      | -                    | 1190                     |

| AIR BALANCE        |             |            |             |             |
|--------------------|-------------|------------|-------------|-------------|
| UNIT               | AREA SERVED | SUPPLY AIR | OUTSIDE AIR | EXHAUST AIR |
| RTU-3 (E)          | SEE PLAN    | 8000 CFM   | 2330 CFM    | 5670 CFM    |
| RTU-4 (E)          | SEE PLAN    | 8000 CFM   | 2330 CFM    | 5670 CFM    |
| RTU-5 (E)          | SEE PLAN    | 8000 CFM   | 2330 CFM    | 5670 CFM    |
| RTU-6 (E)          | SEE PLAN    | 8000 CFM   | 2335 CFM    | 5665 CFM    |
| RTU-7 (E)          | SEE PLAN    | 5000 CFM   | 925 CFM     | 4075 CFM    |
| RTU-8 (E)          | SEE PLAN    | 1600 CFM   | 270 CFM     | 1330 CFM    |
| KEF-1 (N)          | KITCHEN     | -          | -           | 350 CFM     |
| EF-1 (N)           | RESTROOMS   | -          | -           | 840 CFM     |
| TOTAL:             |             | 38600 CFM  | 10520 CFM   | 28080 CFM   |
| BUILDING PRESSURE: |             | 9330 CFM   | POSITIVE    |             |

NRG ADVENTURE PARK

MECHANICAL SCHEDULES

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

M4.10

PERMIT SET

| PLUMBING LEGEND |                                      |
|-----------------|--------------------------------------|
| SYMBOL          | DESCRIPTION                          |
| — SAN —         | SANITARY WASTE (ABOVE FLOOR)         |
| — SAN- —        | SANITARY SEWER (UNDER FLOOR)         |
| — G SAN —       | GREASE SANITARY PIPING (UNDER FLOOR) |
| -----           | VENT PIPING                          |
| -----C-----     | GAS PIPING                           |
| -----           | COLD WATER                           |
| -----           | HOT WATER                            |
| -----           | HOT WATER RETURN                     |
| -----O-----     | P--TRAP                              |
| -----O-----     | PIPE DROP                            |
| -----O-----     | PIPE UP                              |
| -----[S]-----   | BALANCING VALVE                      |
| -----+-----     | SHUT-OFF VALVE                       |
| -----+-----     | GAS PLUG VALVE                       |
| -----●-----     | POINT OF NEW CONNECTION              |

#### PLUMBING ABBREVIATIONS

|      |                      |
|------|----------------------|
| CO   | CLEANOUT             |
| COOP | CLEAN OUT DECK PLATE |
| CW   | COLD WATER           |
| HW   | HOT WATER            |
| HWR  | HOT WATER RETURN     |
| SAN  | SANITARY             |
| S    | SOIL                 |
| W    | WASTE                |
| LAV  | LAVATORY             |
| WC   | WATER CLOSET         |
| TYP. | TYPICAL              |
| DN   | DOWN                 |
| EX.  | EXISTING             |
| AF   | ABOVE FINISH FLOOR   |
| FD   | FLOOR DRAIN          |
| BF   | BACK FLOW PREVENTER  |
| WH   | HOT WATER HEATER     |
| SV   | SHUTOFF VALVE        |
| RCP  | RECIRCULATION PUMP   |
| ET   | EXPANSION TANK       |
| HB   | HOSE BIBB            |
| FS   | FLOOR SINK           |
| MS   | MOP SINK             |
| IW   | INDIRECT WASTE       |

#### PLUMBING DRAWING LIST

|       |                                                        |
|-------|--------------------------------------------------------|
| P0.01 | PLUMBING SYMBOLS, ABBREVIATIONS, NOTES & SPECIFICATION |
| P1.00 | FIRST FLOOR OVERALL PLUMBING PLAN                      |
| P1.01 | FIRST FLOOR PLUMBING ENLARGED PLANS                    |
| P1.02 | MEZZANINE FLOOR PLUMBING OVERALL PLAN                  |
| P1.03 | MEZZANINE FLOOR PLUMBING ENLARGED PLANS                |
| P1.04 | PLUMBING STUB-UP PLAN                                  |
| P3.10 | PLUMBING DETAILS (1 OF 2)                              |
| P3.20 | PLUMBING DETAILS (2 OF 2)                              |
| P5.10 | PLUMBING SCHEDULES, SANITARY, VENT & GAS SUPPLY RISER  |
| P5.20 | PLUMBING WATER SUPPLY RISER                            |

#### CODE COMPLIANCE

ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT.

- 2021 INTERNATIONAL BUILDING CODE WITH AMENDMENTS.
- 2021 INTERNATIONAL EXISTING BUILDING CODE WITH AMENDMENTS
- 2021 INTERNATIONAL MECHANICAL CODE WITH AMENDMENTS.
- 2018 NORTH DAKOTA STATE PLUMBING CODE (UPC 2018)
- 2023 NATIONAL ELECTRICAL CODE (NEC)
- 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
- 2021 INTERNATIONAL FUEL GAS CODE WITH AMENDMENTS

#### BUILDING DEPARTMENT PLUMBING NOTES

- ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER AND GAS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE LOCAL AMENDMENTS TO REQUIREMENTS OF 2018 NORTH DAKOTA STATE PLUMBING CODE, & 2021 INTERNATIONAL ENERGY CONSERVATION CODE.
- INSTALLATION OF DRAINAGE PIPING UNDERGROUND AND ABOVEGROUND SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION CP 701.2.
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION CP 312.
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IN PC 318, PC 503, PC 609.4, PC 712, PC 701, PC 803.1 & 814.3, PC 903 & PC 1001.1.
- EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 4, 5, 6, 7, 8, 9, AND 10.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER CHAPTER 10 AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENT OF SECTION PC 707.
- GREASE INTERCEPTOR SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 1014.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION CP 313.
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 609, 610.

- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTION PC 901 THROUGH PC 909.

- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF SECTION PC 318, PC 503, PC 609.4, PC 712, PC 723, PC 1107.
- GAS PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH 2021 NORTH DAKOTA STATE PLUMBING CODE CHAPTER 4.

#### PLUMBING SPECIFICATIONS:

##### 1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS

###### 1.01 SCOPE

A. PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.

C. OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.

D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.

E. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.

F. N. ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE SUBSTITUTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.

G. ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.

H. COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.

I. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.

J. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.

K. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

###### 1.02 SUBMITTALS

A. SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.

- PIPE AND FITTINGS
- VALVES
- HANGERS AND SUPPORTS
- PLUMBING PIPING LAYOUT
- TESTS
- PLUMBING FIXTURES
- WATER HEATERS & ACCESSORIES
- FLOOR DRAINS
- MIXING VALVES
- ALL SCHEDULED PLUMBING EQUIPMENT

B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.

C. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.

D. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.

E. SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVICING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.

F. FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.

G. RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.

###### 1.03 SUBSTITUTIONS

A. ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER'S OR MANUFACTURERS' EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.

B. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.

###### 1.04 DEFINITIONS

A. FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.

B. INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.

C. PROVIDE: TO FURNISH AND INSTALL.

D. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.

E. REFER TO THE 2018 NORTH DAKOTA STATE PLUMBING CODE FOR ADDITIONAL DEFINITIONS.

###### 1.04 DRAWINGS

A. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.

B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.

C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.

D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.

E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBL CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.

F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

##### 1.05 PRODUCTS

###### A. SANITARY AND VENT PIPING:

- ABOVE GRADE/UNDERGROUND PIPING SHALL BE PVC SCHEDULE 40 PIPE FOR ALL SOIL, WASTE AND VENT PIPING WHERE PERMITTED BY LOCAL CODES. WHERE PVC PIPING IS NOT PERMITTED BY LOCAL CODES, USE STANDARD WEIGHT CAST IRON ASTEM A74/CISPI 30PPING

- SLOPE OF DRAINAGE SYSTEM SHALL BE 1/4" PER FOOT OF RUN FOR PIPE LESS THAN 4" AND 1/8" PER FOOT OF RUN FOR PIPE 4" TO 6". FOR GREASE WASTE SYSTEM SHALL BE 1/4" PER FOOT OF RUN THROUGHOUT ALL PIPE SIZE.

- PVC OR OTHER COMBUSTIBLE PLASTIC PIPING SHALL NOT BE INSTALLED IN CEILING PLENUM SPACES.

- MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84

- ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

###### B. DOMESTIC WATER PIPING:

- ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.

- FITTINGS IN DOMESTIC WATER PIPING SHALL BE COPPER OR COPPER ALLOY.

- JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.

- THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC. AS PER LOCAL CODE REQUIREMENT.

- USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

- COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.

- SERVICE WATER HEATING SYSTEM AND EQUIPMENT INSIDE THE SPACE SHOULD BE AS PER THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE, SECTION C404.

- AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE, SYSTEMS DESIGNED TO MAINTAIN USAGE TEMPERATURES IN HOT WATER PIPES, SUCH AS RECIRCULATING HOT WATER SYSTEM SHALL BE EQUIPPED WITH AUTOMATIC TIME SWITCHES OR OTHER CONTROLS THAT CAN BE SET TO SWITCH OFF THE USAGE TEMPERATURE MAINTENANCE SYSTEM DURING EXTENDED PERIOD WHEN HOT WATER IS NOT REQUIRED.

- AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE, TEMPERATURE CONTROL VALVE SHALL BE PROVIDED TO AUTOMATICALLY REGULATE THE TEMPERATURE OF HOT WATER DELIVERED TO PLUMBING FIXTURE TO A RANGE OF 105°F (41°C) MINIMUM TO 120°F (49°C) MAXIMUM

- ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE-RETARDANT, FACTORY-APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY-APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH 2021 INTERNATIONAL ENERGY CONSERVATION CODE. REFER BELOW TABLE C403.12.3 FOR MINIMUM PIPE INSULATION THICKNESS.

| MINIMUM PIPE INSULATION THICKNESS      |                                   |                             |                               |           |           |          |     |
|----------------------------------------|-----------------------------------|-----------------------------|-------------------------------|-----------|-----------|----------|-----|
| FLUID OPERATING TEMPERATURE RANGE (°F) | INSULATION CONDUCTIVITY           |                             | NOMINAL PIPE DIAMETER(INCHES) |           |           |          |     |
|                                        | CONDUCTIVITY BTU IN./ (H FT2 ° F) | MEAN RATING TEMPERATURE, °F | <1                            | 1 to < 1½ | 1½ to < 4 | 4 to < 8 | >8  |
| 105-140                                | 0.21-0.28                         | 100                         | 1.0                           | 1.0       | 1.5       | 1.5      | 1.5 |
| 40-60                                  | 0.21-0.27                         | 75                          | 0.5                           | 0.5       | 1.0       | 1.0      | 1.0 |

- NON-RECIRCULATING FIXTURE BRANCH PIPING SHALL NOT EXCEED 25 FEET (7.62 METERS) IN LENGTH. DEAD-END PIPING (RISERS WITH NO FLOOR, BRANCHES WITH NO FIXTURE) SHALL NOT BE INSTALLED. IN RENOVATION PROJECTS, DEAD-END PIPING SHALL BE REMOVED IN THE AREA OF RENOVATION. EMPTY RISERS, MAINS, AND BRANCHES INSTALLED FOR FUTURE USE SHALL BE PERMITTED.

- SEAL ALL JOINT BETWEEN SEGMENT OF INSULATION.

- PROVIDE SHIELDS BETWEEN HANGERS AND INSULATION.

###### C. WATER HEATER (GAS FIRED)

- NEW TANKLESS GAS FIRED WATER HEATERS PROPOSED, PLEASE REFER WATER HEATER SCHEDULES FOR DETAILS.

- BURNER SHALL BE ALUMINIZED STEEL OR CAST IRON, ADJUSTABLE, OR SELF-ADJUSTING AIR-GAS MIXTURE CONTROL.

- INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH 2021 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404, AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.

- THE OUTER JACKET SHALL BE STEEL WITH BAKED ENAMEL/ACRYLIC FINISH AND SHALL BE PROVIDED WITH ACCESS DOOR FOR SERVICING CONTROLS AND BURNER.

- THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

###### D. GAS PIPING

- PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS FIRED EQUIPMENT AND EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON DRAWINGS AS PER 2021 INTERNATIONAL FUEL GAS CODE, LOCAL UTILITY GAS REQUIREMENTS AND NFPA 54 ANSI Z223.1.

- NATURAL GAS PIPING SHALL BE AS FOLLOWS:

ASTM A-53 SCHEDULE 40 STEEL PIPE PAINTED WITH YELLOW ANTI-CORROSIVE PAINT, SCREWED OR WELDED IN ACCORDANCE WITH CODE REQUIREMENT (FITTINGS FOR LINES LARGER THAN 2" SHALL BE WELDED STEEL FITTINGS FOR LINES 2" AND SMALLER, EXCEPT WHEN LOCATED IN AIR PLENUMS, WHICH SHALL BE SCREWED STANDARD WEIGHT BLACK MALLEABLE).

- PROVIDE ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY ANY NFPA-54 AND/OR GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION.

- PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

- PAINT ALL GAS PIPING EXPOSED TO WEATHER WITH ONE COAT OF PRIMER, AND TWO COATS OF RUST-PROOF PAINT. COLOR OF PIPE ON ROOF SHALL BE YELLOW. COORDINATE COLOR OF PIPE ON EXTERIOR OF BUILDING WITH GC TO MATCH BUILDING COLORS.

- GAS COCKS 1-1/2" AND SMALLER SHALL BE ALL BRONZE, SCREWED, FLAT HEAD, BRASS PLUG AND WASHER 20 LB NOG PROVIDE LINE SIZE 6" LONG DIRT LEG DOWN STREAM OF GAS COCK AT ALL EQUIPMENT CONNECTIONS.

- NO VALVES ARE TO BE LOCATED IN AIR PLENUMS.

- PROVIDE GAS PIPE SUPPORTS IN ACCORDANCE WITH 2021 INTERNATIONAL FUEL GAS CODE SECTION 407 REQUIREMENTS.

- REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.

- VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBL CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.

- LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

##### E. MIXING VALVES

- VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS OR STAINLESS STEEL.

- TYPES A, C & D VALVES: VALVE SHUTS OFF IN FULL COLD POSITION AND MUST PASS THROUGH COLD RANGE BEFORE DELIVERING WARM AND/OR HOT WATER. TEMPERATURE LIMIT SET AT 105°F MAXIMUM DELIVERY TEMPERATURE. IF ONE SUPPLY SHOULD FAIL, THE OTHER WILL AUTOMATICALLY AND INSTANTLY SHUT DOWN. DELIVERY CAPACITY IS SGPM @ 45 PSIG DIFFERENTIAL.

- TYPES OF VALVES: TYPE A- THERMOSTATICALLY OPERATED BY MEANS OF BI-METALLIC STRIP, OR EXPANSION BELLOW; TYPE B- SINGLE HANDLE MECHANICAL MIXER, OR INDIVIDUAL HOT AND COLD CONTROL VALVES; TYPE C- PRESSURE BALANCING SHOWER VALVE/PISTON OPERATED MIXING VALVE; TYPE D- BALANCED PRESSURE OPERATION WITH INTEGRAL DIAL THERMOMETER INDICATING DELIVERED WATER TEMPERATURE.

- EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUT-OFF SWITCH. ALL INTERNAL CIRCUITS SHALL BE FUSED. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANEL AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

###### F. HANGERS AND SUPPORTS:

- HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.

- SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.

- ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS..

- SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

- ALL THE SUSPENDED SHALL BE SUPPORTED AT INTERVAL AS PER SECTION 313.3 TABLE 313.3 OF 2018 NORTH DAKOTA STATE PLUMBING CODE.

###### G. VALVES:

- PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT-OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES. PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT-OFF DUTY.

- ALL FIXTURES WITH THE EXCEPTION O FLUSHOMETER-EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME-PLATED STOPS WITH CHROME-PLATED ESCUTCHEONS ON PIPING PENETRATIONS.

- ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT-OFF VALVES ON SUPPLY LINES.

- ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.

- ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.

- PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

###### H. SLEEVES AND ESCUTCHEONS:

- SLEEVES THROUGH STRUCTURAL CONCRETE MEMBERS AND SLEEVES FOR WALLS BELOW GRADE AND FLOORS ON GRADE SHALL BE STANDARD WEIGHT GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH OTHER THAN STRUCTURAL COMPONENTS OF THE BUILDING SHALL BE 20 GAUGE GALVANIZED SHEET METAL WITH LOCK SEAM JOINTS. USG THERMAFIBER SAFING INSULATION SHALL BE INSTALLED BETWEEN PIPE AND SLEEVE.

- PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAUGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.

###### I. DRAINAGE ACCESSORIES

###### 1. GENERAL:

- INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.

- SECURE EXTERNAL COMPONENTS IN PLACE WITH VANDAL RESISTANT FASTENERS OR DEVICES WHICH CANNOT BE REMOVED WITHOUT SPECIAL TOOLS.

###### 2. DEVICES:

- CLEANOUT & CLEANOUT PLUG

- THREADED PIPE FITTING OR CAST IRON FERRULE WITH GAS TIGHT CLEANOUT PLUG

- PLUG SHOULD BE CAST BRASS OR BRONZE, WITH THREADED END, AND RAISED OR COUNTERSUNK HEAD.

- LUBRICATE THREADS OF CLEANOUT PLUG WITH ANTI-SEIZE LUBRICANT BEFORE FINAL INSTALLATION.

- CLEANOUT WALL PLATE

- IT SHOULD BE ROUND, STAINLESS STEEL OR POLISHED CHROME PLATED BRONZE COVER PLATE WITH STAINLESS STEEL VANDAL RESISTANT FASTENER TO SECURE TO CLEANOUT PLUG.

- CLEANOUT DECK PLATE

- IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WITH COATED CAST IRON BODY, ROUND, POLISHED NICKEL BRONZE SCORATED TOP SECURED TO CLEANOUT PLUG WITH STAINLESS STEEL VANDAL RESISTANT FASTENER; THREADED HEIGHT ADJUSTMENT, CAST IRON HEAD, GAS TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH PIPING OPTION SELECTED.

- IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.

- PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

- PIPE BACKFLOW PREVENTER DRAINS TO FLOOR DRAIN OR OTHER APPROVED INDIRECT WASTE SOURCE.

- PROVIDE ACCESS DOORS/PANELS FOR SERVICE AND ACCESS TO ALL VALVES AND OTHER SYSTEM COMPONENTS ENCLOSED IN WALLS AND CEILINGS. ACCESS DOORS SHALL BE FURNISHED BY THIS CONTRACTOR, INSTALLED BY THE GENERAL CONTRACTOR.

- ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

- ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE EXCEEDING 30'-0" IN LENGTH.

- IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.

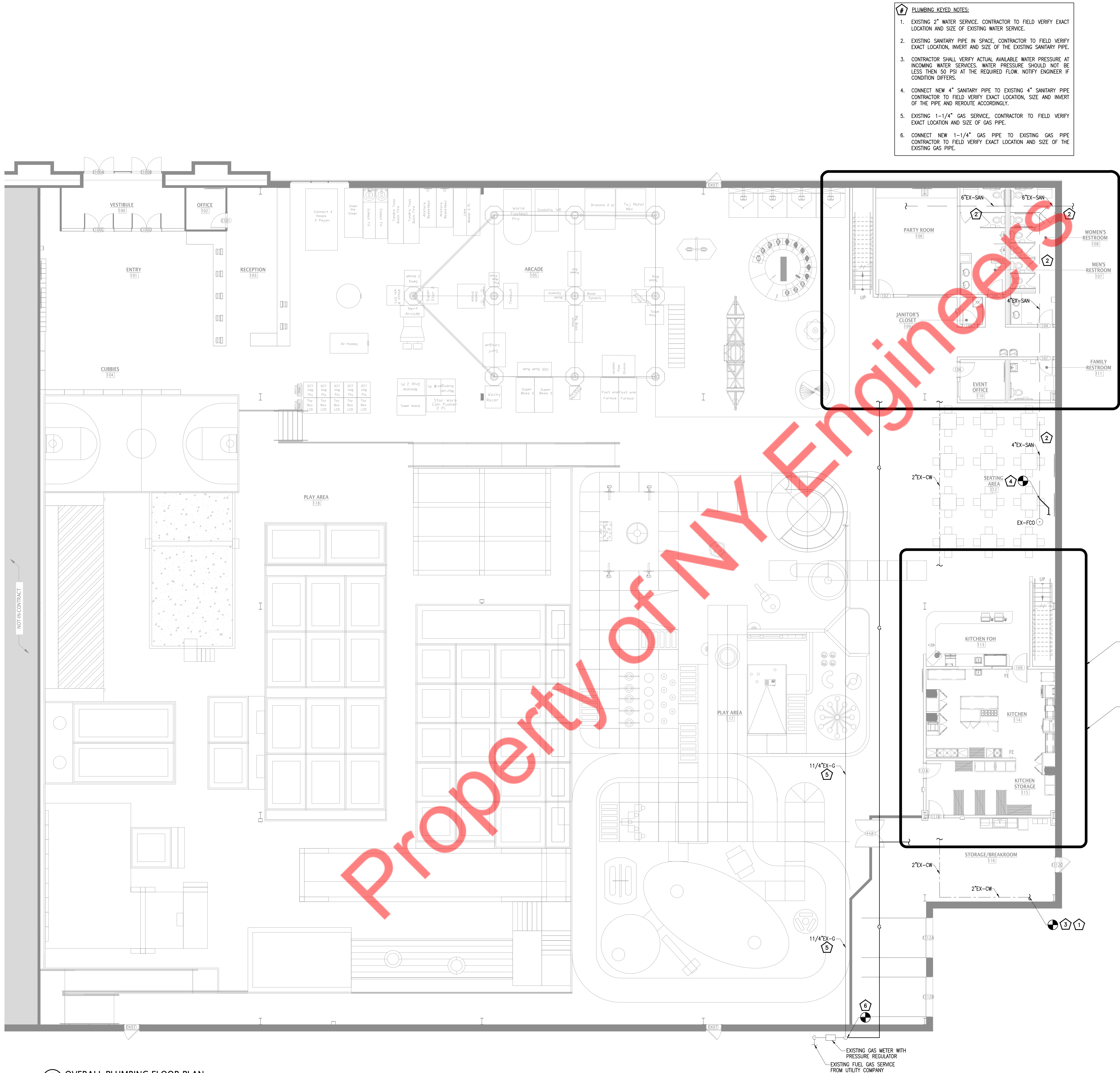
- INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. REMOVE PROTECTIVE COATINGS PRIOR TO INSTALLATION.

- REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.

- ANY PENETRATIONS THROUGH FIRE RATED PARTITIONS, FLOORS, OR CEILINGS SHALL BE STEEL SLEEVED AND SEALED WITH 3M BRAND UL RATED FIRE BARRIER CAULK OR APPROVED EQUAL.

- WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL PIPING SYSTEMS WITH WATER. REMOVE ALL DEBRIS, SEDIMENT, SOIL, ETC. OUT OF THE SYSTEM. REMOVE ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

- AT ALL INDIRECT WASTE DRA



- PLUMBING KEYED NOTES:**
- EXISTING 2" WATER SERVICE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE OF EXISTING WATER SERVICE.
  - EXISTING SANITARY PIPE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION, INVERT AND SIZE OF THE EXISTING SANITARY PIPE.
  - CONTRACTOR SHALL VERIFY ACTUAL AVAILABLE WATER PRESSURE AT INCOMING WATER SERVICES. WATER PRESSURE SHOULD NOT BE LESS THEN 50 PSI AT THE REQUIRED FLOW. NOTIFY ENGINEER IF CONDITION DIFFERS.
  - CONNECT NEW 4" SANITARY PIPE TO EXISTING 4" SANITARY PIPE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION, SIZE AND INVERT OF THE PIPE AND REROUTE ACCORDINGLY.
  - EXISTING 1-1/4" GAS SERVICE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE OF GAS PIPE.
  - CONNECT NEW 1-1/4" GAS PIPE TO EXISTING GAS PIPE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND SIZE OF THE EXISTING GAS PIPE.

- PLUMBING GENERAL NOTES:**
- CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATIONS AND SIZES OF ALL UTILITIES, INCLUDING THE DEPTHS OF ALL BELOW GRADE SANITARY SEWERS, PRIOR TO START OF WORK. THIS DRAWINGS IS NOT INTENDED TO INDICATE ALL EXISTING UTILITIES.
  - CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID AND FIELD VERIFY EXISTING CONDITIONS TO ENSURE THAT THE WORK REPRESENTED ON THE DRAWING AND IN THESE SPECIFICATIONS CAN BE INSTALLED AS INDICED.
  - CONTRACTOR SHALL VERIFY AND COORDINATE ALL UTILITY CONNECTION POINTS, INCLUDING SIZES AND INVERTS WITH EXISTING FIELD CONDITION PRIOR TO START WORK.
  - CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTION RELATED TO THE INSTALLATION OF WORK.
  - ALL WORK SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAW, ACTS AND AUTHORITIES HAVING JURISDICTION AND LANDLORD CRITERIA.
  - MAINTAIN ALL MANUFACTURERS RECOMMENDED SERVICE CLEARANCES FOR ALL FIXTURE AND EQUIPMENT. REFER TO ARCHITECTURAL PLAN FOR EXACT LOCATIONS OF PLUMBING FIXTURES.
  - CONTRACTOR TO VERIFY EXISTING CONDITION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES WITH THE CONTRACT DOCUMENT BEFORE COMMENCING ANY WORK.
  - PROVIDE CUTTING, CORE DRILLING IN WALLS FOR ALL PIPE PENETRATIONS, CONNECTION, AND ALL ASSOCIATED WORK. PROVIDE PATCHING, RESTORATION, AND FINISHING WORK TO MATCH EXISTING CONDITIONS IN ALL ASPECTS.
  - USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

- SANITARY PIPING GENERAL NOTES:**
- UNLESS OTHERWISE NOTED, SLOPE OF DRAINAGE SYSTEM SHALL BE 1/4" PER FOOT OF RUN FOR PIPE LESS THAN 4" AND 1/8" PER FOOT OF RUN FOR PIPE 4" TO 6". FOR GREASE WASTE SYSTEM, SLOPE SHALL BE 1/4" PER FOOT OF RUN THROUGHOUT ALL PIPE SIZES. .
  - CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  - REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
  - REFER RISER DIAGRAM FOR VENT PIPING. PROVIDE NEW 4" VTR, IF VTR IS NOT EXISTED IN SPACE.
  - ALL CLEANOUTS TO BE ACCESSIBLE.
  - ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION, A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
  - PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.
  - ALL MATERIAL INDICATED AND IMPLIED ON THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
  - EXISTING STORM SYSTEM TO REMAIN AS EXISTING.
  - USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84

NRG ADVENTURE PARK

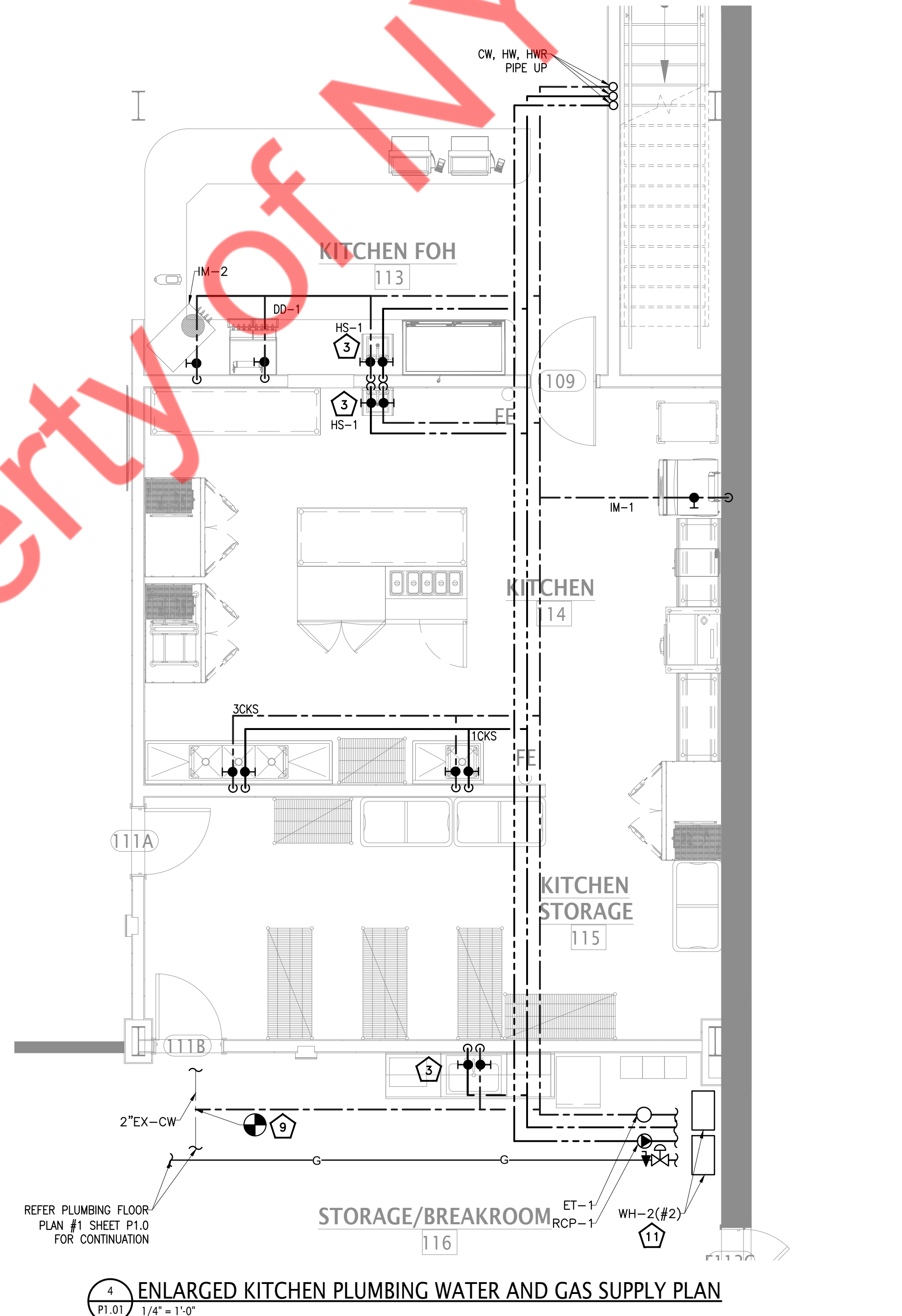
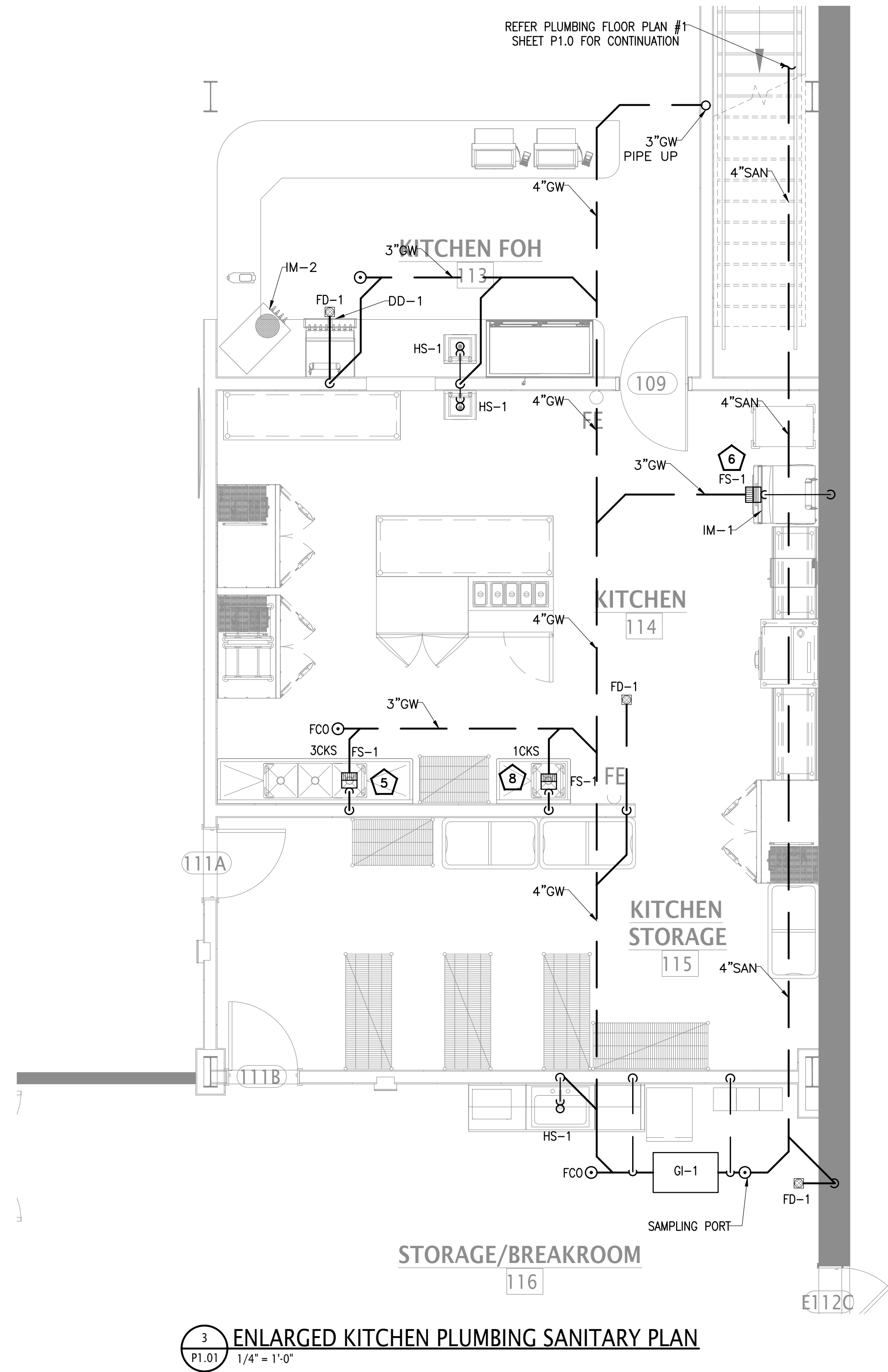
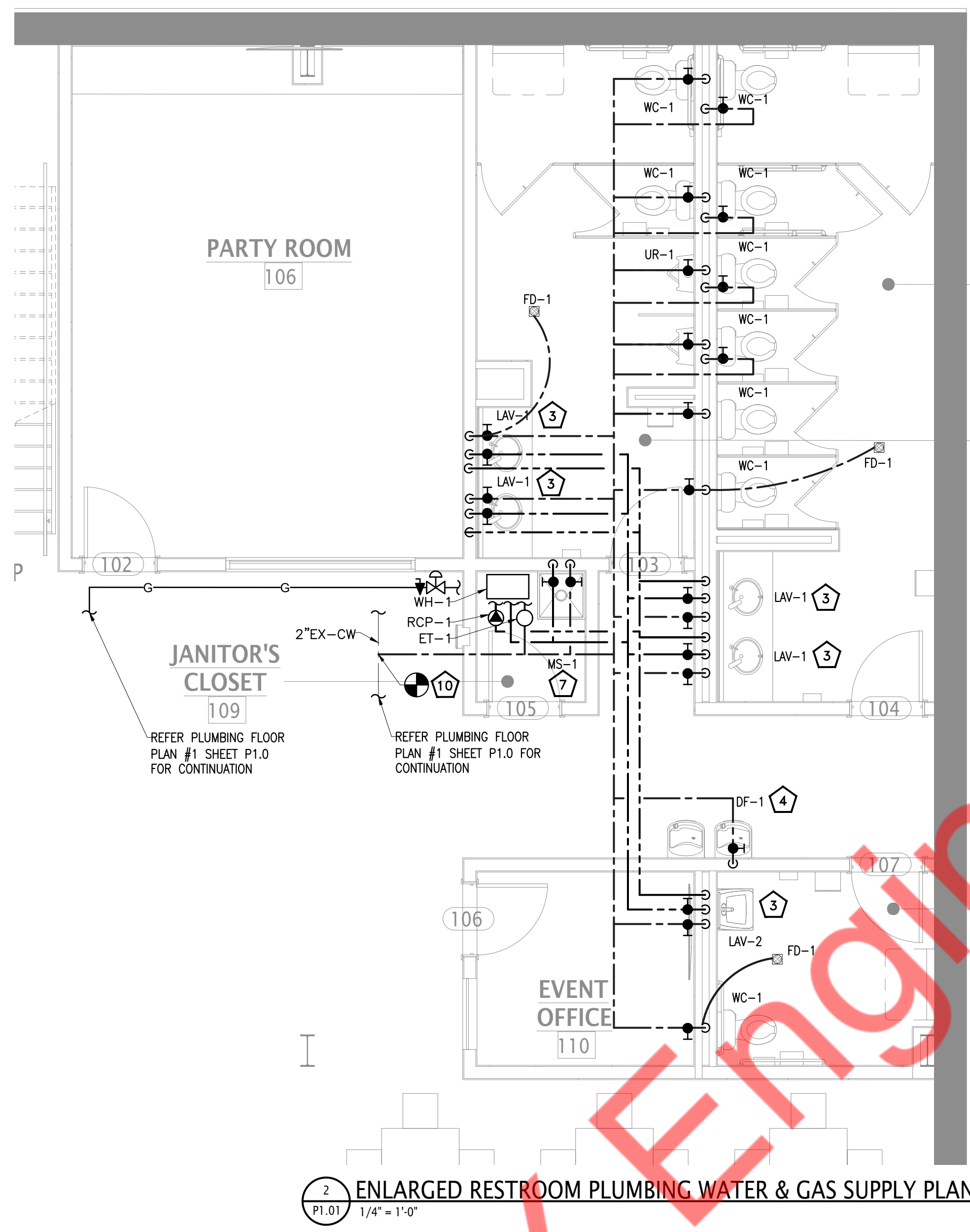
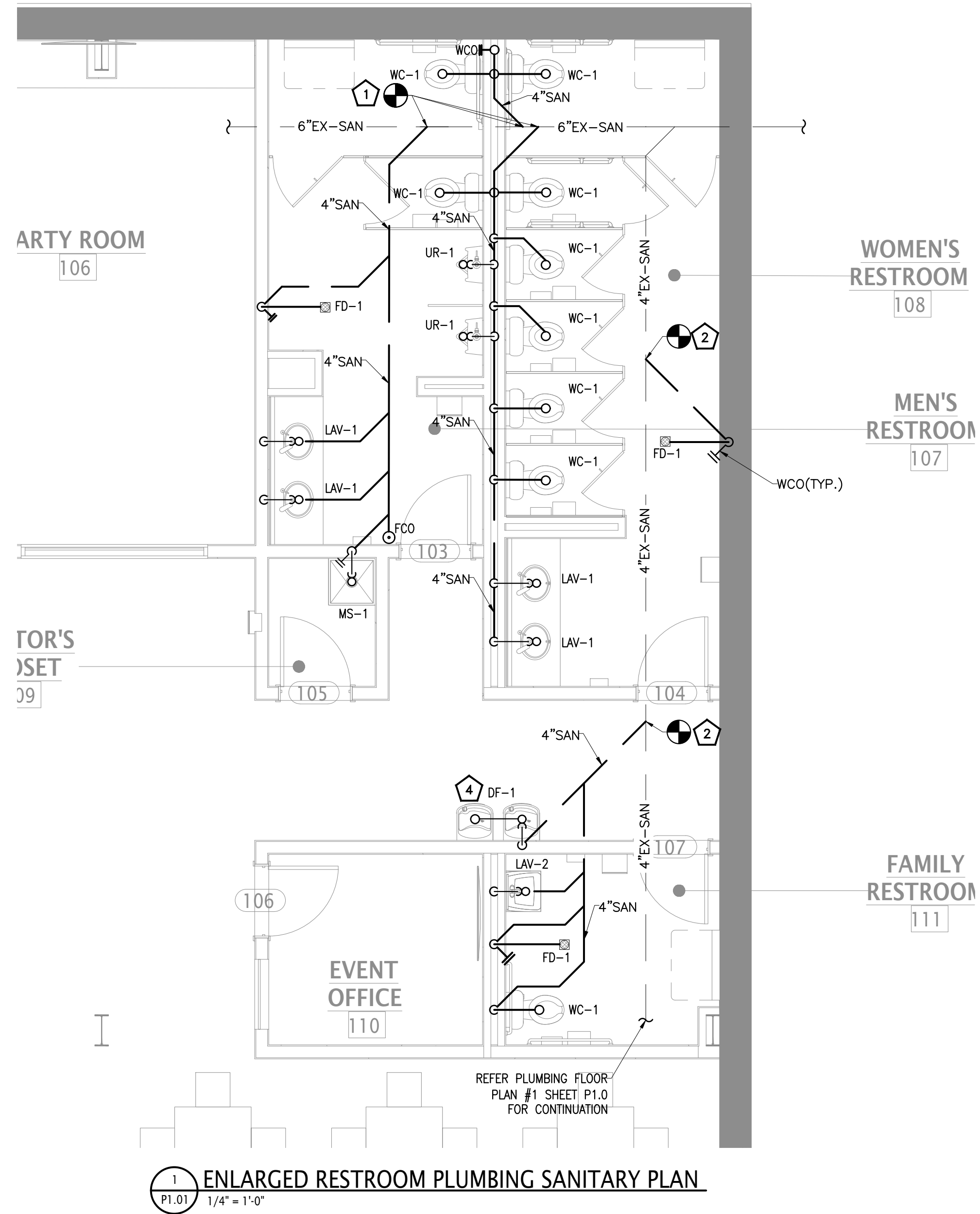
FIRST FLOOR OVERALL  
PLUMBING PLAN

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

P1.00

PERMIT SET

1 OVERALL PLUMBING FLOOR PLAN  
P1.00 1/8" = 1'-0"



- PLUMBING KEYED NOTES:**
- CONNECT NEW 4" SANITARY PIPE TO EXISTING 6" SANITARY PIPE. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY PIPE LOCATION, INVERT AND REROUTE PIPE ACCORDINGLY.
  - CONNECT NEW 4" SANITARY PIPE TO EXISTING 4" SANITARY PIPE. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY PIPE LOCATION, INVERT AND REROUTE PIPE ACCORDINGLY.
  - PROVIDE ASSE 1070 OR SIMILAR THERMOSTATIC MIXING VALVE AT ALL HAND SINK AND LAVATORIES IF NOT ALREADY PROVIDED WITH THEM. SET AT 110°F MAXIMUM.
  - CONTRACTOR SHALL COORDINATE LOCATION WITH ARCHITECT & INSTALL DRINKING FOUNTAIN AS PER MANUFACTURER'S RECOMMENDATION.
  - ROUTE INDIRECT WASTE FROM 3-COMPARTMENT SINK (E101) TO FLOOR SINK. PROVIDE AIR GAP AS PER LOCAL CODE REQUIREMENTS.
  - ROUTE INDIRECT WASTE FROM ICE MACHINE (E107) TO FLOOR SINK. PROVIDE AIR GAP AS PER LOCAL CODE REQUIREMENT.
  - ROUTE INDIRECT WASTE OF T&P VALVE FROM WATER HEATER (WH-1) TO MOP SINK. PROVIDE AIR GAP AS PER LOCAL CODE REQUIREMENTS.
  - ROUTE INDIRECT WASTE FROM 1-COMPARTMENT SINK (E102) TO FLOOR SINK. PROVIDE AIR GAP AS PER LOCAL CODE REQUIREMENTS.
  - CONNECT NEW 1" CW PIPE TO EXISTING 2" CW PIPE. CONTRACTOR TO FIELD VERIFY EXISTING CW PIPE LOCATION AND REROUTE PIPE ACCORDINGLY.
  - CONNECT NEW 1-1/4" CW PIPE TO EXISTING 2" CW PIPE. CONTRACTOR SHALL FIELD VERIFY EXISTING CW PIPE LOCATION AND REROUTE PIPE ACCORDINGLY.
  - SPILL WATER HEATER (WH-2) INDIRECT WASTE TO NEAREST FLOOR DRAIN WITH APPROVED AIR GAP.
- PLUMBING GENERAL NOTES:**
- CONTRACTOR SHALL FIELD VERIFY THE EXACT LOCATIONS AND SIZES OF ALL UTILITIES, INCLUDING THE DEPTHS OF ALL BELOW GRADE SANITARY SEWERS, PRIOR TO START OF WORK. THIS DRAWINGS IS NOT INTENDED TO INDICATE ALL EXISTING UTILITIES.
  - CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID AND FIELD VERIFY EXISTING CONDITIONS TO ENSURE THAT THE WORK REPRESENTED ON THE DRAWING AND IN THESE SPECIFICATIONS CAN BE INSTALLED AS INDICATED.
  - CONTRACTOR SHALL VERIFY AND COORDINATE ALL UTILITY CONNECTION POINTS, INCLUDING SIZES AND INVERTS WITH EXISTING FIELD CONDITION PRIOR TO START WORK.
  - CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND INSPECTION RELATED TO THE INSTALLATION OF WORK.
  - ALL WORK SHALL COMPLY WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES, LAWS, ACTS AND AUTHORITIES HAVING JURISDICTION AND LANDLORD CRITERIA.
  - MAINTAIN ALL MANUFACTURERS' RECOMMENDED SERVICE CLEARANCES FOR ALL FIXTURE AND EQUIPMENT. REFER TO ARCHITECTURAL PLAN FOR EXACT LOCATIONS OF PLUMBING FIXTURES.
  - CONTRACTOR TO VERIFY EXISTING CONDITION AND SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES WITH THE CONTRACT DOCUMENT BEFORE COMMENCING ANY WORK.
  - PROVIDE CUTTING, CORE DRILLING IN WALLS FOR ALL PIPE PENETRATIONS, CONNECTION, AND ALL ASSOCIATED WORK. PROVIDE PATCHING, RESTORATION, AND FINISHING WORK TO MATCH EXISTING CONDITIONS IN ALL ASPECTS.
  - USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

- SANITARY PIPING GENERAL NOTES:**
- UNLESS OTHERWISE NOTED, SLOPE OF DRAINAGE SYSTEM SHALL BE 1/4" PER FOOT OF RUN FOR PIPE LESS THAN 4" AND 1/8" PER FOOT OF RUN FOR PIPE 4" TO 6". FOR GREASE WASTE SYSTEM, SLOPE SHALL BE 1/4" PER FOOT OF RUN THROUGHOUT ALL PIPE SIZES.
  - CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
  - REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
  - REFER RISER DIAGRAM FOR VENT PIPING. PROVIDE NEW 4" VTR, IF VTR IS NOT EXISTED IN SPACE.
  - ALL CLEANOUTS TO BE ACCESSIBLE.
  - ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION, A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
  - PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.
  - ALL MATERIAL INDICATED AND IMPLIED ON THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
  - EXISTING STORM SYSTEM TO REMAIN AS EXISTING.
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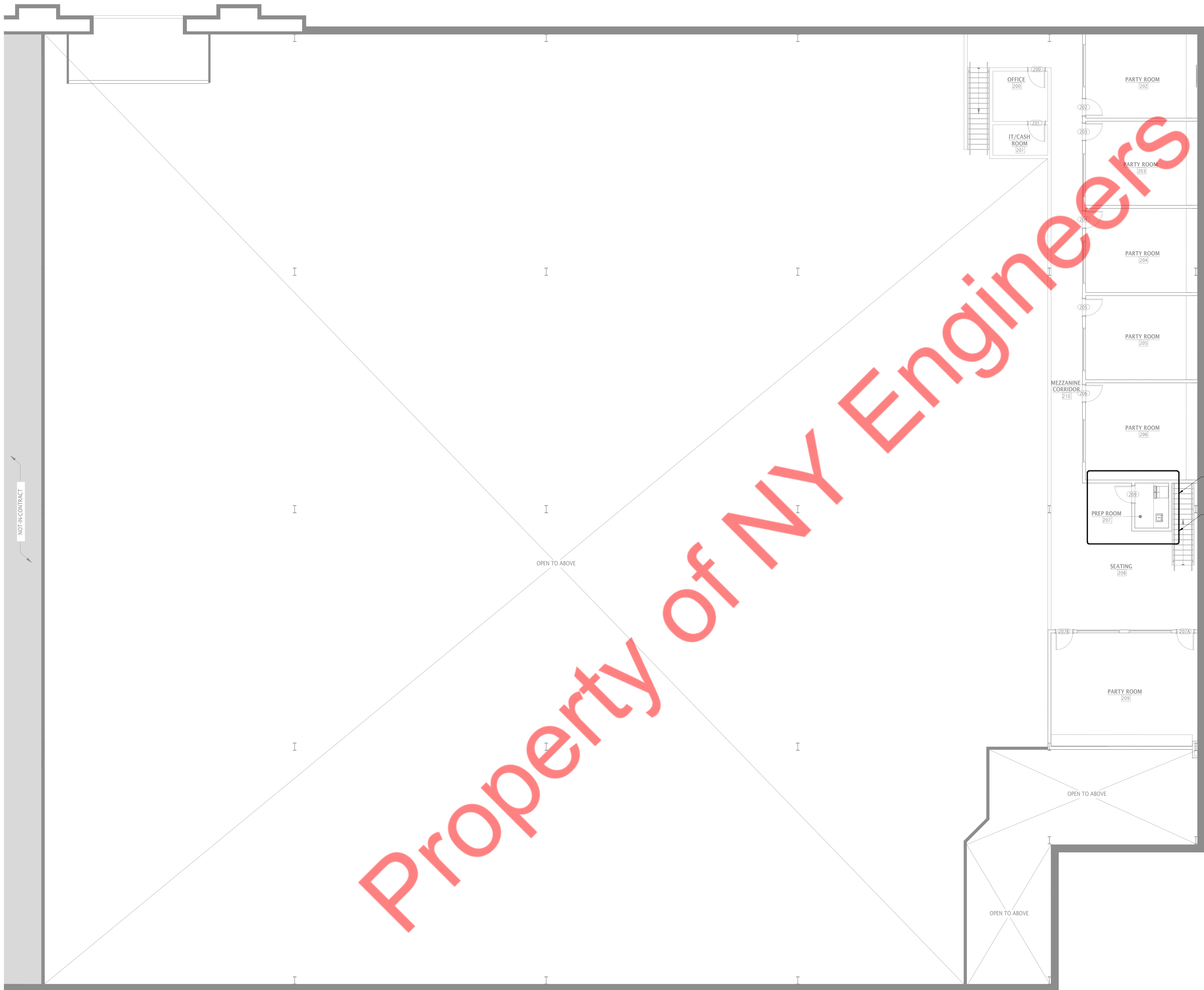
NRG ADVENTURE PARK

FIRST FLOOR PLUMBING  
ENLARGED PLANS

DATE: 2025.05.09  
DRAWN BY: NTE  
REVISIONS:

P1.01

PERMIT SET



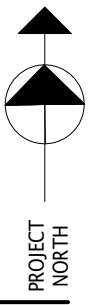
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  - REFER RISER DIAGRAM FOR VENT PIPING. PROVIDE NEW 4" VTR, IF VTR IS NOT EXISTED IN SPACE.
  - ALL CLEANOUTS TO BE ACCESSIBLE.
  - ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION. A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
  - PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.
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NRG ADVENTURE PARK

MEZZANINE FLOOR  
PLUMBING OVERALL PLAN

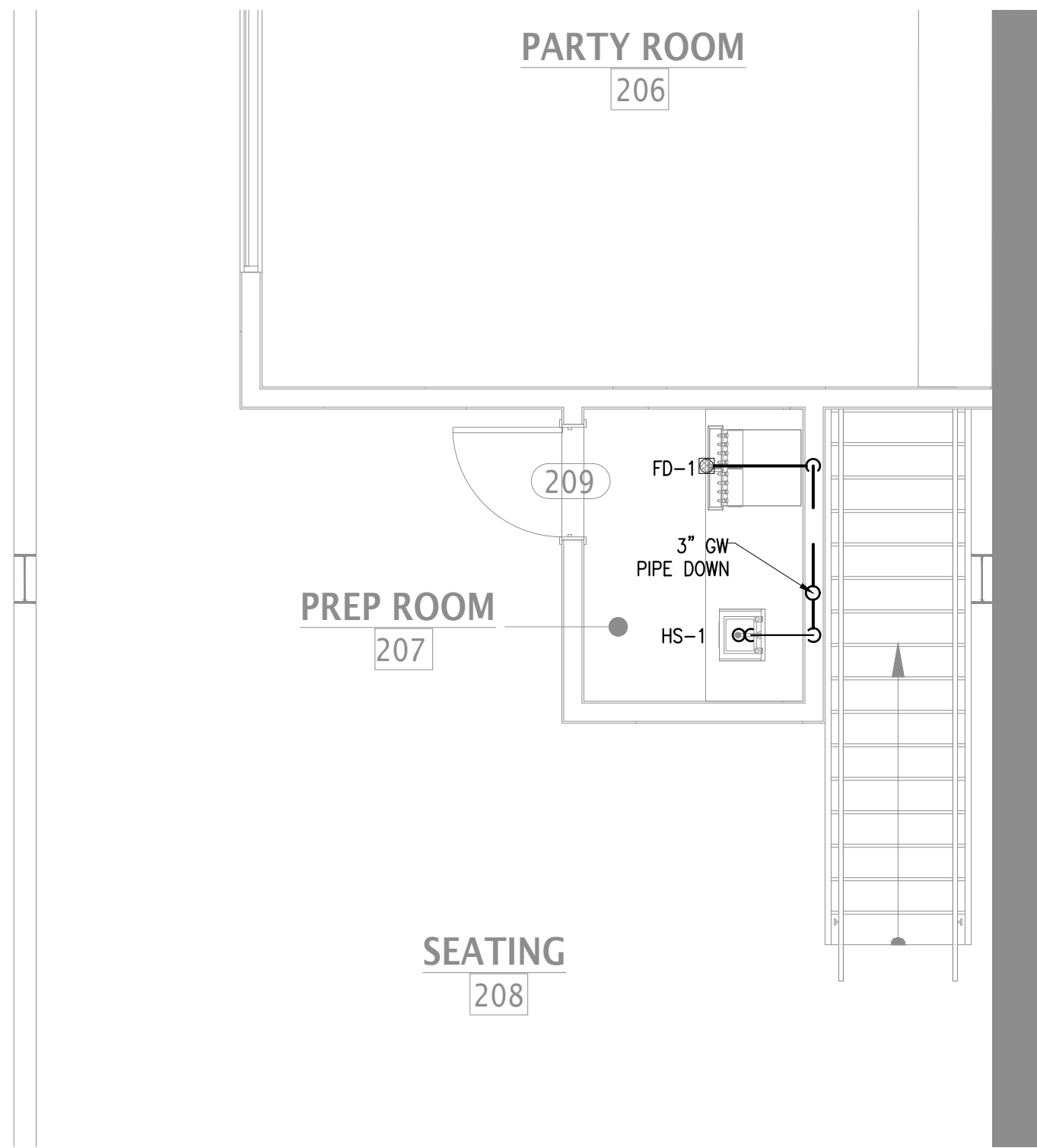
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REVISIONS:



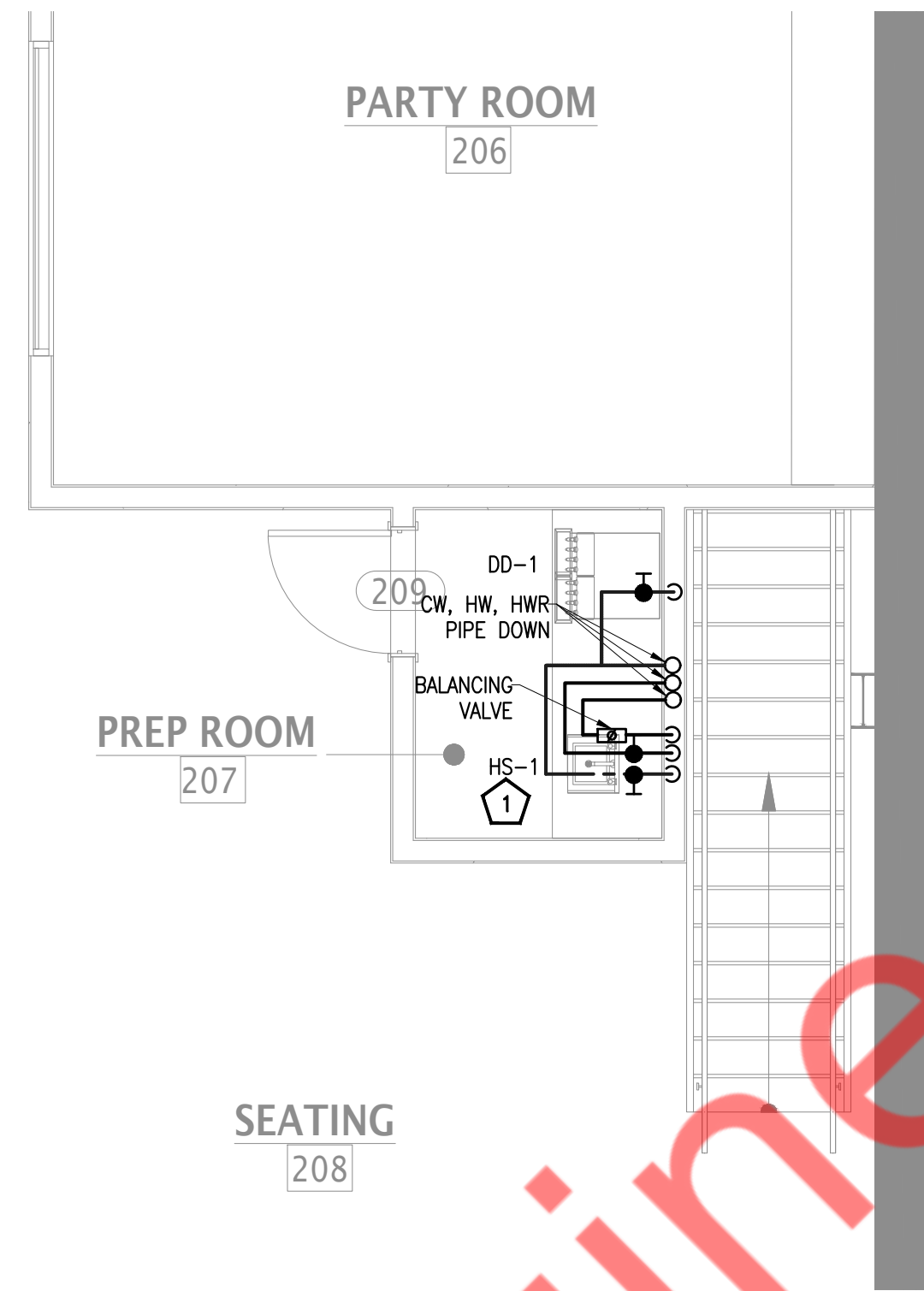
P1.02

PERMIT SET

1 OVERALL PLUMBING FLOOR PLAN  
P1.02 1/8" = 1'-0"



1  
P1.03 ENLARGED PREP ROOM PLUMBING SANITARY PLAN  
1/4" = 1'-0"



2  
P1.03 ENLARGED PREP ROOM PLUMBING WATER SUPPLY PLAN  
1/4" = 1'-0"

- PLUMBING KEYED NOTES:**
1. PROVIDE ASSE 1070 OR SIMILAR THERMOSTATIC MIXING VALVE AT ALL HAND SINK AND LAVATORIES IF NOT ALREADY PROVIDED WITH THEM. SET AT 110°F MAXIMUM.

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  3. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
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  5. ALL CLEANOUTS TO BE ACCESSIBLE.
  6. ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION, A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
  7. PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.
  8. ALL MATERIAL INDICATED AND IMPLIED ON THESE DRAWINGS SHALL BE NEW UNLESS OTHERWISE NOTED.
  9. EXISTING STORM SYSTEM TO REMAIN AS EXISTING.
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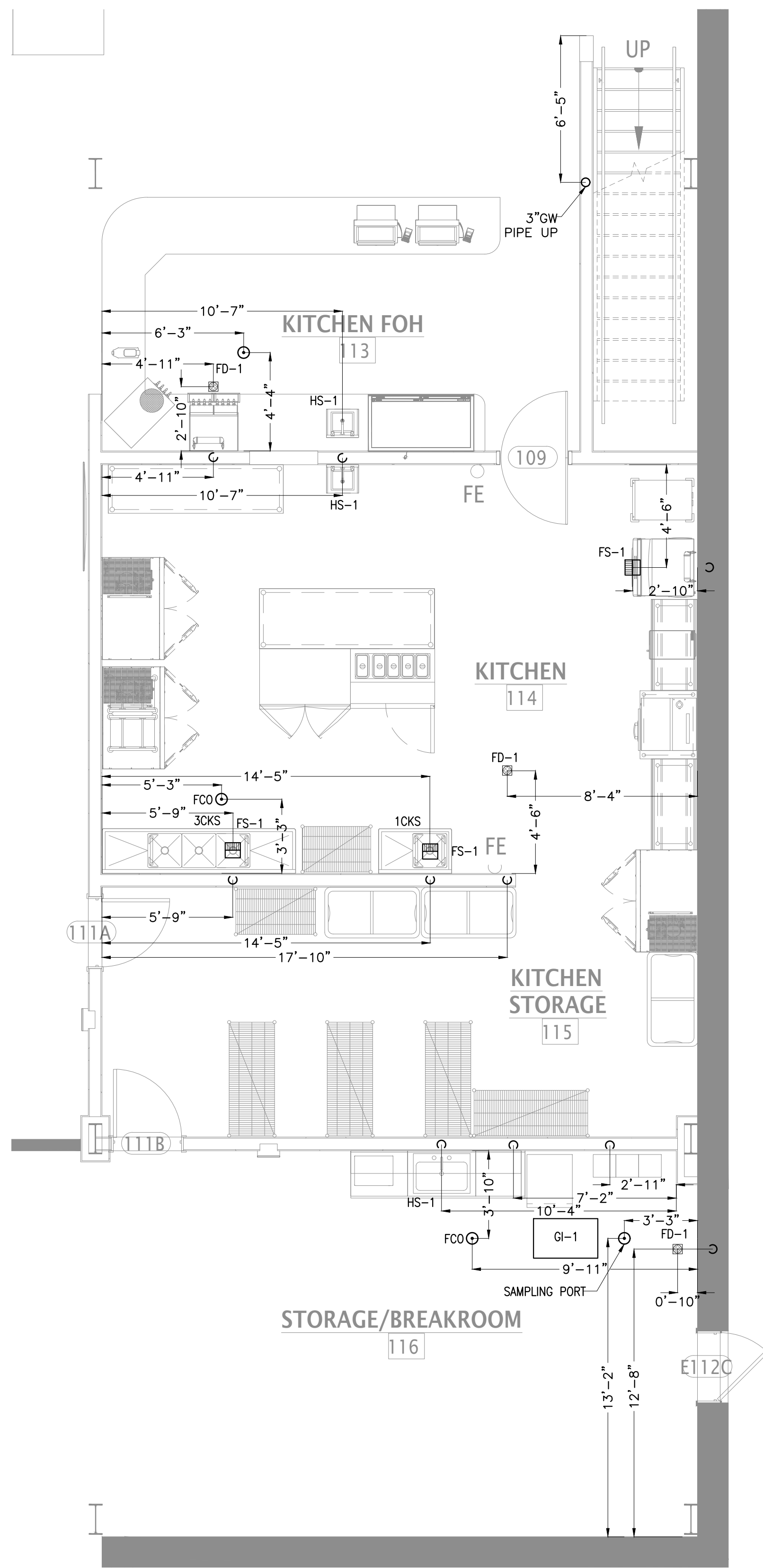
NRG ADVENTURE PARK

MEZZANINE FLOOR  
PLUMBING ENLARGED PLAN

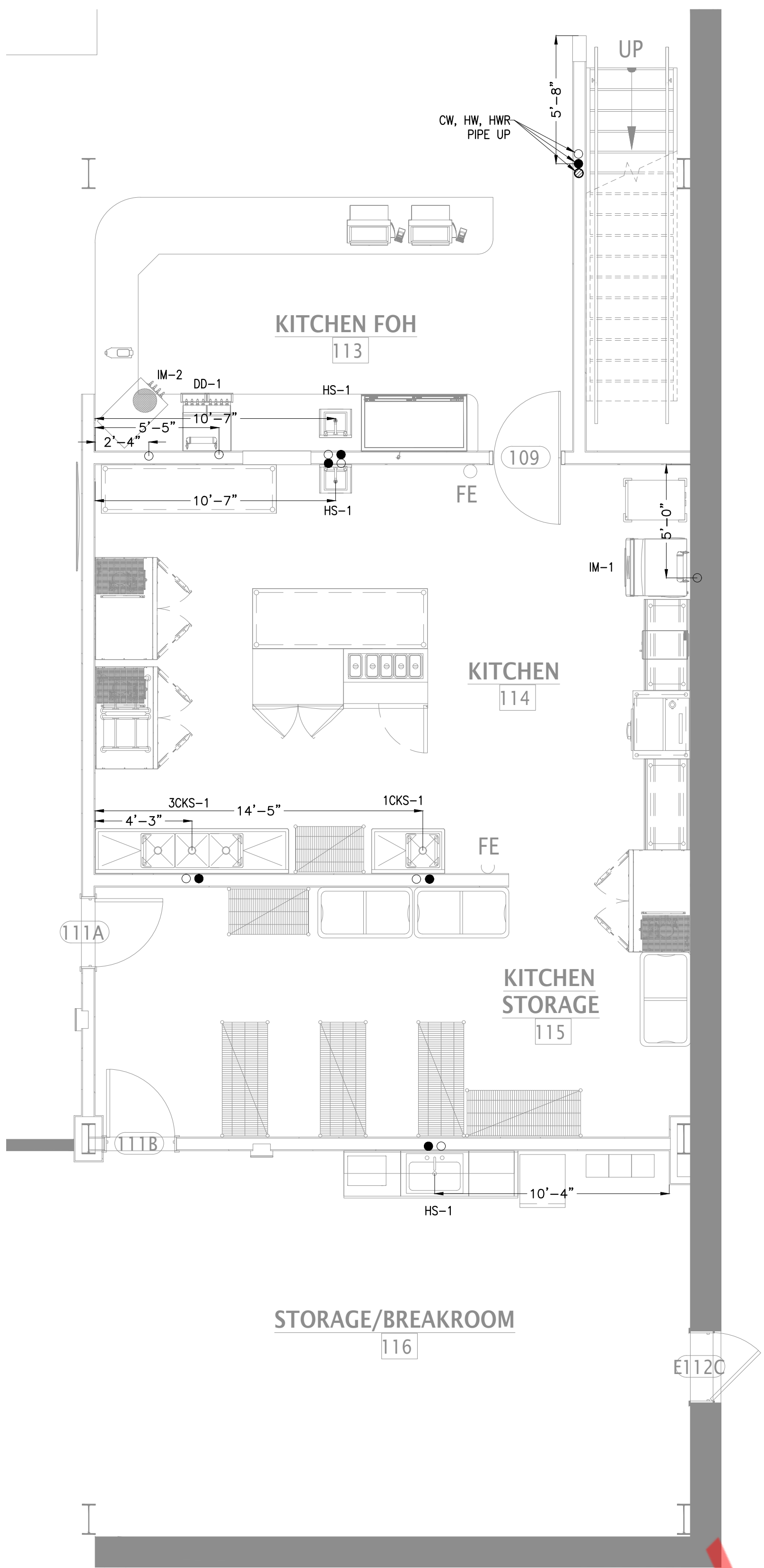
DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

P1.03

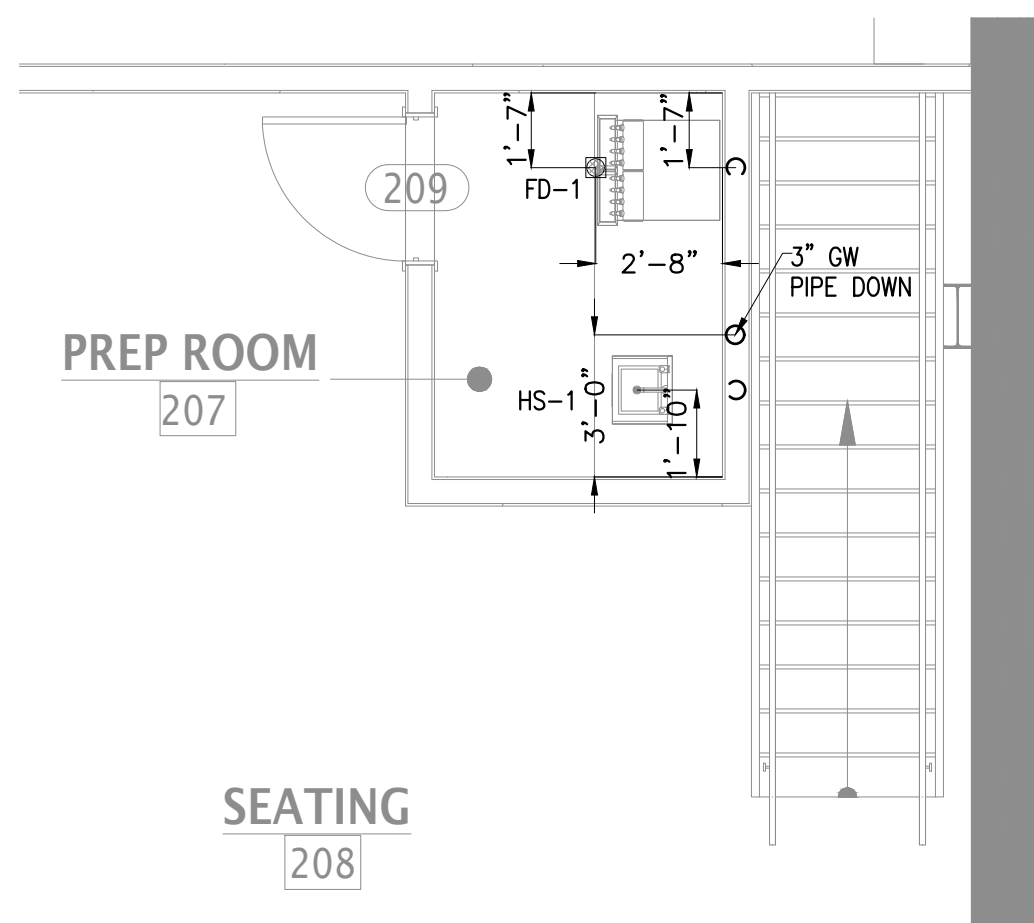
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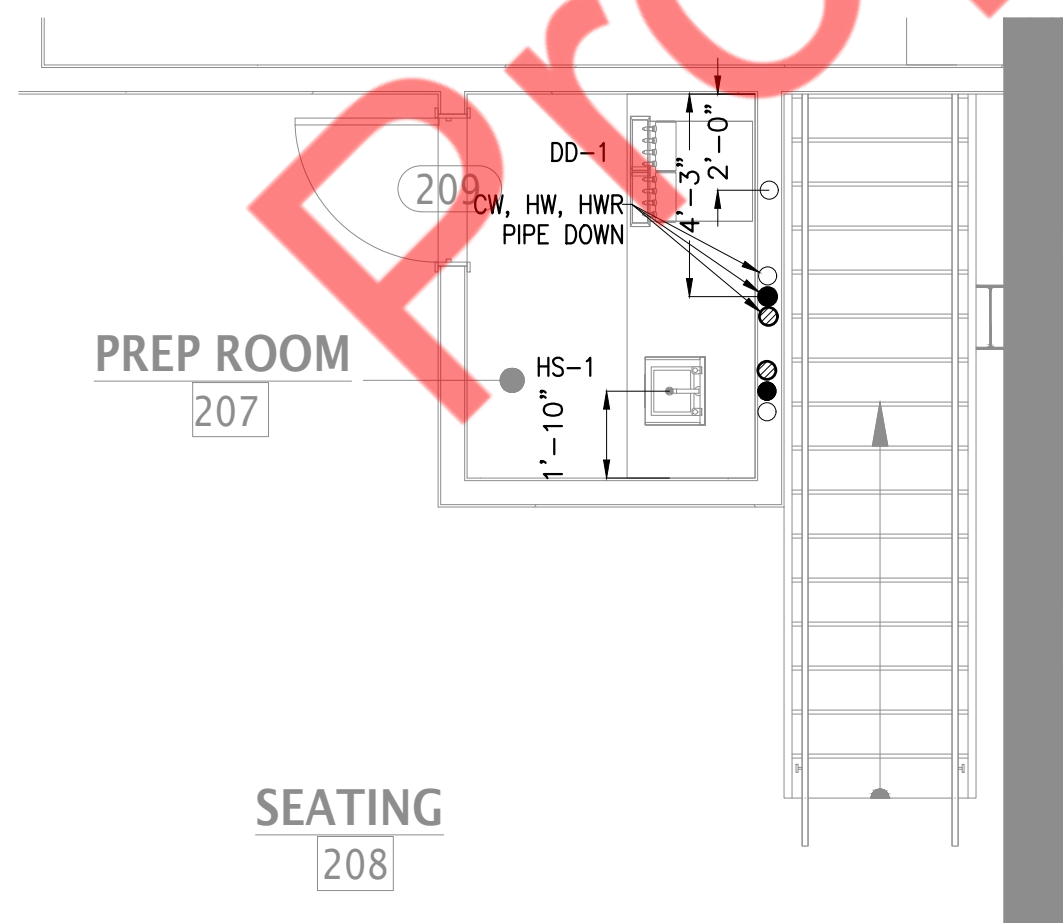
1 ENLARGED KITCHEN PLUMBING SANITARY & VENT STUB-UP PLAN  
P1.04 1/4" = 1'-0"



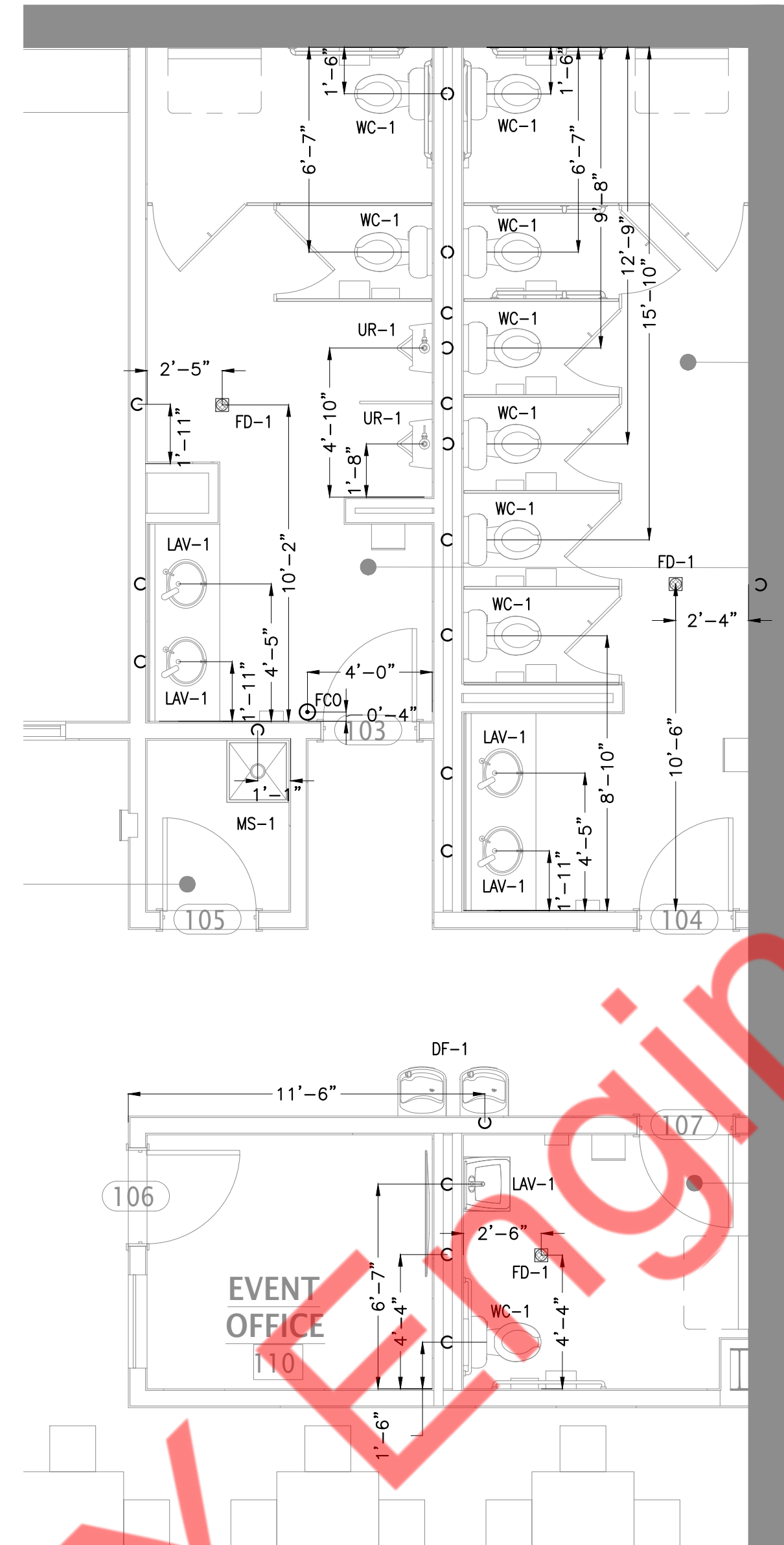
2 ENLARGED KITCHEN PLUMBING WATER SUPPLY STUB-UP PLAN  
P1.04 1/4" = 1'-0"



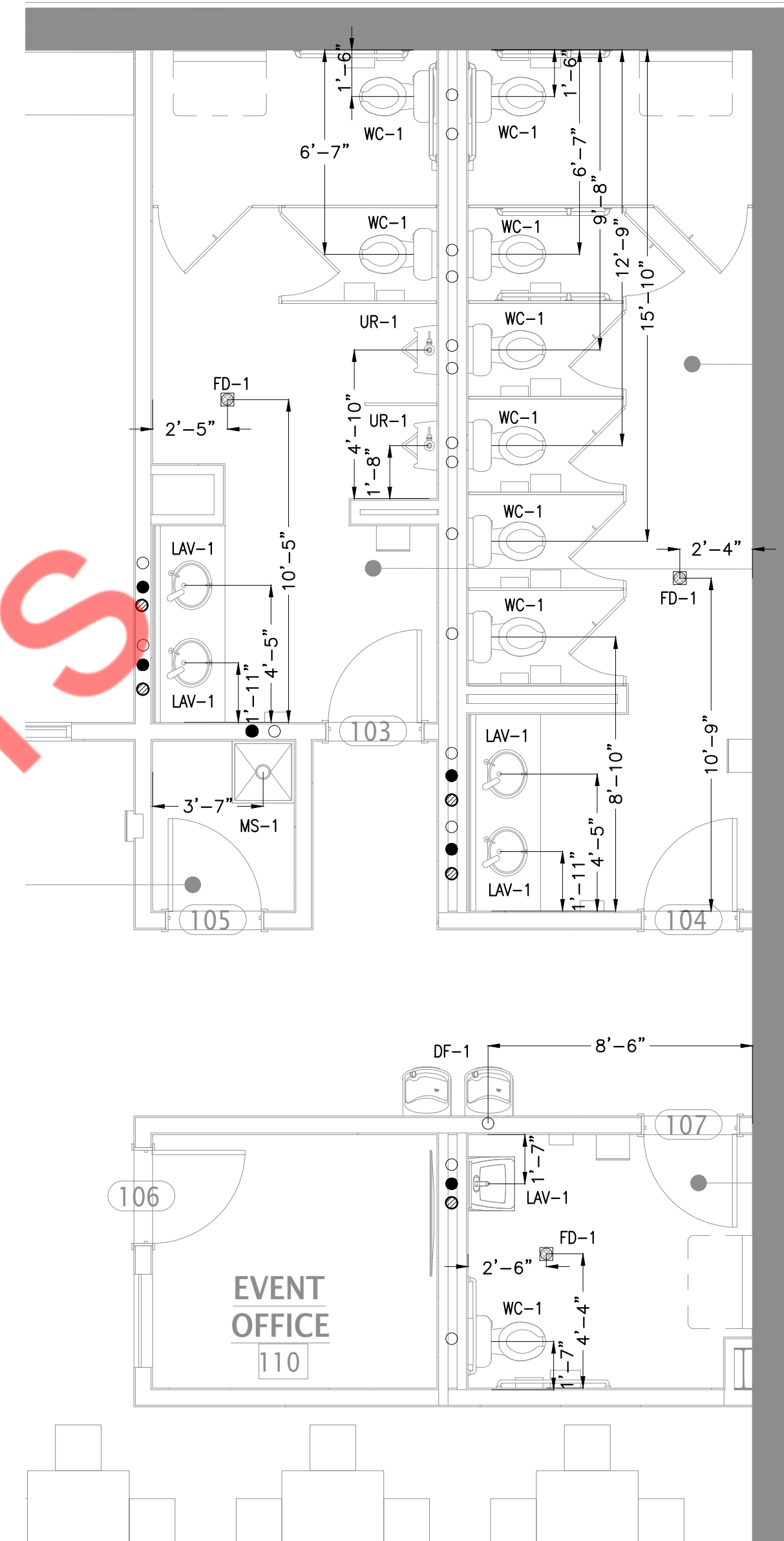
5 MEZZANINE FLOOR PLUMBING SANITARY & VENT STUB-UP PLAN  
P1.04 1/4" = 1'-0"



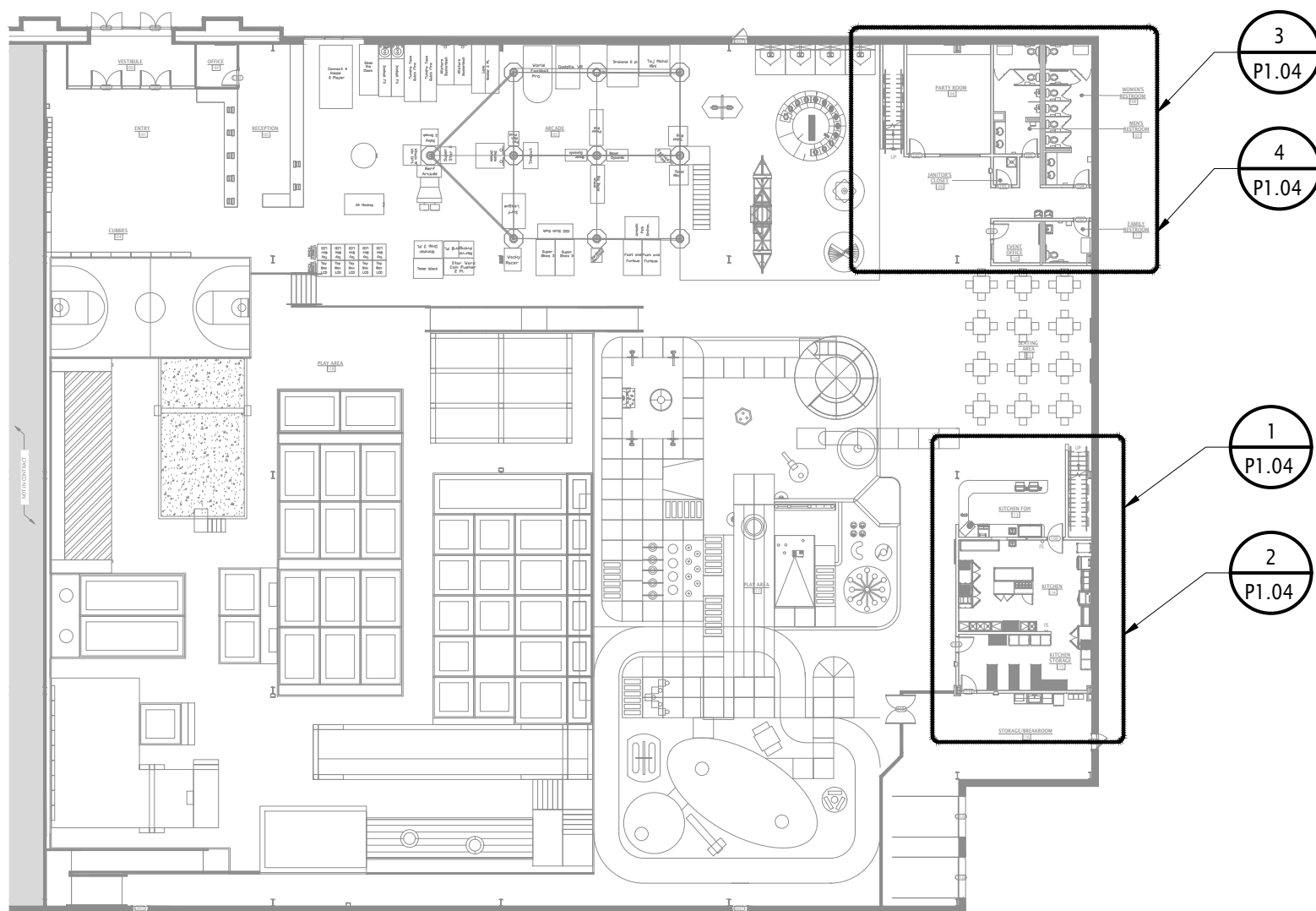
6 MEZZANINE FLOOR PLUMBING WATER SUPPLY STUB-UP PLAN  
P1.04 1/4" = 1'-0"



3 ENLARGE RESTROOM PLUMBING SANITARY & VENT STUB-UP PLAN  
P1.04 1/4" = 1'-0"

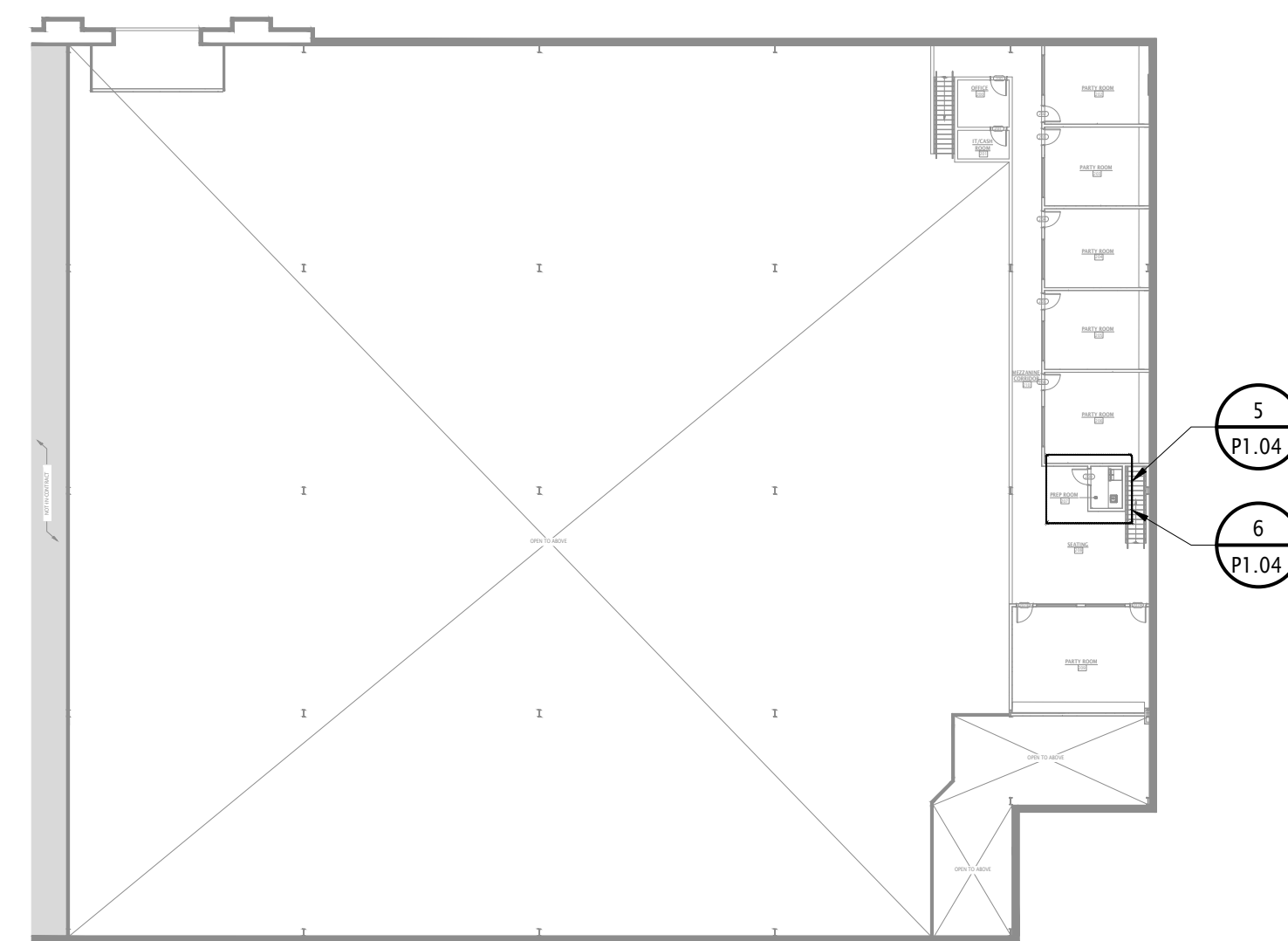


4 ENLARGE RESTROOM PLUMBING WATER SUPPLY STUB-UP PLAN  
P1.04 1/4" = 1'-0"



7 FIRST FLOOR - KEY PLAN  
P1.04 1/32" = 1'-0"

| LEGENDS |                  |
|---------|------------------|
| ●       | HOT WATER        |
| ○       | COLD WATER       |
| ○       | VENT             |
| ■       | FLOOR SINK       |
| ■       | FLOOR DRAIN      |
| ○       | CLEANOUT         |
| ○       | HOT WATER RETURN |



8 MEZZANINE FLOOR - KEY PLAN  
P1.04 1/32" = 1'-0"

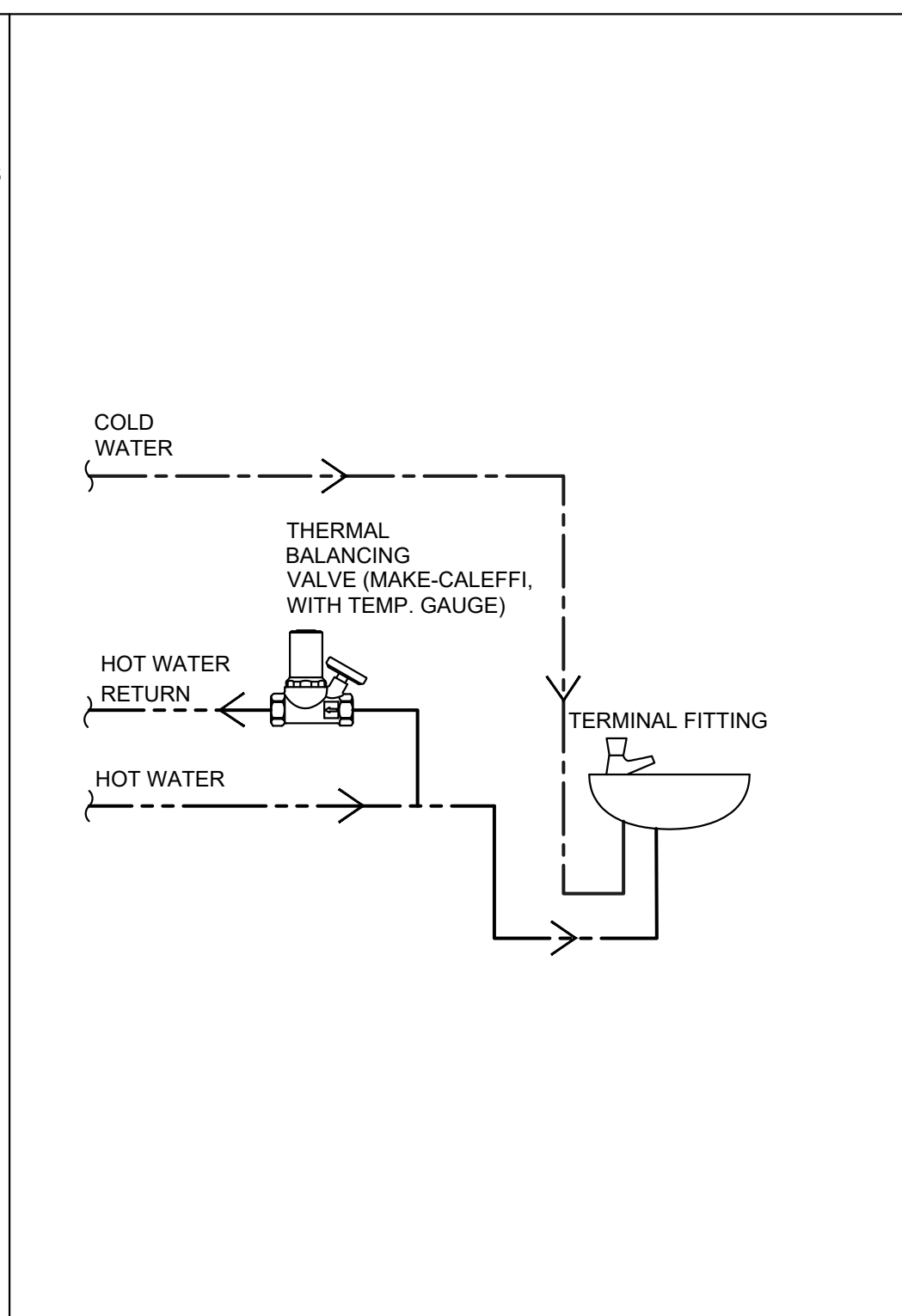
NRG ADVENTURE PARK

PLUMBING STUB-UP PLAN

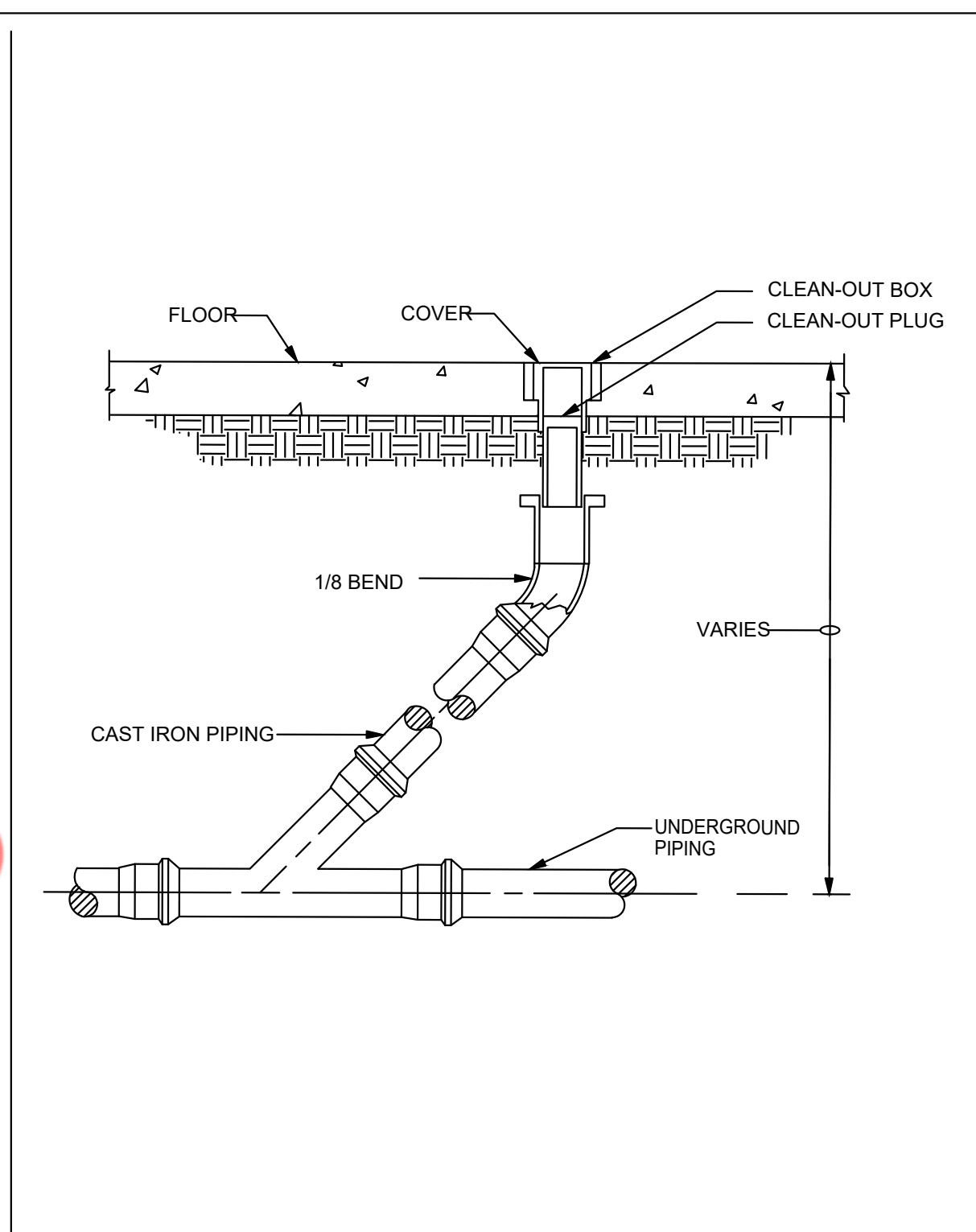
DATE: 2025.05.09  
DRAWN BY: NTE  
REVISIONS:

P1.04

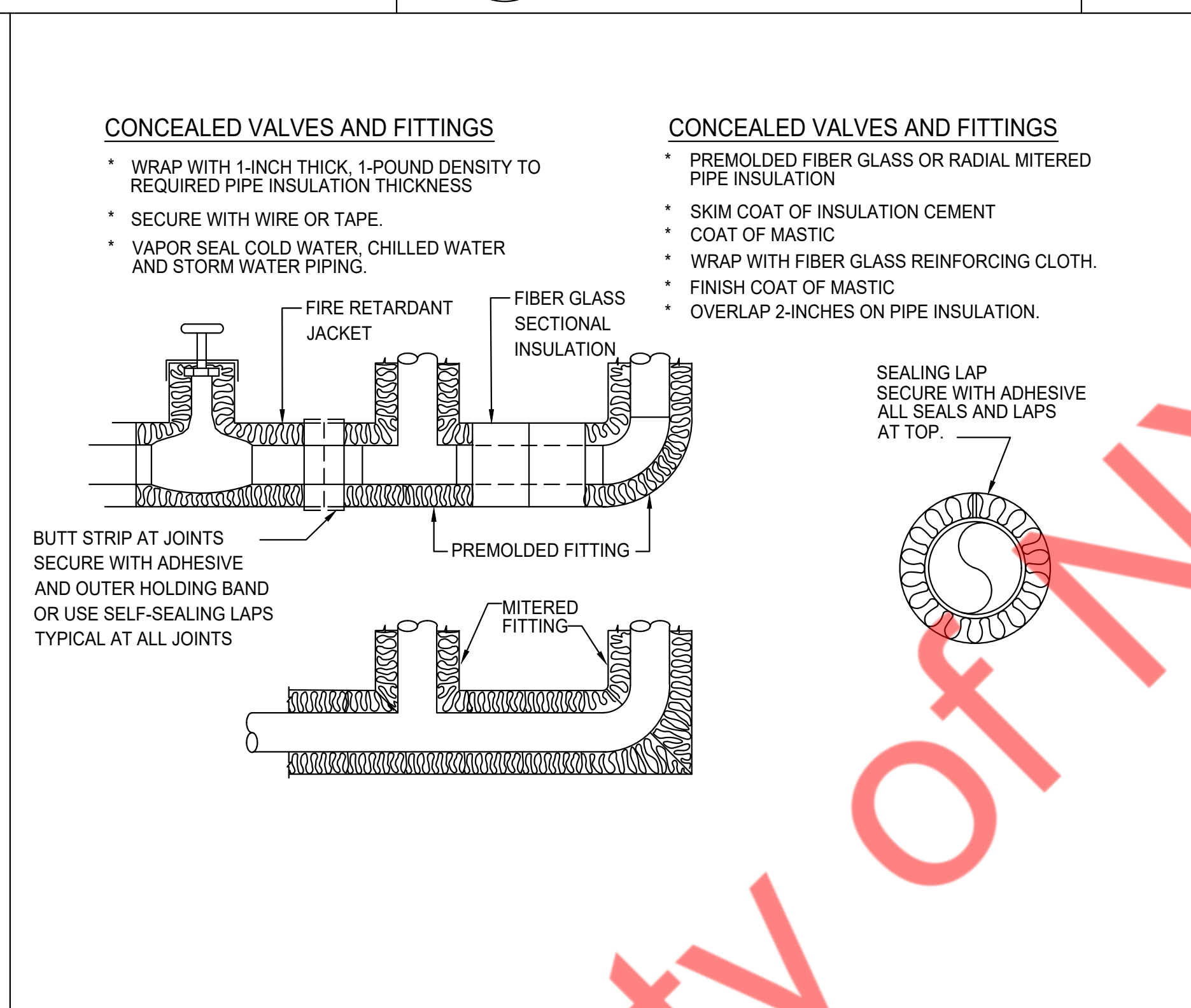
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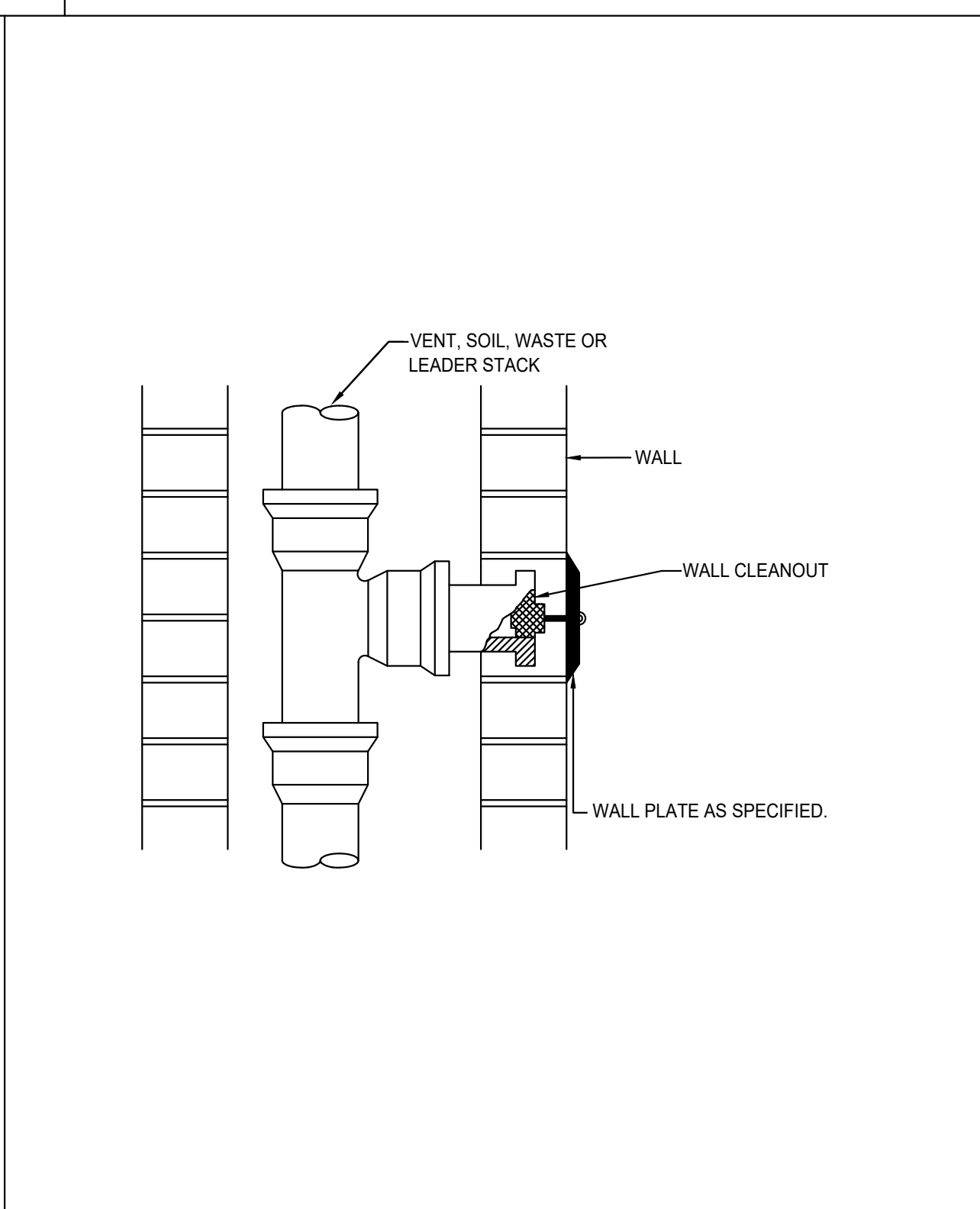
2 HOT WATER HEATER BALANCING  
VALVE PIPING DETAIL



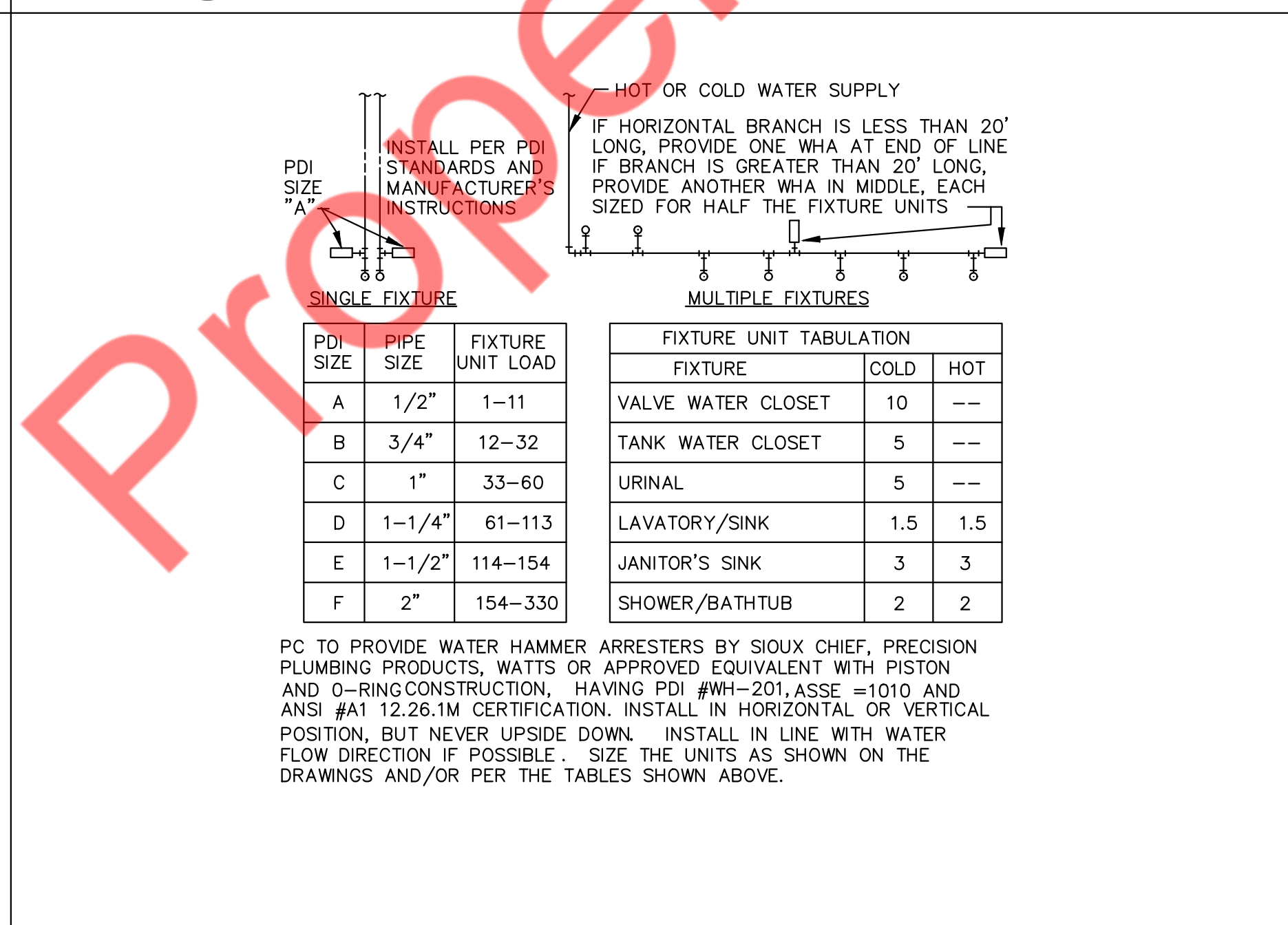
4 FLOOR CLEANOUT DETAIL  
N.T.S



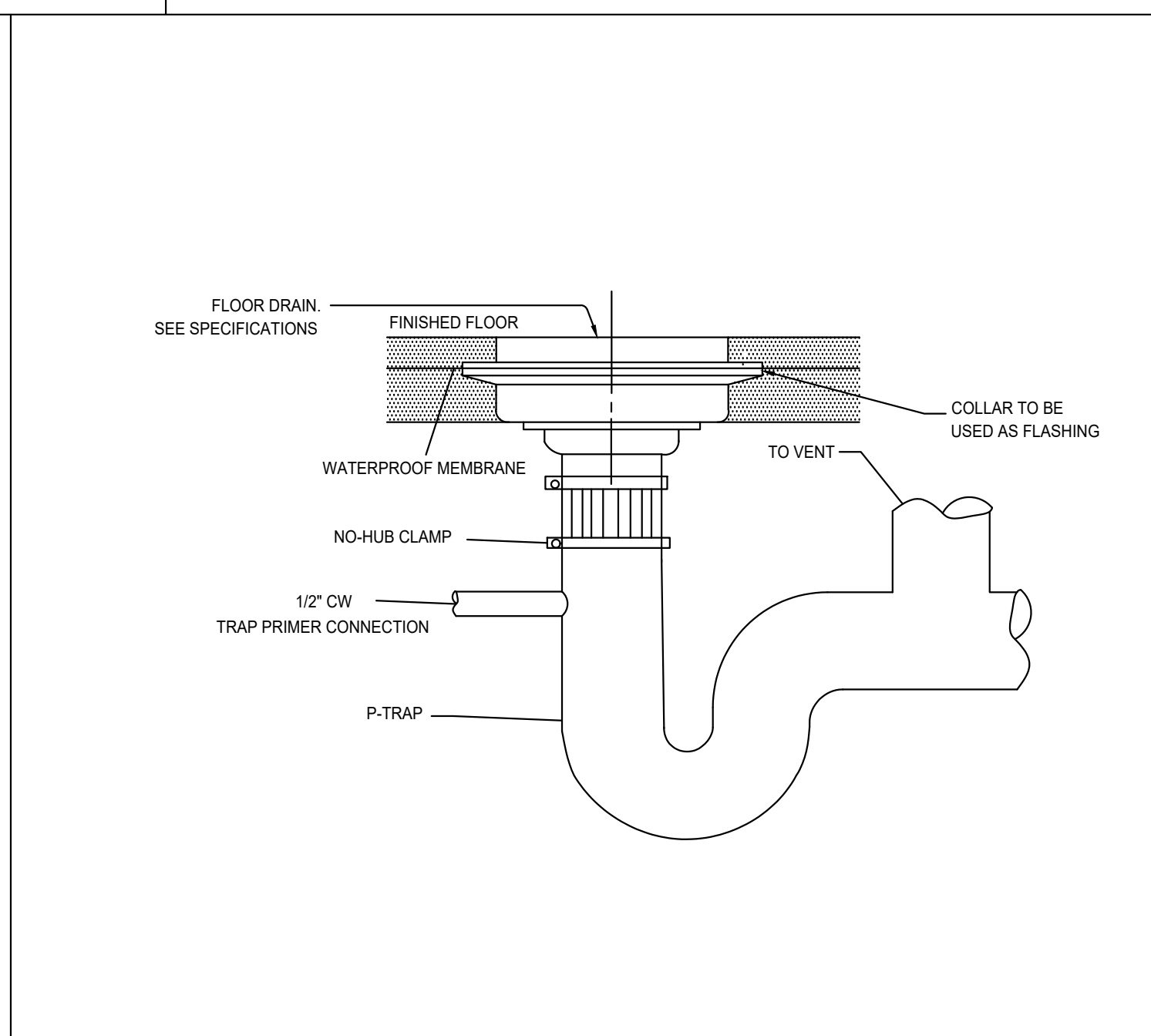
# 6 INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATIONS



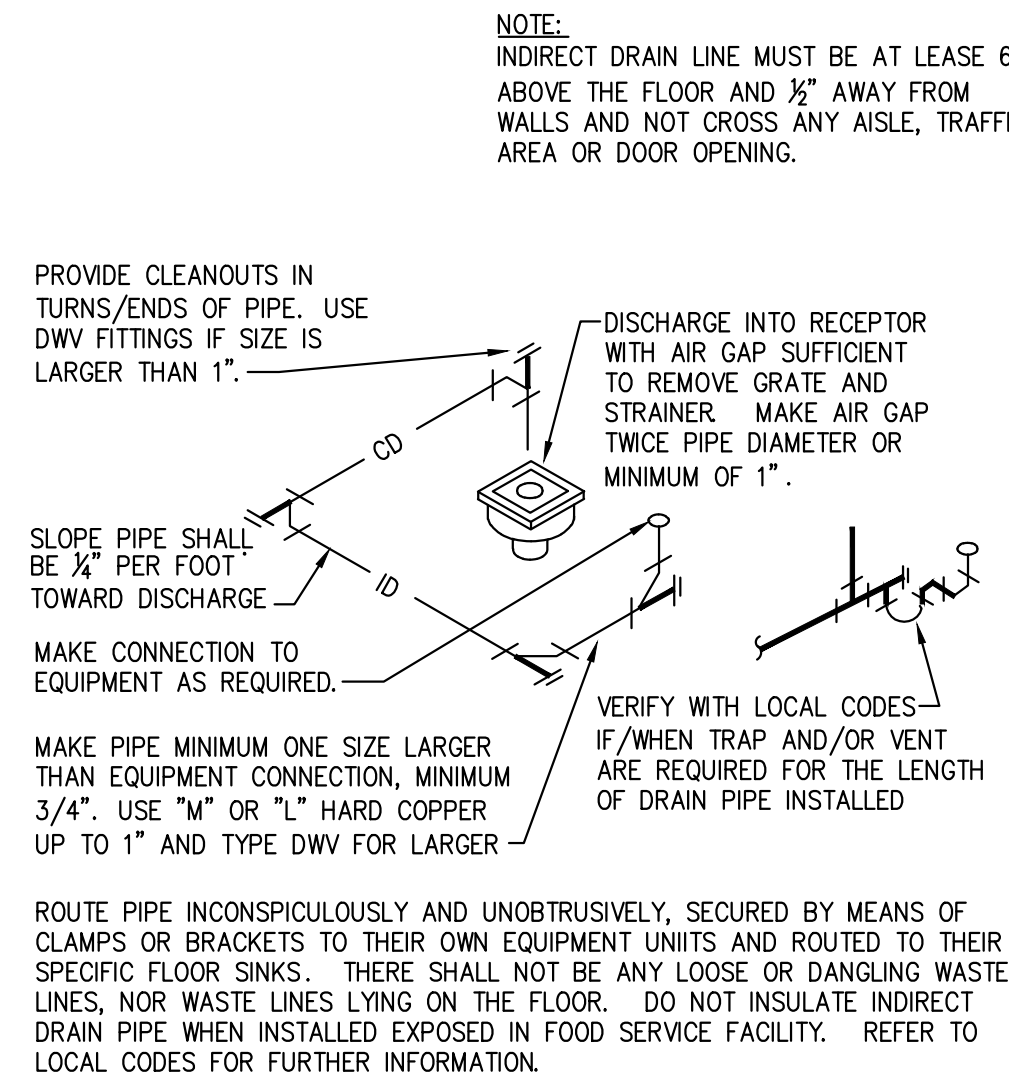
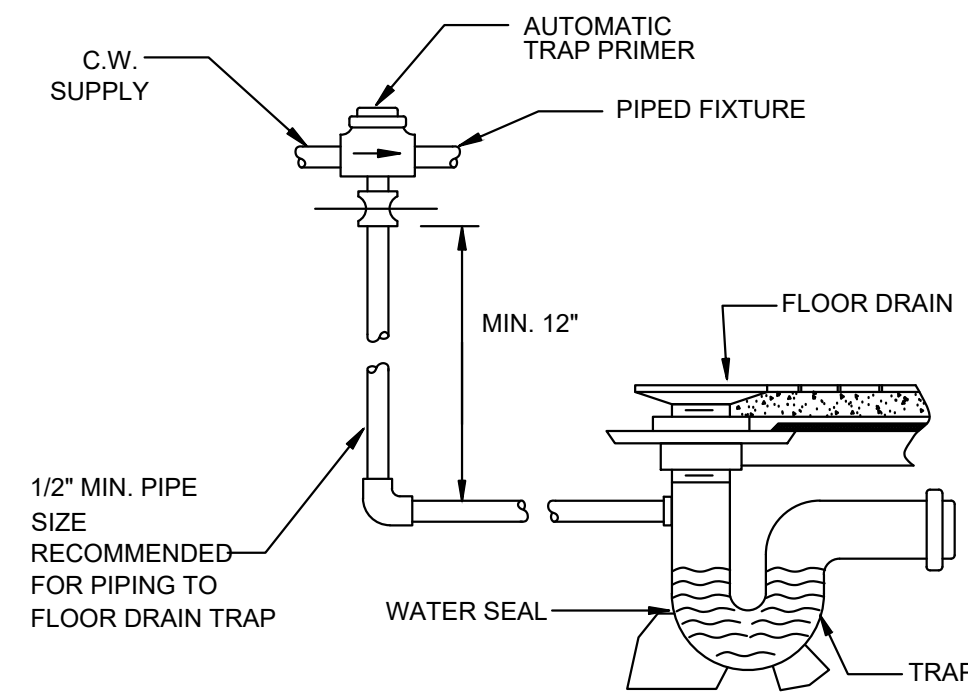
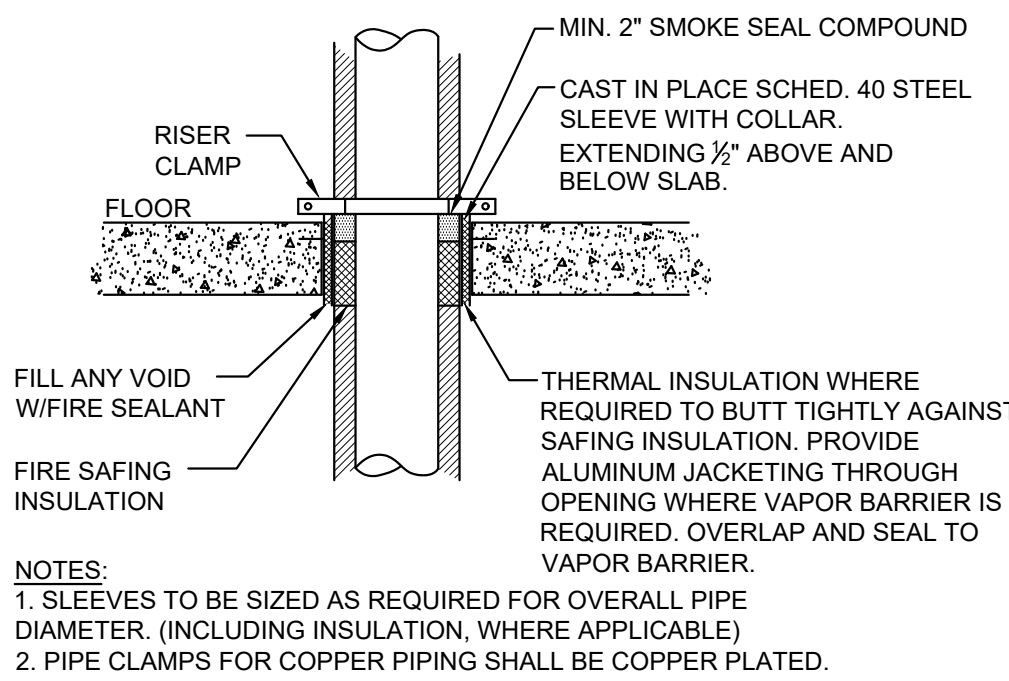
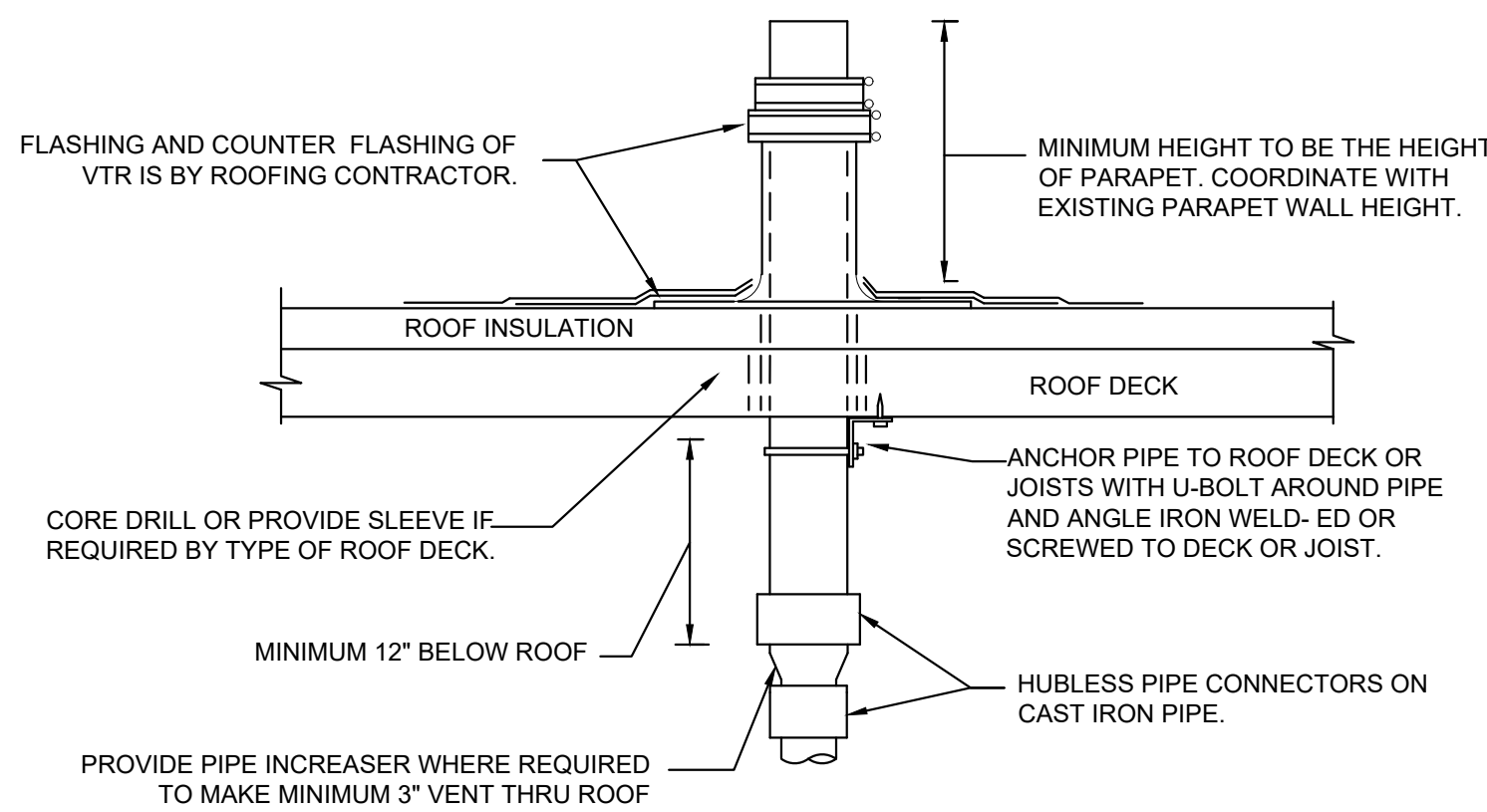
8 WALL CLEANOUT DETAIL  
N.T.S



10 WATER HAMMER ARRESTORS  
N.T.S



12 FLOOR DRAIN DETAILS  
N.T.S

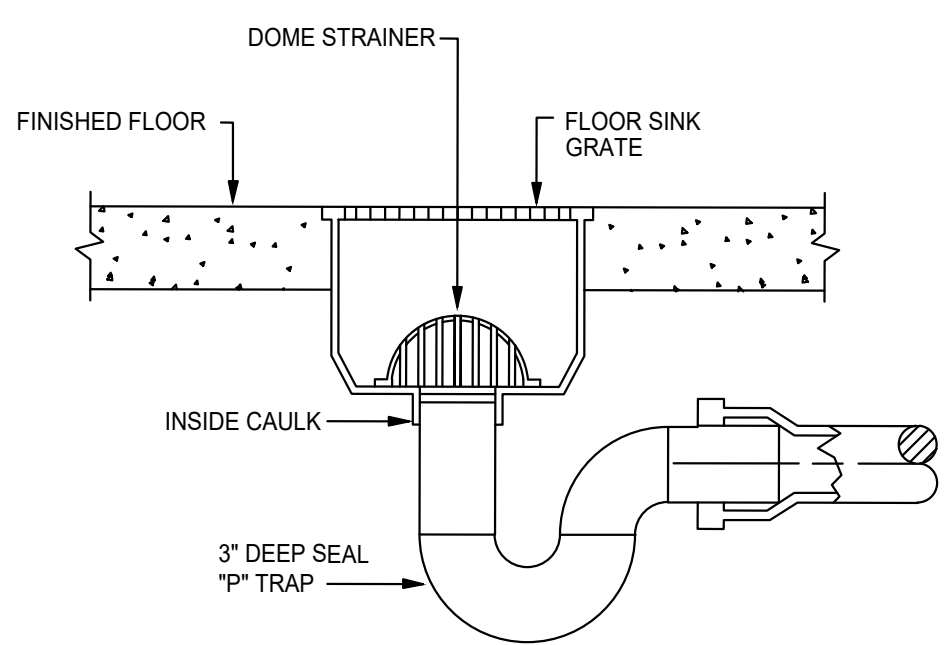


1 VENT THROUGH ROOF (VTR) DETAILS  
N.T.S

2 FLOOR PENETRATION DETAIL  
N.T.S

3 FLOW CONTROLLED TRAP PRIMER DETAIL  
N.T.S

4 INDIRECT/CONDENSATE DRAIN  
N.T.S



5 FLOOR SINK DETAILS  
N.T.S

### SPECIFICATIONS

Notes:

- 4" FPT inlet/outlet with 4" plain end adapters, single inlet and triple outlet.
- Unit weight - w/ composite cover: 135 lbs. (For wet weight add 1,043 lbs.)
- Maximum operating temperature: 150° F continuous
- Capacities - Liquid: 125 gal.  
Grease: 861 lbs. (118 gal.) @75 GPM  
Solids: 31 gal.
- For gravity drainage applications only.
- Do not use for pressure applications.
- Cover placement allows full access to tank for proper maintenance.
- Vent not required unless per local code.
- Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
- Integral air relief / Anti-siphon / Sampling access.
- Adjustable cover adapter provides up to 4" of additional height.
- Designed for below-grade, above-grade, indoor or outdoor installations.
- Safety Star®, access restrictor built into cover adapter, prevents accidental entry to tank (450 lb rating).

### ENGINEER SPECIFICATION GUIDE

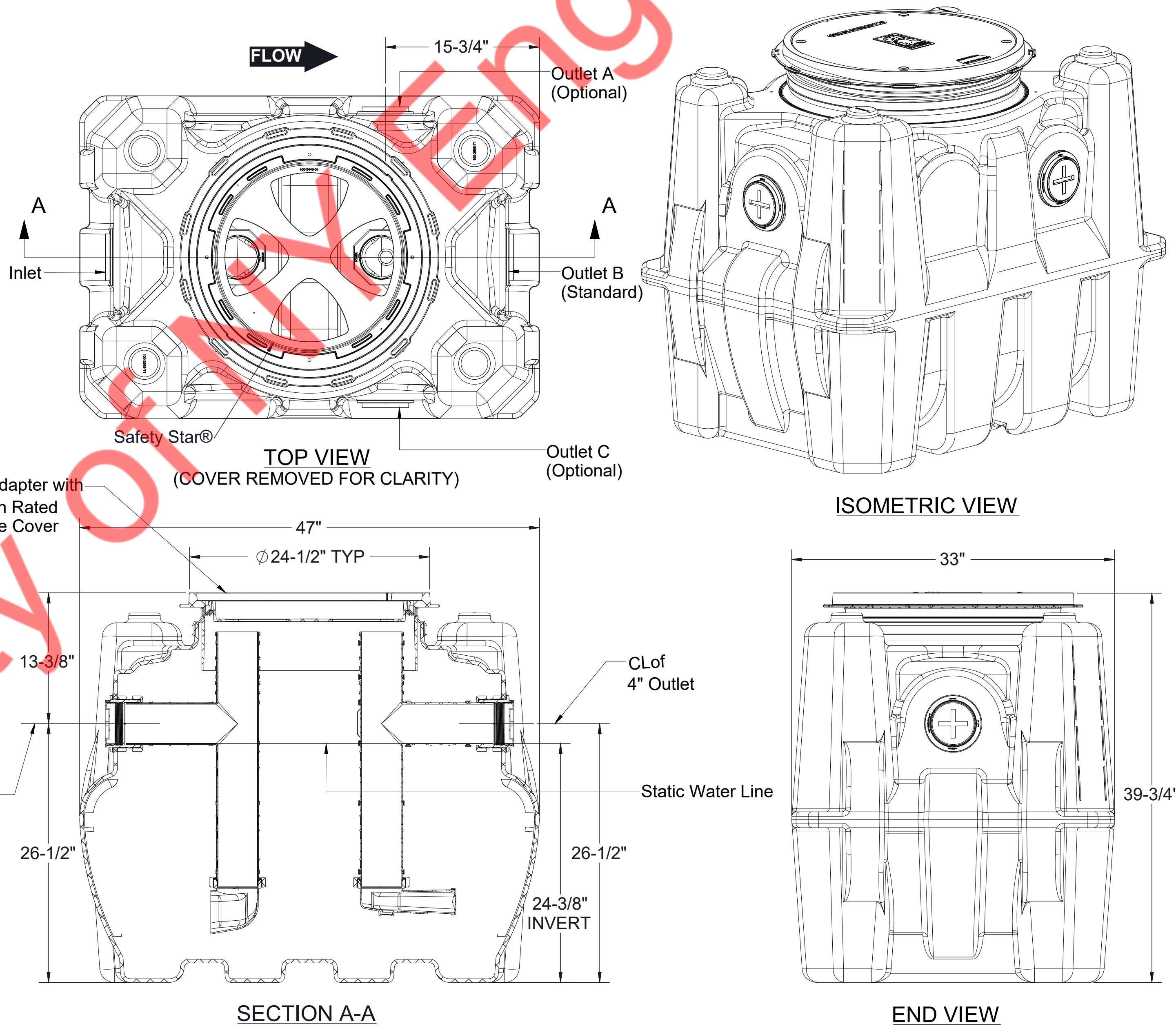
Schier Great Basin™ grease interceptor model # GB-75 shall be

polyethylene with minimum 3/8" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapter, Safety Star® access restrictor built into each cover adapter, and three outlet options. Interceptor shall be certified to ASME A112.14.3 (Type D) and CSA B481.1. Interceptor flow rate shall be 75 GPM. Interceptor grease capacity shall be 861 lbs. Cover shall provide water/gas-tight seal and have minimum 2,000 lbs. load capacity.

### CERTIFIED PERFORMANCE

Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.

Type D certification does not require a flow control



### SPECIFICATION SHEET

MODEL NUMBER:

GB-75

PROPRIETARY AND CONFIDENTIAL

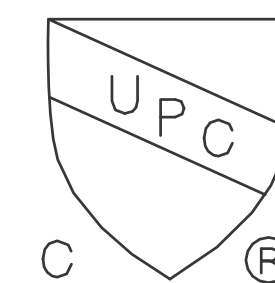
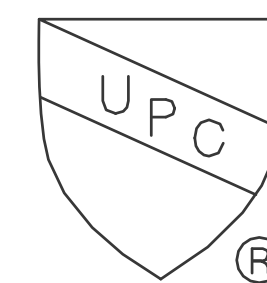
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SCHIER PRODUCTS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SCHIER PRODUCTS IS PROHIBITED.

PART NUMBER: 4045-001-02

DESCRIPTION:

GB-75 GREASE INTERCEPTOR 75 GPM, 4" INLET/OUTLET, PEDESTRIAN RATED COMPOSITE COVER

DWG BY: C. BUSENITZ DATE: 4/14/2022 REV: A ECO: BB - 12/5/22



6455 Woodland Dr  
Shawnee, KS 66218  
Tel: 913-951-3300  
Fax: 913-951-3399  
schierproducts.com

6 GREASE INTERCEPTOR DETAILS (GI-1)  
N.T.S

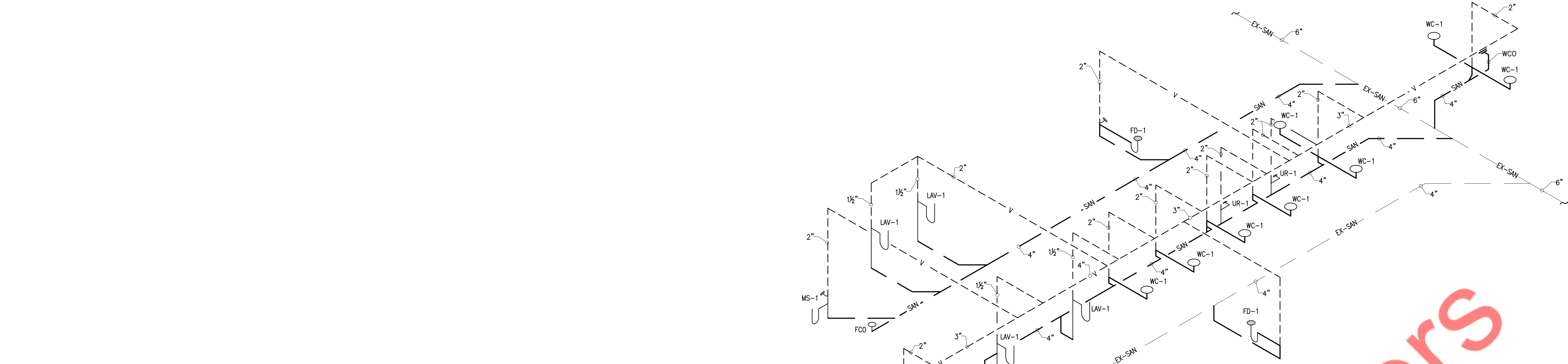
NRG ADVENTURE PARK

PLUMBING DETAILS  
(2 OF 2)

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

P3.20

PERMIT SET



| GREASE INTERCEPTOR CALCULATIONS                                         |                    |                     |                                  |        | Quote: 7E613C8D |  |
|-------------------------------------------------------------------------|--------------------|---------------------|----------------------------------|--------|-----------------|--|
| Reference No. 83267                                                     |                    |                     | Project Name: NRG ADVENTURE PARK |        |                 |  |
| Step 1: Flow rate to grease interceptor                                 |                    |                     |                                  |        |                 |  |
| Fixture flow rate: (cu in / 231) = gal x 0.75 / 2 min = 2 min flow rate |                    |                     |                                  |        |                 |  |
| NAME                                                                    | TYPE               | DIMENSIONS          | QTY                              | CU IN  | FLOW RATE       |  |
| 4 Compartment Sink                                                      | 4 Compartment Sink | 21" x 21" x 14" (4) | 1                                | 24,696 | 40.09 GPM       |  |
| Bar Sink One Bowl                                                       | Bar Sink One Bowl  | 14" x 14" x 14"     | 1                                | 2,744  | 4.45 GPM        |  |
| Floor Drain                                                             | Floor Drain        | N/A                 | 1                                | N/A    | 0 GPM           |  |
| Floor Sink                                                              | Floor Sink         | N/A                 | 1                                | N/A    | 0 GPM           |  |
| Hand Sink                                                               | Hand Sink          | 10" x 14" x 5"      | 2                                | 1,400  | 2.28 GPM        |  |
| Total                                                                   |                    |                     |                                  |        | 46.82 GPM       |  |

**Step 2: Grease Production**  
Number of Seats x 4 turns per seat x Grease Production Value x Days between pump-out = Grease output  
Number of seats in facility: 48  
Grease production value: 0.035 lbs per serving (Cafeteria - Full Serve: High / No flatware)  
Days between pump-outs: 90 days  
**48 x 4 x 0.035 x 90 = 604.8 lbs of FOG**

| SCHIER MODEL | Description: GREASE INTERCEPTOR 75 GPM, 4" PLAIN/FPT CONNECTIONS, PEDESTRIAN RATED COMPOSITE COVER                             |
|--------------|--------------------------------------------------------------------------------------------------------------------------------|
| GB-75        | Dimensions: Length: 47", Width: 33", Height: 39.75"<br>Flow Rate/Grease Capacity: 75 GPM / 861 lbs<br>Liquid Capacity: 125 gal |

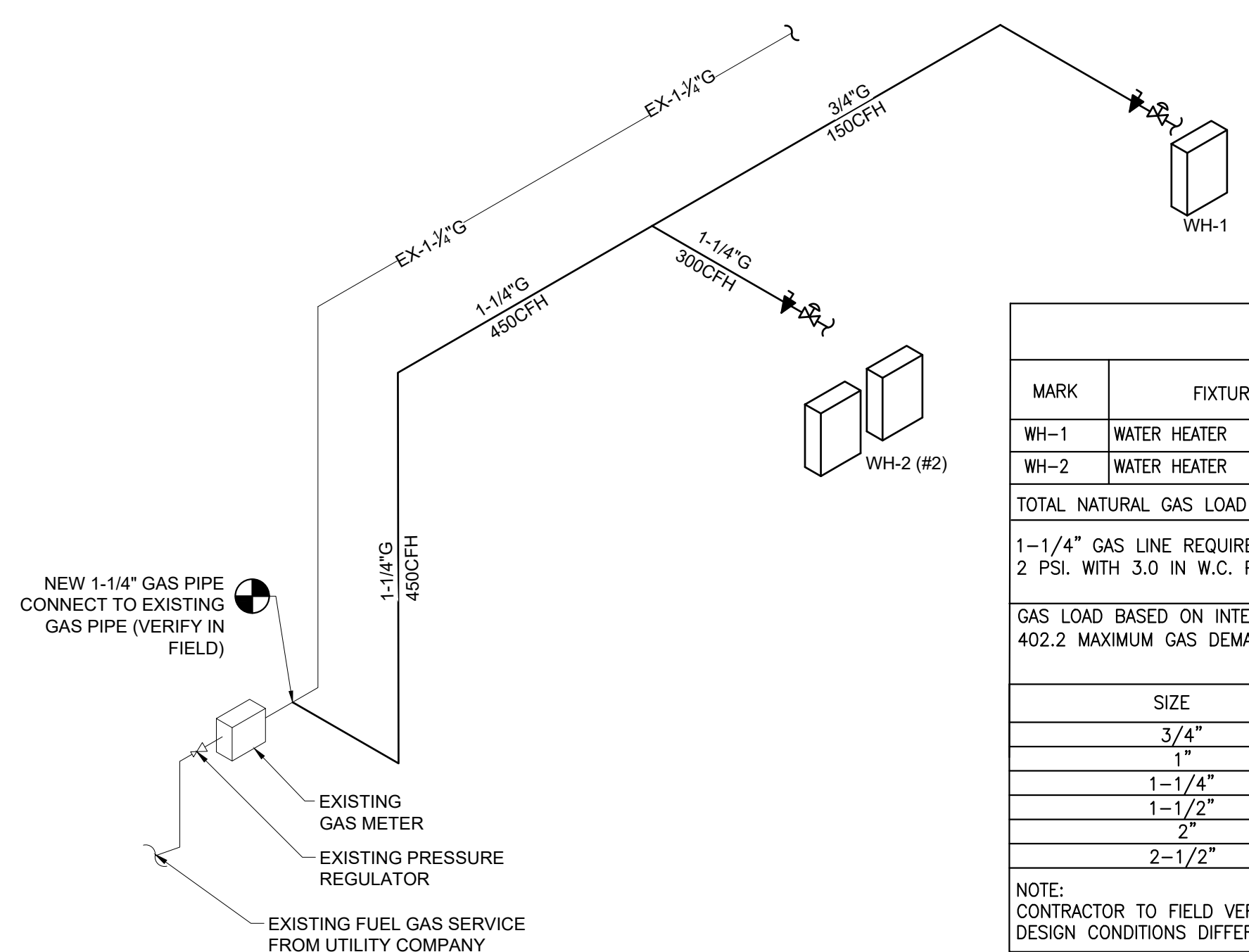
Specification Note: This Great Basin model has been sized to the flow rate and grease production requirements of the application and may not be substituted by liquid capacity alone. Any substitution requests must be approved by the specifying engineer and the authority having jurisdiction.  
Please contact support@schierproducts.com for technical and procurement support for the specified Great Basin model.

| WATER HEATER SCHEDULE |                        |          |              |           |       |    |                  |                |                       |                                                                                                  |                                                                                                                                      |
|-----------------------|------------------------|----------|--------------|-----------|-------|----|------------------|----------------|-----------------------|--------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| ID                    | DESCRIPTION            | QUANTITY | MANUFACTURER | MODEL NO. | VOLT  | PH | HEATING CAPACITY | FLOW RATE      | UNIFORM ENERGY FACTOR | DESCRIPTION                                                                                      | TRIM AND REMARKS                                                                                                                     |
| WH-1                  | GAS FIRED WATER HEATER | 1        | NAVEN        | NPE-18052 | 120 V | 1  | 150,000 Btu/h    | 2.9 GPM @100°F | 0.96                  | TANKLESS GAS WATER HEATER, 17.3" (W)x27.4"(H)x13.2"(D), CLEARANCES: 3" SIDES, 9" TOP, 12" BOTTOM | 2 GAL EXPANSION TANK AMTROL ST-5C-DD OR EQUAL, GXXX001325 CONDENSATE NEUTRALIZER TANK, COMMON VENT KIT, PRESSURE RELIEF SAFETY VALVE |
| WH-2                  | GAS FIRED WATER HEATER | 2        | NAVEN        | NPE-18052 | 120 V | 1  | 150,000 Btu/h    | 2.9 GPM @100°F | 0.96                  | TANKLESS GAS WATER HEATER, 17.3" (W)x27.4"(H)x13.2"(D), CLEARANCES: 3" SIDES, 9" TOP, 12" BOTTOM | 2 GAL EXPANSION TANK AMTROL ST-5C-DD OR EQUAL, GXXX001325 CONDENSATE NEUTRALIZER TANK, COMMON VENT KIT, PRESSURE RELIEF SAFETY VALVE |

| PUMP SCHEDULE                                                                                                                                |      |                        |         |          |            |                 |     |    |    |                    |              |
|----------------------------------------------------------------------------------------------------------------------------------------------|------|------------------------|---------|----------|------------|-----------------|-----|----|----|--------------------|--------------|
| TAG                                                                                                                                          | QTY. | DESCRIPTION            | TYPE    | CAPACITY |            | ELECTRICAL DATA |     |    |    | SELECTION BASED ON |              |
|                                                                                                                                              |      |                        |         | GPM      | HEAD (FT.) | HP              | V   | PH | HZ | MANUFACTURER       | MODEL NUMBER |
| RCP-1                                                                                                                                        | 2    | HOT WATER RECIRC. PUMP | IN-LINE | 2.0      | 9          | 1/12            | 120 | 1  | 60 | BELL & GOSSETT     | PL-30-B      |
| REMARKS/OPTIONS                                                                                                                              |      |                        |         |          |            |                 |     |    |    |                    |              |
| NOTES:<br>1. SET AQUA-STAT WITH SET POINT 10 DEGREES BELOW SYSTEM SUPPLY TEMP. 2. INSTALL RECIRCULATION PUMP PER MANUFACTURERS REQUIREMENTS. |      |                        |         |          |            |                 |     |    |    |                    |              |

| EXPANSION TANKS                                                                                                                                                                                                      |        |                             |          |                    |                               |                       |                   |                       |       |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-----------------------------|----------|--------------------|-------------------------------|-----------------------|-------------------|-----------------------|-------|
| UNIT                                                                                                                                                                                                                 | NUMBER | MANUFACTURER & MODEL NUMBER | SERVICE  | TANK VOLUME (GAL.) | MAX. ACCEPTANCE VOLUME (GAL.) | PRESSURE RATING (PSI) | DIMENSIONS (INCH) | SHIPPING WEIGHT (LBS) | NOTES |
| ET-1                                                                                                                                                                                                                 | 2      | AMTROL                      | ST-5C-DD | 2                  | 0.9                           | 150                   | 8 14              | 26                    | 1, 2  |
| GENERAL NOTES:<br>1. SET THE TANK PRESSURE TO EQUAL THE SYSTEM OPERATING PRESSURE. TANK MUST BE DRAINED BEFORE ADJUSTING SET PRESSURE.<br>2. INSTALL PER MANUFACTURER'S RECOMMENDATIONS ON INCOMING COLD WATER LINE. |        |                             |          |                    |                               |                       |                   |                       |       |

| PLUMBING FIXTURE SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                   |      |      |        |          | MANUFACTURER | MODEL             | DESCRIPTION |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------|------|--------|----------|--------------|-------------------|-------------|
| SYMBOL                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | DESCRIPTION                       | C.W. | H.W. | DIRECT | INDIRECT |              |                   |             |
| WC-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | WATER CLOSET                      | 3/4" | -    | 4"     | -        | 2"           | AMERICAN STANDARD | 215CA.104   |
| LAV-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | LAVATORY                          | 1/2" | 1/2" | 1-1/2" | -        | 1-1/2"       | AMERICAN STANDARD | 0495.300    |
| LAV-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | LAVATORY                          | 1/2" | 1/2" | 1-1/2" | -        | 1-1/2"       | AMERICAN STANDARD | 0355.912    |
| FD-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | FLOOR DRAIN                       | -    | -    | 3"     | -        | 2"           | JAY R SMITH       | 2005 SERIES |
| UR-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | URINAL                            | 3/4" | -    | 2"     | -        | 2"           | AMERICAN STANDARD | 6590.001    |
| WF-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DRINKING FOUNTAIN HIGH/LOW MODULE | 1/2" | -    | 1-1/2" | -        | 1-1/2"       | ELKAY             | LZSTL8WSLK  |
| NOTES:<br>1. PROVIDE SHUT OFF VALVES FOR ALL WATER LINES AT PLUMBING FIXTURES AND EQUIPMENT CONNECTIONS.<br>2. MAXIMUM FLOW FROM A SINK FAUCET SHALL NOT EXCEED 2.2 GAL OF WATER/MIN AT 60PSI PRESSURE.<br>3. INSTALL TRAP PRIMER THAT SERVE THE RESTROOM & WATER HEATER.<br>4. PROVIDE ELECTRONIC TRAP PRIMER FOR MECHANICAL/TRASH ROOM FLOOR DRAINS & FUNNEL DRAIN. PROVIDE FLOW CONTROL TRAP PRIMER FOR ALL OTHER ROOM FLOOR DRAINS.<br>5. THE TOP OF ALL FLOOR DRAINS SHALL BE FLUSH WITH THE ADJACENT FINISHED FLOOR.<br>6. ALL FLOOR DRAINS IN FINISHED AREAS AND ALL ROOF DRAINS SHALL BE LOCATED AS PER THE ARCHITECTURAL DRAWINGS.<br>7. REFER TO ARCHITECTURAL SHEET FOR ADDITIONAL PLUMBING FIXTURES. |                                   |      |      |        |          |              |                   |             |



| NATURAL GAS SCHEDULE                                                                                                                             |                   |                |                     |              |
|--------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------------|---------------------|--------------|
| MARK                                                                                                                                             | FIXTURE/EQUIPMENT | QTY            | UNIT DEMAND<br>BOTH | TOTAL<br>CFH |
| WH-1                                                                                                                                             | WATER HEATER      | 1              | 150,000             | 150          |
| WH-2                                                                                                                                             | WATER HEATER      | 2              | 150,000             | 300          |
| TOTAL NATURAL GAS LOAD (CFH):                                                                                                                    |                   |                |                     | 450          |
| 1-1/4" GAS LINE REQUIRED BASED ON 300'-0" TOTAL LENGTH OF PIPE AT LESS THAN 2 PSI. WITH 3.0 IN W.C. PRESSURE DROP.                               |                   |                |                     |              |
| GAS LOAD BASED ON INTERNATIONAL FUEL GAS CODE 2021, SECTION 402 PIPE SIZING, 402.2 MAXIMUM GAS DEMAND, TABLE 402.4(3) SCHEDULE 40 METALLIC PIPE. |                   |                |                     |              |
| SIZE                                                                                                                                             |                   | GAS LOAD (CFH) |                     |              |
| 3/4"                                                                                                                                             |                   | 151            |                     |              |
| 1"                                                                                                                                               |                   | 284            |                     |              |
| 1-1/4"                                                                                                                                           |                   | 583            |                     |              |
| 1-1/2"                                                                                                                                           |                   | 973            |                     |              |
| 2"                                                                                                                                               |                   | 1,680          |                     |              |
| 2-1/2"                                                                                                                                           |                   | 2,680          |                     |              |
| NOTE:<br>CONTRACTOR TO FIELD VERIFY TOTAL LENGTH OF GAS PIPE AND NOTIFY ENGINEER IF DESIGN CONDITIONS DIFFER.                                    |                   |                |                     |              |

| FOOD SERVICE PLUMBING EQUIPMENT SCHEDULE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                          |        |          |        |      |        |        |    |     |         |         |              |               |                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|--------|----------|--------|------|--------|--------|----|-----|---------|---------|--------------|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TAG NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | DESCRIPTION                              | WASTE  |          | VENT   | CW   | HW     |        | FW | GAS | QTY     | REMARKS | MANUFACTURER | MODEL         | DESCRIPTION                                                                                                                                                                                                                                   |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                          | DIRECT | INDIRECT |        |      | 110 °F | 140 °F |    |     |         |         |              |               |                                                                                                                                                                                                                                               |
| 1CKS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1-BOWL SINK (DRAIN TO FLOOR SINK)        | -      | 2"       | 1-1/2" | 1/2" | -      | -      | -  | -   | 1 UNIT  | -       | SERV-WARE    | 1CWP1818R-18  | 1' BOWL HEAVY DUTY SINK STAINLESS STEEL 16 GAUGE, 14" DEEP, BOWL DIMENSION 18"X18", FAUCET: WF08-CWP, WALLMOUNT 8" CENTERS & SWIVEL FLANGES WITH 1/2" NPT INLETS.                                                                             |
| HS-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | HAND SINK                                | 1-1/2" | -        | 1-1/2" | 1/2" | -      | -      | -  | -   | 3 UNITS | -       | SERV-WARE    | HS15-CWP-SSR  | HAND SINK WITH SIDESPLASH STAINLESS STEEL 18 GAUGE AND 4" GOOSENECK FAUCET WITH WRIST BLADE HANDLES.                                                                                                                                          |
| 3CS-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 3-COMPARTMENT SINK (DRAIN TO FLOOR SINK) | -      | 2"       | -      | 1/2" | -      | 1/2"   | -  | -   | 1 UNIT  | -       | SERV-WARE    | EC3WP18182-24 | 3 BOWL ECONOMY SINK STAINLESS STEEL 18 GAUGE, 18"X18"X14" DIMENSION AND HAVING INDIRECT DRAIN. FAUCET: PRWB-CWP-E, 8" ADJUSTABLE CENTERS W/1/2" NPT INLETS.                                                                                   |
| MS-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | MOP SINK                                 | 3"     | -        | 2"     | 3/4" | -      | 3/4"   | -  | -   | 1 UNIT  | -       | FIAT         | MSB-2424      | FAUCET: CHICAGO FAUCET NO. 540-LD89SCP                                                                                                                                                                                                        |
| FS-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | FLOOR SINK                               | 3"     | -        | 2"     | -    | -      | -      | -  | -   | 3 UNIT  | -       | JAY R SMITH  | 305 SERIES    | JAY R SMITH 305-12 PVC WITH 1/2 GRATE                                                                                                                                                                                                         |
| IM-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ICE MACHINE (DRAIN TO FLOOR SINK)        | -      | 3/4"     | -      | 1/2" | -      | -      | -  | -   | 1 UNIT  | -       | SCOTSMAN     | C03030        | DIMENTION - 30X30X33, 300LB SELF-CONTAINED ICE MACHINE                                                                                                                                                                                        |
| IM-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ICE MAKER (DRAIN TO FLOOR SINK)          | -      | 3/4"     | -      | 1/2" | -      | -      | -  | -   | 1 UNIT  | -       | SCOTSMAN     | C0330         | DIMENTION - 30X24X23, STORAGE LB - 300                                                                                                                                                                                                        |
| DD-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DRINKING DISPENSER                       | -      | -        | -      | 1/2" | -      | -      | -  | -   | 2 UNIT  | -       | SERVEND      | SV-175        | DIMENTION - 25 X 31.13" X 34.88"                                                                                                                                                                                                              |
| DF-1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | DRINKING FOUNTAIN                        | -      | -        | -      | 1/2" | -      | -      | -  | -   | 1 UNIT  | -       | ELKAY        | LZSTL8WSLK    | WALL MOUNT BOTTLE FILLING STATION & VERSATILE BI-LEVEL ADA COOLER FILTERED REFRIGERATED LIGHT GRAY WITH CHILLING CAPACITY OF 8.0 GALLONS PER HOUR. ELECTRONIC BOTTLE FILLER SENSOR WITH ELECTRONIC FRONT AND SIDE BUBBLER PUSHBAR ACTIVATION. |
| PLUMBING EQUIPMENT NOTES:<br>1. IT SHALL BE THE PLUMBING CONTRACTORS RESPONSIBILITY TO MAKE ALL FINAL CONNECTIONS FROM KITCHEN EQUIPMENT TO THE PLUMBING MAINS SHOWN ON PLAN. 2. THE PLUMBING CONNECTION SCHEDULE ON THIS PLAN RELATES REQUIRED CONNECTIONS TO INDIVIDUAL EQUIPMENT ONLY.<br>3. PLUMBING CONTRACTOR SHALL REFER TO "KITCHEN EQUIPMENT COMPANY" CUT SHEETS FOR ALL ROUTING OF FINAL CONNECTION TO EQUIPMENT AND EXACT ROUGH-IN LOCATION. 4. PLUMBING CONTRACTOR SHALL MOUNT ALL FLOOR SINKS FLUSH WITH FINISHED FLOOR ELEVATION AND A MINIMUM OF 16" OFF THE FINISH FACE OF THE WALL. 5. INSTALL SECONDARY BFP ASSE 1056 IF CHEMICAL DISPENSER USED WITH MOP SINK. 6. REFER TO ARCHITECTURAL SHEET FOR ADDITIONAL PLUMBING FIXTURES. |                                          |        |          |        |      |        |        |    |     |         |         |              |               |                                                                                                                                                                                                                                               |

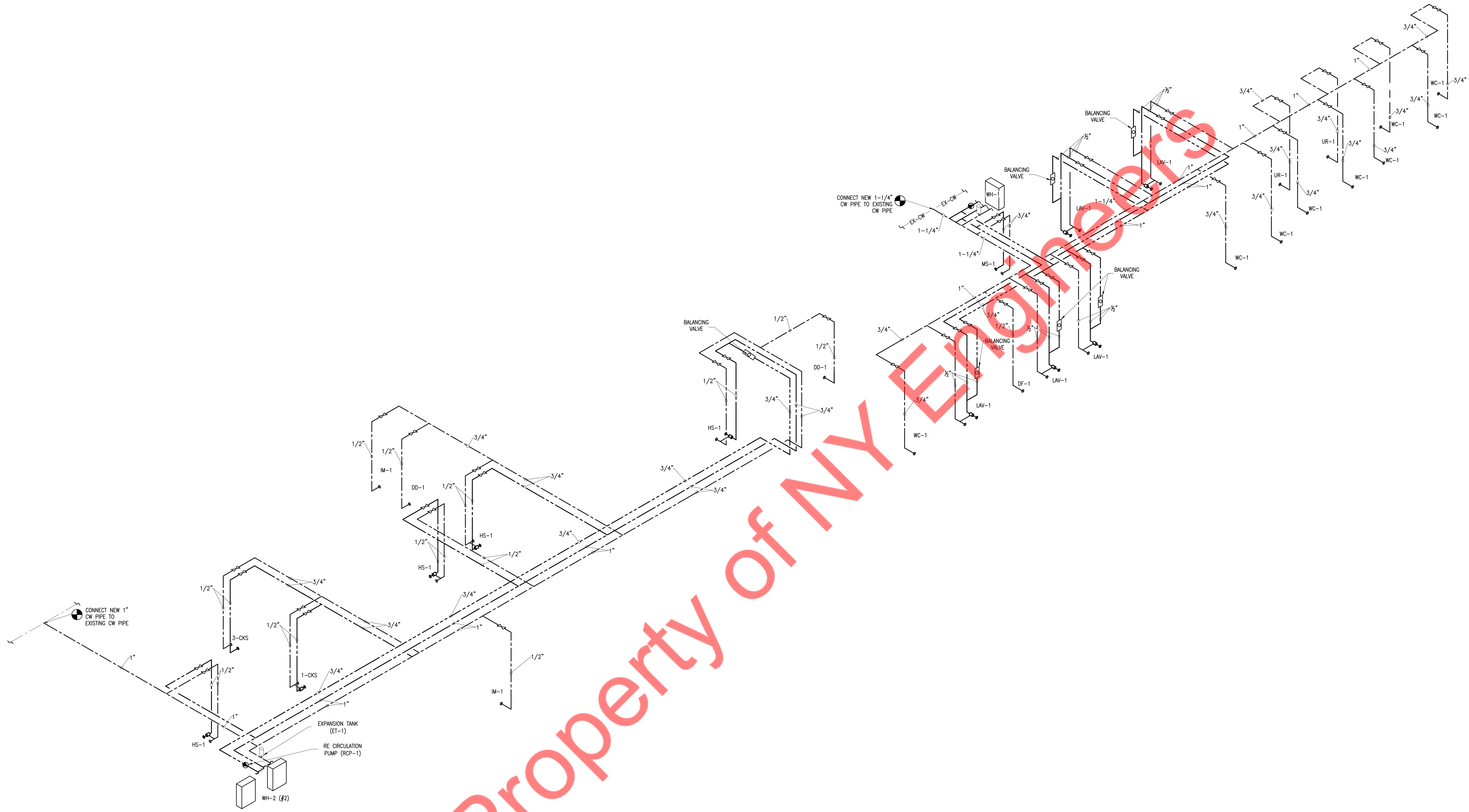
NRG ADVENTURE PARK

PLUMBING SCHEDULE, SANITARY, VENT & GAS RISERS

DATE: 2025.05.09  
DRAWN BY: NTE  
REVISIONS:

P5.10

PERMIT SET

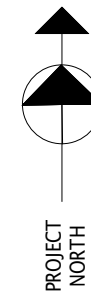


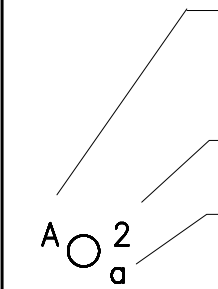
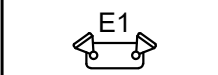
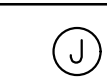
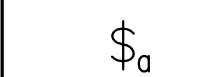
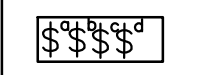
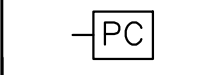
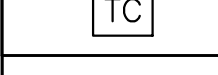
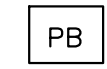
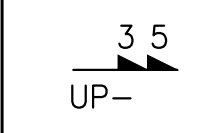
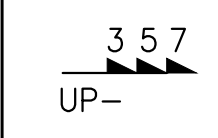
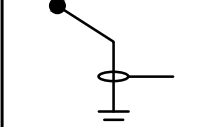
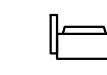
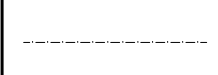
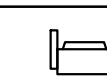
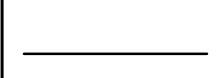
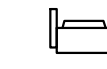
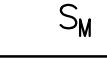
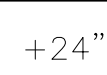
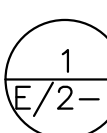
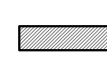
1 WATER SUPPLY RISER  
P5.20 1/4" = 1'-0"

NRG ADVENTURE PARK

PLUMBING WATER SUPPLY  
RISER

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:



| ELECTRICAL SYMBOLS LIST                                                                                                                                                                                                                                                              |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        | GENERAL NOTES            |                            |         |                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|----------------------------|---------|----------------------------|
| LIGHTING                                                                                                                                                                                                                                                                             |                                                                                                                                                                                               | POWER AND TELECOMMUNICATION                                                         |                                                                                                                                                                                        | ELECTRICAL ABBREVIATIONS |                            |         |                            |
|                                                                                                                                                                                                      | LED LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.                                                  |    | DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.                                                                                                                                   | A                        | AMPERES                    | EA      | EACH                       |
|                                                                                                                                                                                                      | LUMINAIRE TYPE : INDICATE BY UPPERCASE LETTER SEE LIGHTING EXTURE SCHEDULE.                                                                                                                   |    | DUPLEX GFI RECEPTACLE                                                                                                                                                                  | A/C, AC                  | AIR CONDITIONING UNIT      | EM      | EMERGENCY                  |
|                                                                                                                                                                                                                                                                                      | CIRCUIT NUMBER : INDICATED BY NUMBER                                                                                                                                                          |    | DEDICATED DUPLEX RECEPTACLE.                                                                                                                                                           | AF                       | AMPERE FRAME/AMP FUSE      | EMT     | ELECTRICAL METALLIC TUBING |
|                                                                                                                                                                                                                                                                                      | SWITCHING INDICATED BY LOWER CASE LETTERS.                                                                                                                                                    |    | DEDICATED DUPLEX GFI RECEPTACLE.                                                                                                                                                       | AFF                      | ABOVE FINISHED FLOOR       | EQUIP   | EQUIPMENT                  |
|                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |    | DUPLEX CEILING MOUNTED RECEPTACLE                                                                                                                                                      | AS                       | AMP SWITCH                 | ER      | EXISTING TO BE RELOCATED   |
|                                                                                                                                                                                                      | EMERGENCY WALL PACK LIGHT FIXTURE WITH MINIMUM 90 MINUTES BATTERY BACKUP                                                                                                                      |    | DUPLEX FLOOR MOUNTED RECEPTACLE                                                                                                                                                        | AIC                      | AMPS INTERRUPTING CAPACITY | FA      | FIRE ALARM                 |
|                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |    | RECESSED DUPLEX RECEPTACLE                                                                                                                                                             | AT                       | AMP TRIP                   | E, EX   | EXISTING                   |
|                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |    | DOUBLE DUPLEX RECEPTACLE – 20A–1P, 125V, NEMA 5–20R.                                                                                                                                   | ATS                      | AUTOMATIC TRANSFER SWITCH  | FL      | FLOOR                      |
|                                                                                                                                                                                                      | EMERGENCY WALL PACK LIGHT FIXTURE AND EXIT SIGN WITH MINIMUM 90 MINUTES BATTERY BACKUP                                                                                                        |    | TELEPHONE/DATA OUTLET, 4"SQUARE OUTLET BOX WITH SINGLE GANG COLLAR AND BLANK PLATE. PROVIDE 3/4" E.C., U.O.N., UP TO HUNG CEILING AND TERMINATE WITH 90° ELBOW, BUSHING AND DRAG WIRE. | AUTO                     | AUTOMATIC                  | G       | GROUND                     |
|                                                                                                                                                                                                      | DIRECTIONAL EMERGENCY EXIT SIGN LIGHTS                                                                                                                                                        |                                                                                     |                                                                                                                                                                                        | AWG                      | AMERICAN WIRE GAUGE        | GFI     | GROUND FAULT INTERRUPTER   |
|                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |                                                                                     |                                                                                                       | DATA OUTLET              | C                          | CONDUIT | GP                         |
|                                                                                                                                                                                                      | REMOTE HEAD EMERGENCY LIGHT                                                                                                                                                                   |    | JUNCTION BOX                                                                                                                                                                           | C/B,CB                   | CIRCUIT BREAKER            | HP      | HORSEPOWER                 |
| SWITCHES AND CONTROLS                                                                                                                                                                                                                                                                |                                                                                                                                                                                               |    | DUPLEX SWITCHED RECEPTACLE                                                                                                                                                             | CKT                      | CIRCUIT                    | HHW     | HOW WATER HEATER           |
|                                                                                                                                                                                                      | 20A SPST TOGGLE SWITCH U.O.N. "a" DENOTES LIGHTING FIXTURE CONTROLLED.                                                                                                                        |    | CEILING MOUNTED QUAD RECEPTACLE.                                                                                                                                                       | CL                       | CURRENT LIMITER            | HZ      | HERTZ                      |
|                                                                                                                                                                                                      | WALL OCCUPANCY SWITCH                                                                                                                                                                         |    | FLOOR MOUNTED QUAD RECEPTACLE.                                                                                                                                                         | CLG                      | CEILING                    | IC      | INTERRUPTING CAPACITY      |
|                                                                                                                                                                                                      | DIMMER SWITCH                                                                                                                                                                                 |    | SPECIAL 220V RECEPTACLE                                                                                                                                                                | COMM                     | COMMUNICATION              | PP      | POWER PANEL                |
|                                                                                                                                                                                                      | SWITCH BANK                                                                                                                                                                                   |    | AI 360 DEGREE CAMERA                                                                                                                                                                   | CT                       | CURRENT TRANSFORMER        | PWR     | POWER                      |
|                                                                                                                                                                                                      | WALL MOUNTED PHOTOCELL MOUNTED IN NEMA 3R ENCLOSURE.                                                                                                                                          |    | G5 TURRET ULTRA CAMERA                                                                                                                                                                 | CU                       | COPPER                     | R       | REMOVE                     |
|                                                                                                                                                                                                      | TIME CLOCK                                                                                                                                                                                    |    | PULL BOXES                                                                                                                                                                             | DIA                      | DIAMETER                   | RE      | RELOCATED EXISTING         |
| WIRING SYSTEMS                                                                                                                                                                                                                                                                       |                                                                                                                                                                                               | MOTORS AND CONTROLS                                                                 |                                                                                                                                                                                        | DISC                     | DISCONNECT                 | REC     | RECEPTACLE                 |
|                                                                                                                                                                                                      | POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 2#12 N. & 2#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED. |    | AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.                                                                                | DN                       | DOWN                       | RGS     | RIGID GALVANIZED STEEL     |
|                                                                                                                                                                                                     | POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 Ø, 3#12 N. & 3#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED. |   | AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.                                                                                               | DP                       | DISTRIBUTION PANEL         | RR      | REMOVE & RELOCATE          |
|                                                                                                                                                                                                    | CONDUIT AND WIRE TO BUILDING GROUND.                                                                                                                                                          |  | NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.                                                                                                                    | DWG                      | DRAWING                    | SECT    | SECTION                    |
|                                                                                                                                                                                                    | EXISTING                                                                                                                                                                                      |  | 30A/480V NON FUSED DISCONNECT SWITCH                                                                                                                                                   | IG                       | ISOLATED GROUNDING         | SPDT    | SINGLE POLE DOUBLE THROW   |
|                                                                                                                                                                                                    | NEW                                                                                                                                                                                           |  | 60A/480V NON FUSED DISCONNECT SWITCH                                                                                                                                                   | JB                       | JUNCTION BOX               | SPST    | SINGLE POLE SINGLE THROW   |
| ELECTRICAL DRAWING LIST                                                                                                                                                                                                                                                              |                                                                                                                                                                                               |  | 100A/480V NON FUSED DISCONNECT SWITCH                                                                                                                                                  | KCMIL                    | ONE THOUSAND CIRCULAR MILS | SPEC    | SPECIFICATION              |
| E0.10                                                                                                                                                                                                                                                                                | ELECTRICAL SYMBOLS LIST, NOTES AND ABBREVIATIONS                                                                                                                                              |  | 200A/480V NON FUSED DISCONNECT SWITCH                                                                                                                                                  | KV                       | KILOVOLT                   | SW      | SWITCH                     |
| E0.20                                                                                                                                                                                                                                                                                | ELECTRICAL SPECIFICATIONS SHEET 1 OF 2                                                                                                                                                        |  | MANUAL MOTOR SWITCH                                                                                                                                                                    | KVA                      | KILOVOLT–AMPERES           | SWBD    | SWITCHBOARD                |
| E0.30                                                                                                                                                                                                                                                                                | ELECTRICAL SPECIFICATIONS SHEET 2 OF 2                                                                                                                                                        | ANNOTATION                                                                          |                                                                                                                                                                                        | KW                       | KILOWATTS                  | SYM     | SYMMETRICAL                |
| E1.00                                                                                                                                                                                                                                                                                | ELECTRICAL POWER PLAN – FIRST FLOOR                                                                                                                                                           |  | KEYED NOTE REFERENCE                                                                                                                                                                   | LTC                      | LIGHTING                   | SYS     | SYSTEMS                    |
| E1.01                                                                                                                                                                                                                                                                                | ELECTRICAL POWER PLAN – ENLARGED KITCHEN                                                                                                                                                      |  | INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.                                                                                                                              | MAX                      | MAXIMUM                    | TELE    | TELEPHONE                  |
| E1.10                                                                                                                                                                                                                                                                                | ELECTRICAL POWER PLAN – MEZZANINE FLOOR                                                                                                                                                       |  | DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM                                                                                                   | MC                       | MOTOR CONTROLLER           | TEMP    | TEMPERATURE                |
| E1.20                                                                                                                                                                                                                                                                                | ELECTRICAL POWER PLAN – ROOF                                                                                                                                                                  | POWER DISTRIBUTION                                                                  |                                                                                                                                                                                        | MCB                      | MAIN CIRCUIT BREAKER       | TXF     | TOILET EXHAUST FAN         |
| E1.30                                                                                                                                                                                                                                                                                | ELECTRICAL LOW VOLTAGE PLAN – FIRST FLOOR                                                                                                                                                     |  | DISTRIBUTION PANELBOARD, 208V/120V–SURFACE OR FLUSH MOUNTED.                                                                                                                           | MLO                      | MAIN LUGS ONLY             | TYP     | TYPICAL                    |
| E1.31                                                                                                                                                                                                                                                                                | ELECTRICAL LOW VOLTAGE PLAN – MEZZANINE FLOOR                                                                                                                                                 |  | DISTRIBUTION PANELBOARD, 480V/277V–SURFACE OR FLUSH MOUNTED.                                                                                                                           | MTD                      | MOUNTED                    | TR      | TAMPER RESISTANT           |
| E2.00                                                                                                                                                                                                                                                                                | ELECTRICAL LIGHTING PLAN – FIRST FLOOR                                                                                                                                                        |  | MAJOR ELECTRICAL COMPONENT OR DEVICE. VOLTAGE AND AMPERAGE AS NOTED.                                                                                                                   | MTS                      | MANUAL TRANSFER SWITCH     | UON     | UNLESS OTHERWISE NOTED     |
| E2.10                                                                                                                                                                                                                                                                                | ELECTRICAL LIGHTING PLAN – MEZZANINE FLOOR                                                                                                                                                    |                                                                                     |                                                                                                                                                                                        | N                        | NEUTRAL                    | V       | VOLT/VOLTAGE               |
| E3.10                                                                                                                                                                                                                                                                                | ELECTRICAL DETAILS                                                                                                                                                                            |                                                                                     |                                                                                                                                                                                        | NIC                      | NOT IN CONTRACT            | VA      | VOLT AMPERE                |
| E4.10                                                                                                                                                                                                                                                                                | ELECTRICAL PANEL SCHEDULES                                                                                                                                                                    |                                                                                     |                                                                                                                                                                                        | NTS                      | NOT TO SCALE               | V.I.F   | VERIFY IN FIELD            |
| E5.10                                                                                                                                                                                                                                                                                | ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE                                                                                                                                                     |                                                                                     |                                                                                                                                                                                        | PNL                      | PANEL                      | WP      | WEATHER PROOF              |
| CODE COMPLIANCE                                                                                                                                                                                                                                                                      |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        | W                        | WATT                       | ø       | PHASE                      |
| ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT: |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        | REF                      | REFRIGERATOR               | DW      | DISHWASHER                 |
| a. 2021 INTERNATIONAL BUILDING CODE WITH AMENDMENTS.                                                                                                                                                                                                                                 |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |
| b. 2021 INTERNATIONAL EXISTING BUILDING CODE WITH AMENDMENTS                                                                                                                                                                                                                         |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |
| c. 2021 INTERNATIONAL MECHANICAL CODE WITH AMENDMENTS                                                                                                                                                                                                                                |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |
| d. 2018 NORTH DAKOTA PLUMBING CODE (2018 UNIFORM PLUMBING CODE)                                                                                                                                                                                                                      |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |
| e. 2023 NATIONAL ELECTRICAL CODE                                                                                                                                                                                                                                                     |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |
| f. 2021 INTERNATIONAL FUEL GAS CODE WITH AMENDMENTS                                                                                                                                                                                                                                  |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |
| g. 2021 INTERNATIONAL ENERGY CONSERVATION CODE WITH AMENDMENTS                                                                                                                                                                                                                       |                                                                                                                                                                                               |                                                                                     |                                                                                                                                                                                        |                          |                            |         |                            |

ELECTRICAL SPECIFICATIONS

1. GENERAL:
- THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN. WHAT DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.

CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. ALARM AND EMERGENCY SYSTEMS SHALL NOT BE INTERRUPTED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.

DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATED OF INSPECTION AND APPROVAL.

GENERAL PROVISIONS FOR ELECTRICAL WORK:

DEFINITIONS:

"PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

"INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

"FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

"WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

"WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.

"CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

"EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

"SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.

QUALITY ASSURANCE

QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

CURRENT CHARACTERISTICS:

SERVICE: 120/208 VOLT, 1 PHASE, 3 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

DISTRIBUTION: 120/208 VOLT, 1 PHASE, 3 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

HEIGHTS OF OUTLETS:

FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

RECEPTACLES AND TELEPHONES: 1 FT-6 IN.

WALL SWITCHES: 4 FT-0 IN.

WALL FIXTURES: 7 FT-0 IN.

MOTOR CONTROLLERS: 5 FT-0 IN.

CLOCKS: 7 FT 6 IN

EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

PRODUCT DELIVERY, STORAGE AND HANDLING

MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

MATERIALS

NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

INSERTS AND SUPPORTS:

INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.

MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.

CLIP FORM NAILS FLUSH WITH INSERTS.

MAXIMUM LOADING 75 PERCENT OF RATING.

SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PANEL AND PULL BOXES, AFTER FABRICATION, UTILIZE HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: UTILITY BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRIME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPOSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINING WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

SCOPE OF WORK:

SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK. WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR

THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE 2021 EXISTING INTERNATIONAL BUILDING CODE SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

SHOP DRAWINGS

PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

PROJECT NAME AND LOCATION

NAME OF ARCHITECT AND ENGINEER

ITEM IDENTIFICATION

APPROVAL STAMP OF PRIME CONTRACTOR

SUBMISSIONS:

SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

SAFETY/DISCONNECT SWITCHES

FUSES

CIRCUIT BREAKERS

PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).

RACEWAYS

WIRE AND CABLE

WALL SWITCHES

INSERTION RECEPTACLES

MOMENTARY CONTACT SWITCHES

TIME SWITCHES

LIGHTING FIXTURES.

ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK WHERE APPLICABLE, CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWINGS, PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.

LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

PROVIDE COMPLETE EQUIPMENT INCLUDING: SWITCHES, FUSES, CIRCUIT BREAKERS, PANELS AND TRANSFORMERS.

ALL EQUIPMENT SHALL CONFORM TO NEMA, ANSI AND IEEE STANDARDS.

DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE- QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

FUSES:

CIRCUITS 0 TO 600 AMPERES SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V) /LPS-RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

MOTOR CIRCUITS – ALL INDIVIDUAL MOTOR CIRCUITS WITH FULL LOAD AMPERE RATINGS (FLA) OF 480 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V) /LPS-RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.

ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

CIRCUIT BREAKERS: MOLDED CASE BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE-QUICK-BREAK, BOLT-ON TYPE, MANUALLY OPERATED WITH INSULATED TRIP-FREE HANDLE. MULTI-POLE TYPE BREAKERS SHALL CONTAIN INTERNAL TRIP BAR. TERMINALS SHALL BE SUITABLE FOR COPPER OR ALUMINUM CABLE. FURNISH AUXILIARY DEVICES WHERE REQUIRED FOR SHUNT-TRIPPING, OPEN A ND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED. FRAMES, IC AND INTERCHANGABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

120 VOLTS, 100-AMP FRAME: 10,000 AMPS, 1 POLE.

120/240 VOLTS, 225-AMP FRAME: 22,000 AMPS MINIMUM

\*ARC RATING SHALL BE COORDINATED WITH THE UTILITY COMPANY. BASE BID ACCORDINGLY.

RACEWAYS:

PROVIDE RACEWAYS COMPLETE WITH BOXES, FITTINGS AND ACCESSORIES. CONDUIT OR TUBING SIZES REFERRED TO IN SPECIFICATIONS AND ON DRAWINGS ARE NOMINAL DIAMETERS. MINIMUM DIAMETER SHALL BE 3/4 IN.

MATERIALS

RACEWAYS:

RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.

ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADED.

FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.

WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

SURFACE METAL RACEWAY: SIZE AS NOTED. BASE 0.04 IN., COVER 0.25 IN. MATERIAL SHALL BE STEEL. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

FITTINGS AND ACCESSORIES:

RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.

ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.

FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

BOXES:

OUTLET BOXES: EXCEPT AS OTHERWISE REQUIRED BY CONSTRUCTION, DEVICES OR WIRING, BOXES SHALL BE STAMPED STEEL, 4 IN. SQUARE OR OCTAGON FOR FIXTURES. BOXES ABOVE CEILING SHALL BE 1-1/2 IN. DEEP. BOXES IN CEILING OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES SHALL BE 2-3/4 IN. DEEP. BOXES IN WALL FOR RECEPTACLES AND SWITCHES SHALL BE 1-1/2 IN. DEEP. FURNISH WITH RAISED COVERS AND FIXTURE STUDS WHERE REQUIRED. WITHOUT FIXTURE OR DEVICE: FURNISH BLANK COVER. OFFSET BACK-TO-BACK OUTLETS WITH MINIMUM 6 IN. SEPARATION.

JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 285/480 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

NRG ADVENTURE PARK

ELECTRICAL SPECIFICATION  
SHEET 01 OF 02

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

E0.20

PERMIT SET

ORIGINAL SHEET SIZE: 30" X 42" ARCH E1

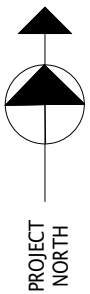
ELECTRICAL SPECIFICATIONS

- C. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.
- PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED FISH-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.
- SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER NEC 386.56 AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE. MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.
- EXPPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.
- MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.
- EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.
- RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED. EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE, PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.
- CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.
- ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.
- EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE. MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.
- RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.
- D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTURED BY OZ-GEDNEY.
- INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN NEC TABLE 300.19(A).
- ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.
- PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.
- E. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.
- F. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUITS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.
10. WIRE AND CABLE:
- A. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.
- B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.
- C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE

- NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.
- D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).
- E. ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS. WHEN USED IN LIEU OF WIRING IN CONDUIT, STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE 'BX'.
- F. COLOR CODING SHALL BE AS FOLLOWS:
- |                      |                      |
|----------------------|----------------------|
| 120/208 VOLT SYSTEM: | 277/480 VOLT SYSTEM: |
| BLACK FOR A PHASE    | BROWN FOR A PHASE    |
| RED FOR B PHASE      | ORANGE FOR B PHASE   |
| BLUE FOR C PHASE     | YELLOW FOR C PHASE   |
- 1) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.
- WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.
- G. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS. FOR FEEDERS INDICATE FEEDER NUMBER, SIZE, PHASE AND POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.
- H. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.
- I. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.
- J. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.
- K. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.
- PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.
11. WIRING DEVICES:
- A. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.
- B. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC, SIMILAR TO LEVITON DEORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).
- C. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.
- D. COLORS: COORDINATE COLORS WITH ARCHITECT.
- E. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.
12. LIGHTING FIXTURES:
- A. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY FACTORY ASSEMBLED, WIRED, AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.
- B. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.
- C. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.
- D. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.
- E. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.
- F. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED FOR USE IN CHELSEA CITY, AC-POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STANDARD UL LISTED, 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. GROUNDING AND BONDING:
- A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM. WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN, EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.
- B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.
- C. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.
- D. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.
- E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:
- 1) CIRCUITS SERVING ANY WALL BOX DIMMER.
- 2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE , OR AS OTHER WISE NOTED ON DRAWINGS.
- 3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES
- 4) ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

NRG ADVENTURE PARK



ELECTRICAL SPECIFICATION  
SHEET 02 OF 02

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

E0.30

PERMIT SET

## CIRCUIT DESIGNATION:

FOR CIRCUIT NUMBERING "A-XX" - REFER TO PANEL-"L1"  
FOR CIRCUIT NUMBERING "B-XX" - REFER TO PANEL-"L1"  
FOR CIRCUIT NUMBERING "C-XX" - REFER TO PANEL-"L2"  
FOR CIRCUIT NUMBERING "D-XX" - REFER TO PANEL-"L3"  
FOR CIRCUIT NUMBERING "E-XX" - REFER TO PANEL-"E"  
FOR CIRCUIT NUMBERING "F-XX" - REFER TO PANEL-"E-1"  
FOR CIRCUIT NUMBERING "G-XX" - REFER TO PANEL-"L4"  
FOR CIRCUIT NUMBERING "H-XX" - REFER TO PANEL-"H"

## ELECTRICAL POWER PLAN GENERAL NOTES

- A.E.C. SHALL COORDINATE WITH MECHANICAL/PLUMBING CONTRACTORS FOR EXACT LOCATION AND POWER REQUIREMENT OF THE EQUIPMENT FROM MECHANICAL/PLUMBING TRADES. PROVIDE WIRING AND CONTROLS AS REQUIRED, PRIOR TO BID. BASE BID ACCORDINGLY.
- B.THE CLEAR WORKING SPACE SHALL BE PROVIDED FOR THE METERS, PANEL BOARDS, AND OTHER ELECTRICAL EQUIPMENT AS PER SECTION 110.26 OF NEC.
- C.THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE UTILITY/ARCHITECT/OWNER FOR EXACT LOCATION OF THE EXISTING SERVICE METER AND OTHER ELECTRICAL DEVICES. PRIOR TO BID. BASE BID ACCORDINGLY.
- D.ALL THE CIRCUITS SUPPLYING KITCHEN EQUIPMENT AND SHOWN "GFI" ON POWER PLAN SHALL BE PROTECTED EITHER AT A PANEL WITH GFI RATED BREAKER OR RECEPTACLE WITH GFI AS PER NEC 210.8. IF GFI RECEPTACLES ARE USED, CONTRACTOR SHALL LOCATE THE GFI RECEPTACLES SUCH THAT THESE ARE READILY ACCESSIBLE PER CODE.
- E.E.C. SHALL FOLLOW GROUNDING/BONDING AS PER NEC ARTICLE 250.
- F.ALL THE RECEPTACLES SHALL BE RATED PER CIRCUIT. E.C. SHALL VERIFY AND MAKE FINAL CONNECTIONS ACCORDINGLY.
- G.ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI PROTECTION FOR ALL THE

FLOOR OUTLETS AS PER NEC ARTICLE 406.4(g).

H.ELECTRICAL CONTRACTOR SHALL PROVIDE TYPED PANEL DIRECTORY FOR ALL THE ELECTRICAL PANELS AS PER NEC 408.4(A).

I. ALL DEVICES, EQUIPMENT, FIXTURES, ETC. MUST BE GROUNDED BY USE OF A PROPERLY SIZED GROUNDING CONDUCTOR. MECHANICAL/ELECTRICAL BONDS OF HE METALLIC RACEWAY SYSTEM SHALL ALSO BE MAINTAINED.

J.BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED A LIMIT OF 3%.

K.CIRCUITS MAY BE COMBINED IN CONDUIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN NINE (9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.

L.EXPOSED CONDUITS, WHERE PERMITTED, SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO BUILDING STRUCTURAL MEMBERS.

M.ALL 15A AND 20A, 125V AND 250V NONLOCKING-TYPE RECEPTACLES IN THE AREAS SPECIFIED IN 406.12(6) SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES. BASE BID ACCORDINGLY.

N.ELECTRICAL CONTRACTOR SHALL PROVIDE LOCK-ON BREAKERS AS PER NEC 422.31(B).

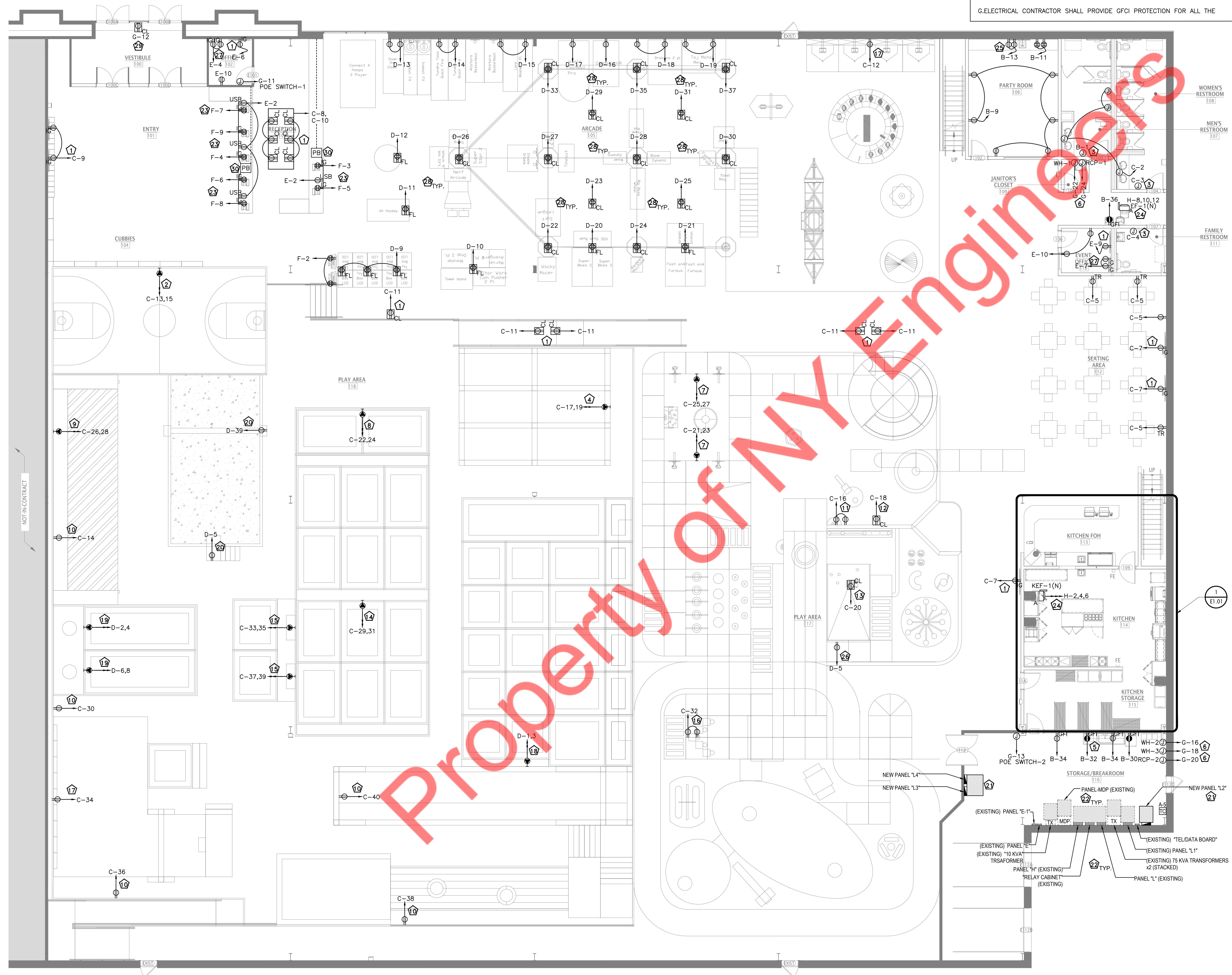
O.POWER REQUIREMENTS FOR THE LOW VOLTAGE SHALL BE REFERRED TO LOW VOLTAGE PLAN/ IN COORDINATION WITH LOW VOLTAGE VENDOR. BASE BID ACCORDINGLY.

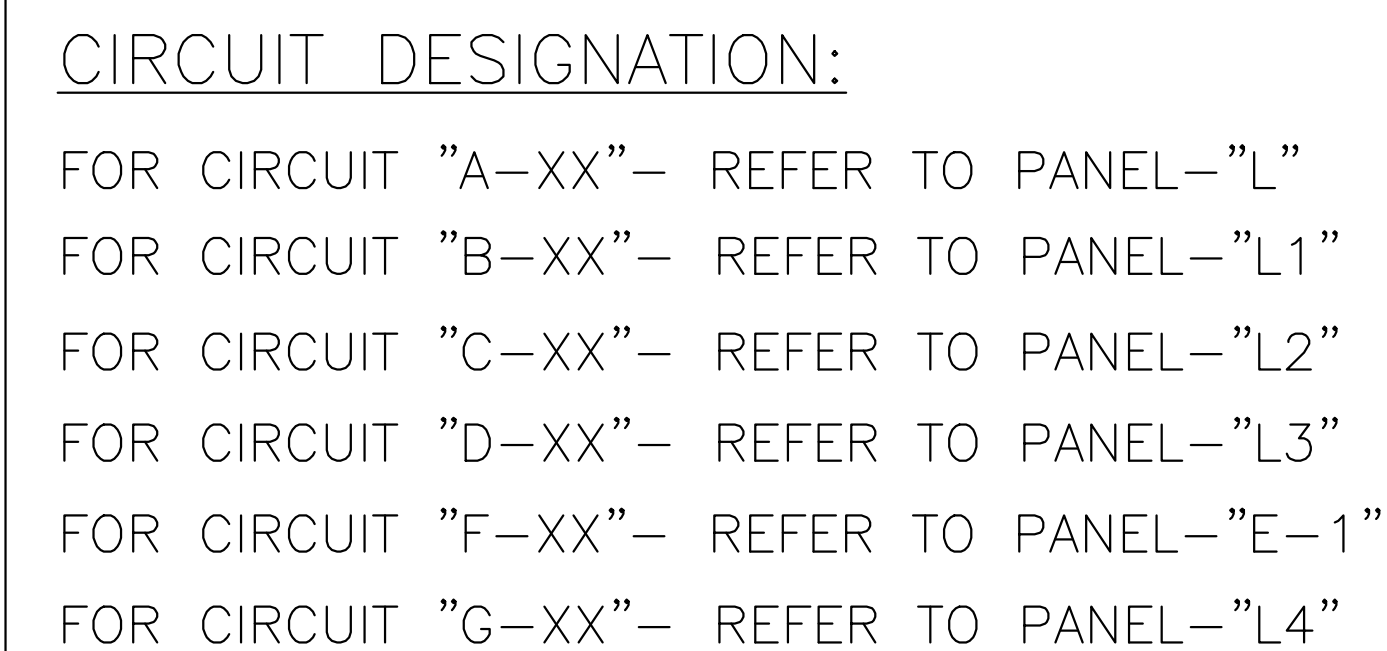
P.E.C. SHALL COORDINATE WITH EQUIPMENT VENDORS FOR EXACT LOCATION AND POWER REQUIREMENT OF THE EQUIPMENT. PROVIDE WIRING AND CONTROLS AS REQUIRED, PRIOR TO BID. BASE BID ACCORDINGLY.

Q.USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

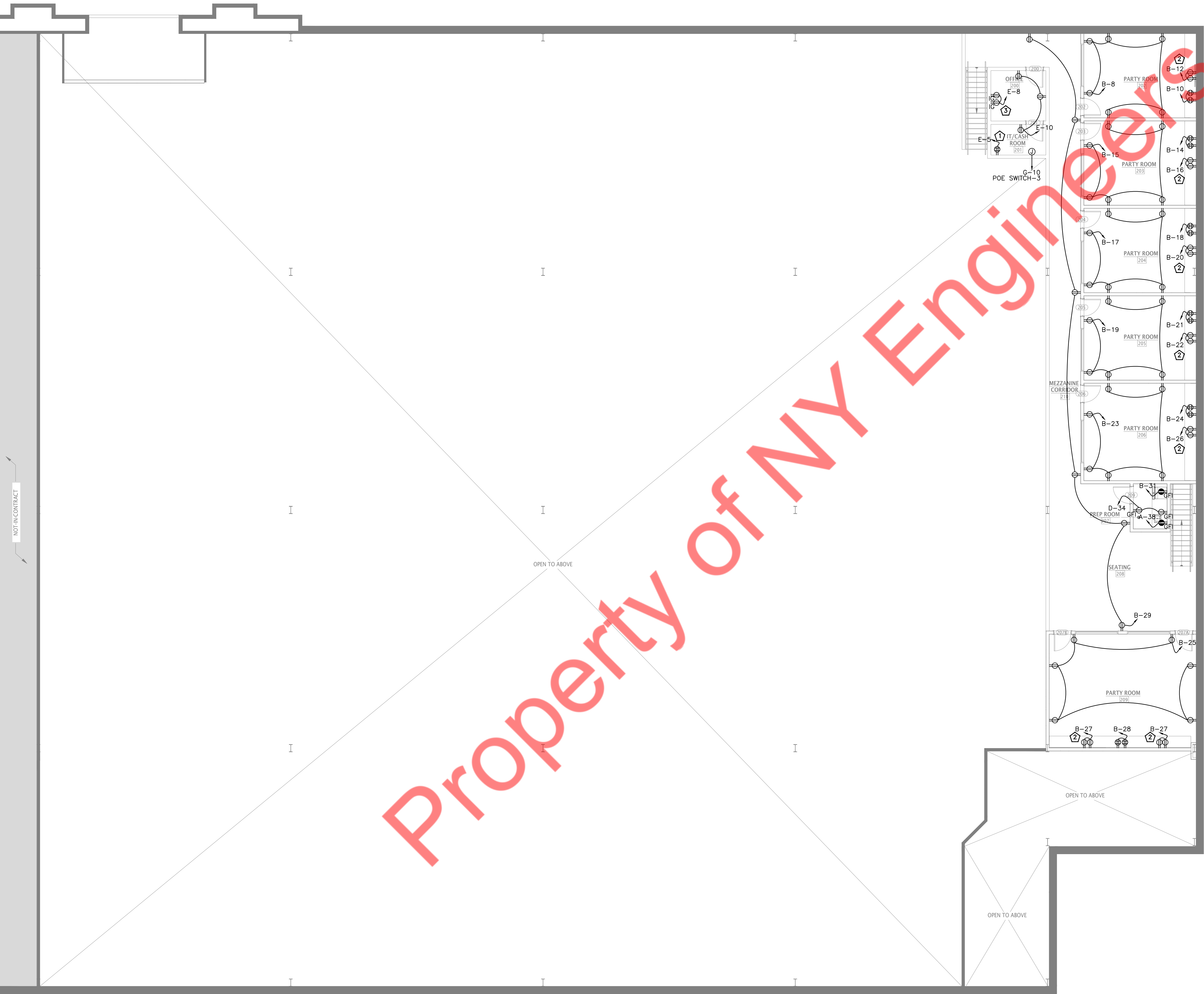
## ELECTRICAL POWER PLAN KEYED WORK NOTES

- COORDINATE LOCATION AND MOUNTING HEIGHT FOR 55" & 65" TV OUTLETS WITH OWNER/ARCHITECT IN FIELD.
- AT ARCADE PROVIDE RECEPTACLE WITH DEDICATED CIRCUIT FOR "RUGGED POWER PLAY". COORDINATE LOCATION WITH OWNER/ARCHITECT.
- PROVIDE JUNCTION BOX FOR HAND DRYER AT 48" AFF. VERIFY MOUNTING HEIGHT WITH ARCHITECTURAL ELEVATIONS AND MANUFACTURERS INSTALLATION INSTRUCTIONS PRIOR TO ROUGH-IN.
- PROVIDE RECEPTACLE WITHIN 2 METER OF COURT FOR RUGGED "TRIGGERTRAC". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHT WITH OWNER/ARCHITECT IN FIELD. BASE BID ACCORDINGLY.
- COORDINATE LOCATION AND MOUNTING HEIGHT FOR MICROWAVE OUTLET WITH OWNER/ARCHITECT IN FIELD.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH PLUMBING CONTRACTOR AND PROVIDE POWER CONNECTIONS FOR WATER HEATER AND RE-CIRCULATION PUMP. BASE BID ACCORDINGLY.
- PROVIDE POWER FOR "BALLISTICS SHOOTING GALLERY". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "AERO STRIKE" WITHIN 2 METER OF CENTER OF COURT. COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "SUPERClimber". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "AIRBAG BLOWER". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "CHEER BALL LAUNCHER". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE CEILING MOUNTED RECEPTACLE FOR "GAME WALL". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE CEILING MOUNTED RECEPTACLE FOR "FUTURE PROJECTOR". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE RECEPTACLE WITHIN 2 METER OF COURT FOR RUGGED "DODGE ATTACK". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHT WITH OWNER/ARCHITECT IN FIELD. BASE BID ACCORDINGLY.
- PROVIDE POWER FOR "VALD JUMP". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "CHEER INTERACTIVE GAME". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE RECEPTACLE FOR "FUTURE GEMIFICATION OF WALL". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHT WITH OWNER/ARCHITECT IN FIELD. BASE BID ACCORDINGLY.
- PROVIDE POWER FOR "FREESTYLE DUO". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "BATTLE BASKETS". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- PROVIDE POWER FOR "LED STRIP LIGHT" ON JUMPER TOWER. COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- NEW ELECTRICAL PANELS "L2", "L3" AND "L4" FOR THE PROJECT SPACE. E.C. SHALL COORDINATE THE EXACT LOCATION OF ELECTRICAL PANEL WITH LANDLORD/OWNER IN FIELD.
- E.C. SHALL VERIFY THE EXACT LOCATION OF THE EXISTING ELECTRICAL PANELS, TRANSFORMER AND SHALL RE-USE THEM FOR THE TENANT SPACE. RECTIFY/REPLACE THE BREAKERS AS PER THE PANEL SCHEDULE. PROVIDE NEW IF IN-OPERABLE. BASE BID ACCORDINGLY.
- E.C. SHALL PROVIDE POWER AND DATA FOR POS. E.C. SHALL COORDINATE WITH EQUIPMENT VENDOR FOR EXACT POWER REQUIREMENT AND MOUNTING HEIGHTS. PROVIDE WIRING AND CONTROLS AS REQUIRED, PRIOR TO BID. BASE BID ACCORDINGLY.
- ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. BASE BID ACCORDINGLY.
- E.C. SHALL PROVIDE POWER AND DATA FOR 55" TV AND AV AT PARTY ROOMS. COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT VENDOR. PROVIDE AS REQUIRED.COORDINATE LOCATION WITH OWNER/ARCHITECT.BASE BID ACCORDINGLY.
- PROVIDE POWER FOR "LED STRIP SLIDE". COORDINATE EXACT POWER REQUIREMENT, LOCATION AND MOUNTING HEIGHTS WITH OWNER/ARCHITECT IN FIELD. PRIOR TO BID. BAS BID ACCORDINGLY.
- E.C. SHALL MOUNT RECEPTACLES BELOW THE DESK. COORDINATE EXACT LOCATION AND HEIGHT WITH OWNER/ARCHITECT IN FIELD. BASE BID ACCORDINGLY.
- E.C. SHALL COORDINATE EXACT LOCATION AND MOUNTING TYPE OF OUTLETS WITH OWNER/ARCHITECT IN FIELD.
- PROVIDE SHOW WINDOW RECEPTACLE AS PER NEC 210.62. VERIFY EXACT LOCATION WITH ARCHITECT/ OWNER.
- ELECTRICAL CONTRACTOR SHALL STUB ALL THE ELECTRICAL AND DATA CABLES UNDER THE POS CABINET AND PULL TO REQUIRED LOCATIONS THROUGH PRE-CUT CHASES. BASE BID ACCORDINGLY.





J.USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.



1 ELECTRICAL POWER PLAN - MEZZANINE FLOOR  
E1.00 1/8" = 1'-0"

#### ELECTRICAL POWER PLAN GENERAL NOTES

- A.E.C. SHALL COORDINATE WITH MECHANICAL/PLUMBING CONTRACTORS FOR EXACT LOCATION AND POWER REQUIREMENT OF THE EQUIPMENT FROM MECHANICAL/PLUMBING TRADES. PROVIDE WIRING AND CONTROLS AS REQUIRED, PRIOR TO BID. BASE BID ACCORDINGLY.
- B.THE CLEAR WORKING SPACE SHALL BE PROVIDED FOR THE METERS, PANEL BOARDS, AND OTHER ELECTRICAL EQUIPMENT AS PER SECTION 110.26 OF NEC.
- C.THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE UTILITY/ARCHITECT/OWNER FOR EXACT LOCATION OF THE EXISTING SERVICE METER AND OTHER ELECTRICAL DEVICES. PRIOR TO BID. BASE BID ACCORDINGLY.
- D.ALL THE CIRCUITS SUPPLYING KITCHEN EQUIPMENT AND SHOWN "GFI" ON POWER PLAN SHALL BE PROTECTED EITHER AT A PANEL WITH GFI RATED BREAKER OR RECEPTACLE WITH GFI AS PER NEC 210.8. IF GFI RECEPTACLES ARE USED, CONTRACTOR SHALL LOCATE THE GFI RECEPTACLES SUCH THAT THESE ARE READILY ACCESSIBLE PER CODE.
- E.E.C. SHALL FOLLOW GROUNDING/BONDING AS PER NEC ARTICLE 250.
- F.ALL THE RECEPTACLES SHALL BE RATED PER CIRCUIT. E.C. SHALL VERIFY AND MAKE FINAL CONNECTIONS ACCORDINGLY.
- G.ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI PROTECTION FOR ALL THE FLOOR OUTLETS AS PER NEC ARTICLE 406.4(g).
- H.ELECTRICAL CONTRACTOR SHALL PROVIDE TYPED PANEL DIRECTORY FOR ALL THE ELECTRICAL PANELS AS PER NEC 408.4(A).
- I. ALL DEVICES, EQUIPMENT, FIXTURES,ETC. MUST BE GROUNDED BY USE OF A PROPERLY SIZED GROUNDING CONDUCTOR. MECHANICAL/ELECTRICAL BONDS OF HE METALLIC RACEWAY SYSTEM SHALL ALSO BE MAINTAINED.
- J.BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED A LIMIT OF 3%.
- K.CIRCUITS MAY BE COMBINED IN CONDUIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN NINE (9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.
- L.EXPOSED CONDUITS, WHERE PERMITTED, SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO BUILDING STRUCTURAL MEMBERS.
- M.ALL 15A AND 20A, 125V AND 250V NONLOCKING-TYPE RECEPTACLES IN THE AREAS SPECIFIED IN 408.12(6) SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES. BASE BID ACCORDINGLY.
- N.ELECTRICAL CONTRACTOR SHALL PROVIDE LOCK-ON BREAKERS AS PER NEC 422.31(B).
- O.POWER REQUIREMENTS FOR THE LOW VOLTAGE SHALL BE REFERRED TO LOW VOLTAGE PLAN/ IN COORDINATION WITH LOW VOLTAGE VENDOR. BASE BID ACCORDINGLY.
- P.USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

#### ELECTRICAL POWER PLAN KEYED WORK NOTES

1. PROVIDE DEDICATED 20 AMP OUTLET FOR SECURITY/IT EQUIPMENT. PROVIDE SEPARATE CIRCUIT FOR WORK STATION. COORDINATE EXACT LOCATION WITH OWNER/ARCHITECT.
2. E.C SHALL PROVIDE POWER AND DATA FOR 55" TV AND AV AT PARTY ROOMS. COORDINATE EXACT POWER REQUIREMENTS WITH EQUIPMENT VENDOR. PROVIDE AS REQUIRED.COORDINATE LOCATION WITH OWNER/ARCHITECT.BASE BID ACCORDINGLY.
3. E.C. SHALL MOUNT RECEPTACLES BELOW THE DESK. COORDINATE EXACT LOCATION AND HEIGHT WITH OWNER/ARCHITECT IN FIELD. BASE BID ACCORDINGLY.

#### CIRCUIT DESIGNATION:

FOR CIRCUIT NUMBERING "A-XX"-- REFER TO PANEL-"L"  
FOR CIRCUIT NUMBERING "B-XX"-- REFER TO PANEL-"L1"  
FOR CIRCUIT NUMBERING "D-XX"-- REFER TO PANEL-"L3"  
FOR CIRCUIT NUMBERING "E-XX"-- REFER TO PANEL-"E"  
FOR CIRCUIT NUMBERING "G-XX"-- REFER TO PANEL-"L4"

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ELECTRICAL POWER PLAN -  
MEZZANINE FLOOR

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

E1.10

PERMIT SET

ELECTRICAL ROOF POWER PLAN GENERAL NOTES :

- COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS WITH MECHANICAL CONTRACTOR.
- E.C SHALL PROVIDE THE WEATHERPROOF GFI RECEPTACLE AS PER NEC 210.63

# ELECTRICAL ROOF POWER PLAN KEY NOTES:

- EXISTING MECHANICAL EQUIPMENT DISCONNECTING MEANS SHALL REMAIN. E.C. SHALL VERIFY OPERABLE CONDITION OF EXISTING DISCONNECTING MEANS ON FIELD, REPLACE WITH NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.

CIRCUIT DESIGNATION:

FOR CIRCUIT NUMBERING "A-XX"- REFER TO PANEL-"L2"  
FOR CIRCUIT NUMBERING "I-XX"- REFER TO PANEL-"MDP"



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ELECTRICAL POWER PLAN -  
ROOF

DATE: 2025.05.09  
DRAWN BY: NYE  
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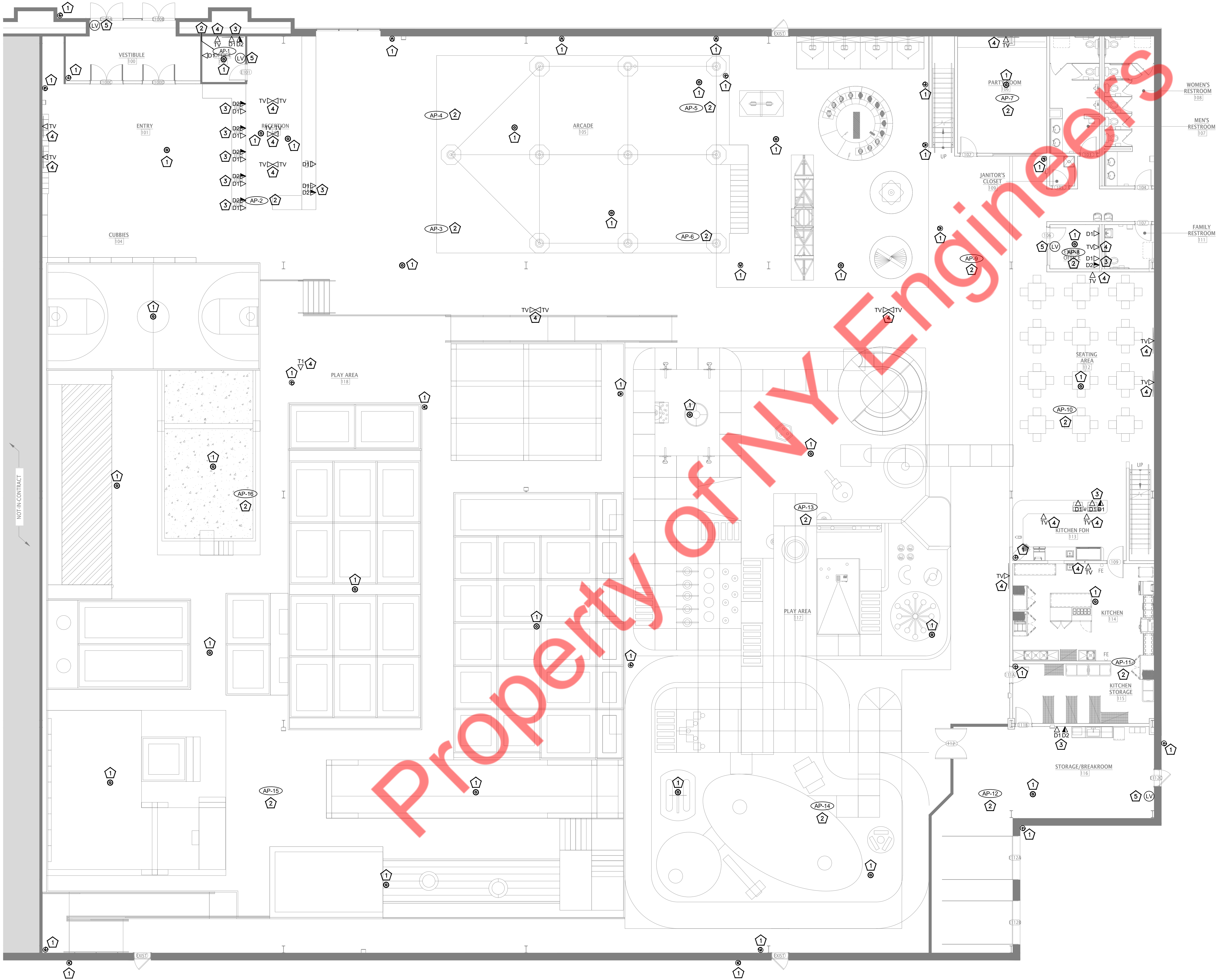
E1.20

PERMIT SET

| DATA SCHEDULE |                    |                                               |                             |                        |             |              |
|---------------|--------------------|-----------------------------------------------|-----------------------------|------------------------|-------------|--------------|
| Data ID Tag   | Equipment          | Description                                   | Connection Type             | Mounting Height        | Supplied By | Installed By |
| D1            | COUNTER POS SYSTEM | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | RJ45 - 2 PORT               | COORDINATE WITH VENDOR | GC          | GC           |
| D2            | TELEPHONE          | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | RJ45 - 2 PORT               | COORDINATE WITH VENDOR | GC          | GC           |
| LV            | DOOR HUB SYSTEM    | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | COORDINATE WITH L.V. VENDOR | COORDINATE WITH VENDOR | GC          | GC           |
| TV            | TELEVISION         | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | RJ45 - 2 PORT               | COORDINATE WITH VENDOR | GC          | GC           |
| ⊙             | 360 CAMERA         | AI 360 DEGREE CAMERA                          | RJ45                        | COORDINATE WITH VENDOR | GC          | GC           |
| ⊙             | DIRECTIONAL CAMERA | G5 TURRET ULTRA CAMERA                        | RJ45                        | COORDINATE WITH VENDOR | GC          | GC           |

- LOW VOLTAGE PLAN GENERAL NOTES**
- E.C. SHALL COORDINATE WITH THE LOW VOLTAGE CONTRACTOR TO CONFIRM THE EXACT LOCATIONS, MOUNTING HEIGHTS, AND DEVICE TYPES PRIOR TO ROUGH-IN.
  - PLAN IS SHOWN FOR INFORMATION ONLY. COORDINATE WITH OWNER, DOOR HUB, SECURITY VENDOR AND LOW VOLTAGE CONTRACTOR FOR EXACT REQUIREMENTS.
  - E.C. NEEDS TO COORDINATE WITH THE LOW VOLTAGE CONTRACTOR FOR POWER AND PATHWAY(RACEWAY) REQUIREMENTS PRIOR TO COMMENCEMENT OF WORK. BASE BID ACCORDINGLY.
  - USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

- LOW VOLTAGE PLAN KEYED WORK NOTES**
- E.C. SHALL COORDINATE WITH THE SECURITY/CCTV VENDOR AND PROVIDE REQUIRED CONDUITS, DATA PORTS AND CABLE TO THE FINAL LOCATION OF CAMERAS. BASE BID ACCORDINGLY.
  - CONTRACTOR SHALL COORDINATE THE LOCATION OF ACCESS POINT(AP) WITH THE LOW VOLTAGE VENDOR AND PROVIDE CONDUITS ALONG WITH REQUIRED CABLES. ALSO COORDINATE WITH LOW VOLTAGE VENDOR FOR CEILING/WALL TYPE AS PER THE SITE REQUIREMENT. BASE BID ACCORDINGLY.
  - CONTRACTOR SHALL COORDINATE THE LOCATION AND QUANTITY OF DATA POINTS WITH THE LOW VOLTAGE VENDOR FOR POS/PHONE SYSTEM. PROVIDE CONDUITS AND CABLES AS REQUIRED. BASE BID ACCORDINGLY.
  - CONTRACTOR SHALL COORDINATE THE EXACT LOCATION, HEIGHT AND REQUIREMENT OF DATA OUTLETS FOR "TV" WITH THE EQUIPMENT VENDOR AND PROVIDE THE POWER/DATA AS REQUIRED. BASE BID ACCORDINGLY.
  - E.C. SHALL COORDINATE WITH DOOR HUB/LOW VOLTAGE CONTRACTOR AND PROVIDE THE REQUIRED CONDUITS ALONG WITH DATA POINTS TO THE EXACT LOCATION FOR DOOR ACCESS EXTERIOR, INTERIOR AND DOOR HUBS AS REQUIRED. BASE BID ACCORDINGLY.



1 LOW VOLTAGE PLAN  
E1.30 1/8" = 1'-0"

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LOW VOLTAGE PLAN -  
FIRST FLOOR

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

E1.30

PERMIT SET

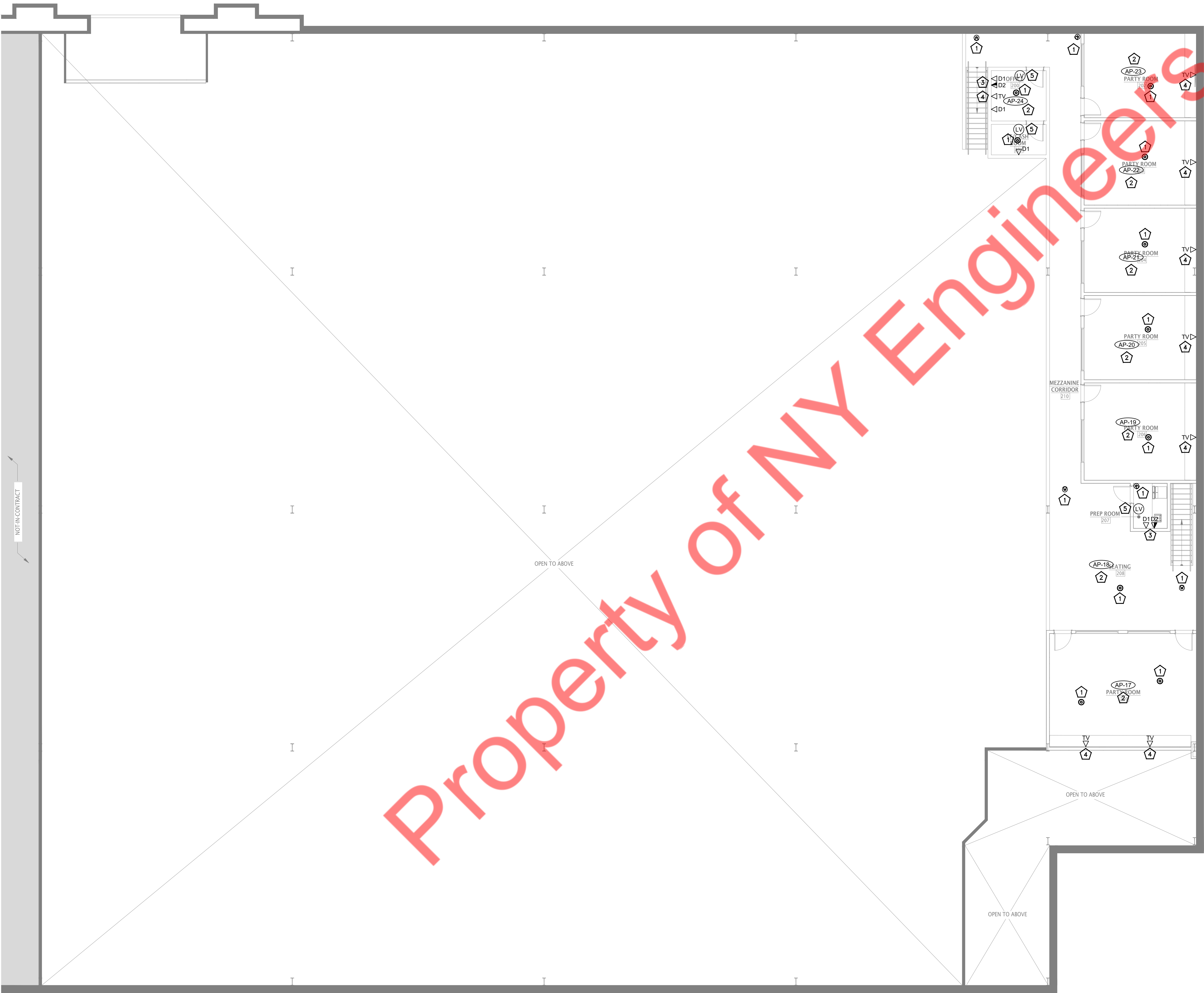
| DATA SCHEDULE   |                    |                                               |                             |                        |             |              |
|-----------------|--------------------|-----------------------------------------------|-----------------------------|------------------------|-------------|--------------|
| Data ID Tag     | Equipment          | Description                                   | Connection Type             | Mounting Height        | Supplied By | Installed By |
| ▽ <sub>D1</sub> | COUNTER POS SYSTEM | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | RJ45 - 2 PORT               | COORDINATE WITH VENDOR | GC          | GC           |
| ▽ <sub>D2</sub> | TELEPHONE          | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | RJ45 - 2 PORT               | COORDINATE WITH VENDOR | GC          | GC           |
| Ⓛ <sub>V</sub>  | DOOR HUB SYSTEM    | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | COORDINATE WITH L.V. VENDOR | COORDINATE WITH VENDOR | GC          | GC           |
| ▽ <sub>TV</sub> | TELEVISION         | SINGLE GANG BOX, FACEPLATE W/ KEYSTONE JACKS. | RJ45 - 2 PORT               | COORDINATE WITH VENDOR | GC          | GC           |
| Ⓢ               | 360 CAMERA         | A1 360 DEGREE CAMERA                          | RJ45                        | COORDINATE WITH VENDOR | GC          | GC           |
| Ⓢ               | DIRECTIONAL CAMERA | G5 TURRET ULTRA CAMERA                        | RJ45                        | COORDINATE WITH VENDOR | GC          | GC           |

LOW VOLTAGE PLAN GENERAL NOTES

- E.C. SHALL COORDINATE WITH THE LOW VOLTAGE CONTRACTOR TO CONFIRM THE EXACT LOCATIONS, MOUNTING HEIGHTS, AND DEVICE TYPES PRIOR TO ROUGH-IN.
- PLAN IS SHOWN FOR INFORMATION ONLY. COORDINATE WITH OWNER, DOOR HUB, SECURITY VENDOR AND LOW VOLTAGE CONTRACTOR FOR EXACT REQUIREMENTS.
- E.C. NEEDS TO COORDINATE WITH THE LOW VOLTAGE CONTRACTOR FOR POWER AND PATHWAY(RACEWAY) REQUIREMENTS PRIOR TO COMMENCEMENT OF WORK. BASE BID ACCORDINGLY.
- USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

LOW VOLTAGE PLAN KEYED WORK NOTES

- E.C. SHALL COORDINATE WITH THE SECURITY/CCTV VENDOR AND PROVIDE REQUIRED CONDUITS, DATA PORTS AND CABLE TO THE FINAL LOCATION OF CAMERAS. BASE BID ACCORDINGLY.
- CONTRACTOR SHALL COORDINATE THE LOCATION OF ACCESS POINT(AP) WITH THE LOW VOLTAGE VENDOR AND PROVIDE CONDUITS ALONG WITH REQUIRED CABLES. ALSO COORDINATE WITH LOW VOLTAGE VENDOR FOR CEILING/WALL TYPE AS PER THE SITE REQUIREMENT. BASE BID ACCORDINGLY.
- CONTRACTOR SHALL COORDINATE THE LOCATION AND QUANTITY OF DATA POINTS WITH THE LOW VOLTAGE VENDOR FOR POS/PHONE SYSTEM. PROVIDE CONDUITS AND CABLES AS REQUIRED. BASE BID ACCORDINGLY.
- CONTRACTOR SHALL COORDINATE THE EXACT LOCATION, HEIGHT AND REQUIREMENT OF DATA OUTLETS FOR "TV" WITH THE EQUIPMENT VENDOR AND PROVIDE THE POWER/DATA AS REQUIRED. BASE BID ACCORDINGLY.
- E.C. SHALL COORDINATE WITH DOOR HUB/LOW VOLTAGE CONTRACTOR AND PROVIDE THE REQUIRED CONDUITS ALONG WITH DATA POINTS TO THE EXACT LOCATION FOR DOOR ACCESS EXTERIOR, INTERIOR AND DOOR HUBS AS REQUIRED. BASE BID ACCORDINGLY.



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LOW VOLTAGE PLAN -  
MEZZANINE FLOOR

DATE: 2025.05.09  
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ELECTRICAL LIGHTING PLAN GENERAL NOTES:

- ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION & QUANTITY OF ALL THE LIGHT FIXTURES IN FIELD AND PROVIDE NEW LIGHTING CONTROLS AS SHOWN.
- ELECTRICAL CONTRACTOR SHALL UPDATE THE EMERGENCY LIGHT FIXTURES QUANTITY AND LOCATION AS REQUIRED BY LOCAL AHJ.
- DIMMER TYPE, REQUIREMENT AND QUANTITY SHALL BE AS PER THE SITE REQUIREMENT IN COORDINATION WITH THE LIGHTING VENDOR/OWNER.
- ELECTRICAL CONTRACTOR SHALL PROVIDE LIGHTING CONTACTOR (LC), ALL THE LIGHT FIXTURES ARE CONTROLLED VIA LIGHTING CONTACTOR WITH TIMER. COORDINATE EXACT CONTROL REQUIREMENTS WITH LIGHTING VENDOR AND PROVIDE AUTOMATIC LIGHTING CONTROLS AS PER IECC. BASE BID ACCORDINGLY.
- ALL DEVICES, EQUIPMENT, FIXTURES, ETC. MUST BE GROUNDED BY USE OF A PROPERLY SIZED GROUNDING CONDUCTOR. MECHANICAL/ELECTRICAL BONDS OF THE METALLIC RACEWAY SYSTEM SHALL ALSO BE MAINTAINED.
- BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED A LIMIT OF 3%.
- CIRCUITS MAY BE COMBINED IN CONDUIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN NINE(9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.
- EXPPOSED CONDUITS, WHERE PERMITTED, SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO BUILDING STRUCTURAL MEMBERS.
- CONTRACTOR TO COORDINATE FINAL POWER & LOCATION REQUIREMENTS WITH ARCHITECT/OWNER BEFORE INSTALLATION. BASE BID ACCORDINGLY.
- EXIT SIGNS SHOWN WHERE EXPECTED TO BE REQUIRED. G.C. TO COORDINATE FINAL EXIT SIGN LAYOUT AND QUANTITIES WITH FIRE MARSHALL.
- EXIT SIGN LAYOUT NOT PROVIDED WITHIN PLAY STRUCTURES. G.C. TO VERIFY WITH FIRE MARSHALL TO DETERMINE EXACT EXIT SIGN LOCATIONS AND QUANTITY WITHIN PLAY STRUCTURES TO ENSURE AREA HAS SUFFICIENT EMERGENCY EGRESS LIGHTING AND SIGNAGE.
- USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPED RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

ELECTRICAL LIGHTING PLAN KEYED NOTES:

- CONNECT ALL EGRESS/EMERGENCY LIGHTING FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT VIDE HOT WIRE AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.
- ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF SWITCHES WITH ARCHITECT/OWNER. CONNECT ALL THE SWITCHES TO THE LIGHTING CONTACTOR WITH TIMER.
- JUNCTION BOX WITH TOGGLE DISCONNECT SWITCH FOR CONNECTION TO EXTERNAL SIGNAGE. E.C. SHALL REUSE THE EXISTING CIRCUIT AND TIME CLOCK FOR EXTERIOR SIGNAGE. E.C. SHALL VERIFY OPERABLE CONDITION AND PROVIDE NEW IF FOUND IN-OPERABLE. BASE BID ACCORDINGLY.
- E.C. SHALL VERIFY THE EXISTING LIGHT CONTROLS, PROVIDE NEW AS SHOWN IF FOUND IN-OPERABLE. BASE BID ACCORDINGLY.
- E.C. SHALL COORDINATE THE EXACT HEIGHT AND LOCATION THE OUTLET FOR SPECIAL LIGHTS WITH OWNER/ARCHITECT. BASE BID ACCORDINGLY.
- E.C. SHALL COORDINATE EXACT DROP HEIGHT OF SPECIAL LIGHT FIXTURES WITH ARCHITECT/OWNER IN FIELD. BASE BID ACCORDINGLY.

CIRCUIT DESIGNATION:

FOR CIRCUIT NUMBERING "A-XX"- REFER TO PANEL-"L1"  
FOR CIRCUIT NUMBERING "G-XX"- REFER TO PANEL-"L4"



1 ELECTRICAL LIGHTING PLAN  
E2.00 1/8" = 1'-0"

3 LIGHT FIXTURE SCHEDULE  
E2.00 N.T.S.

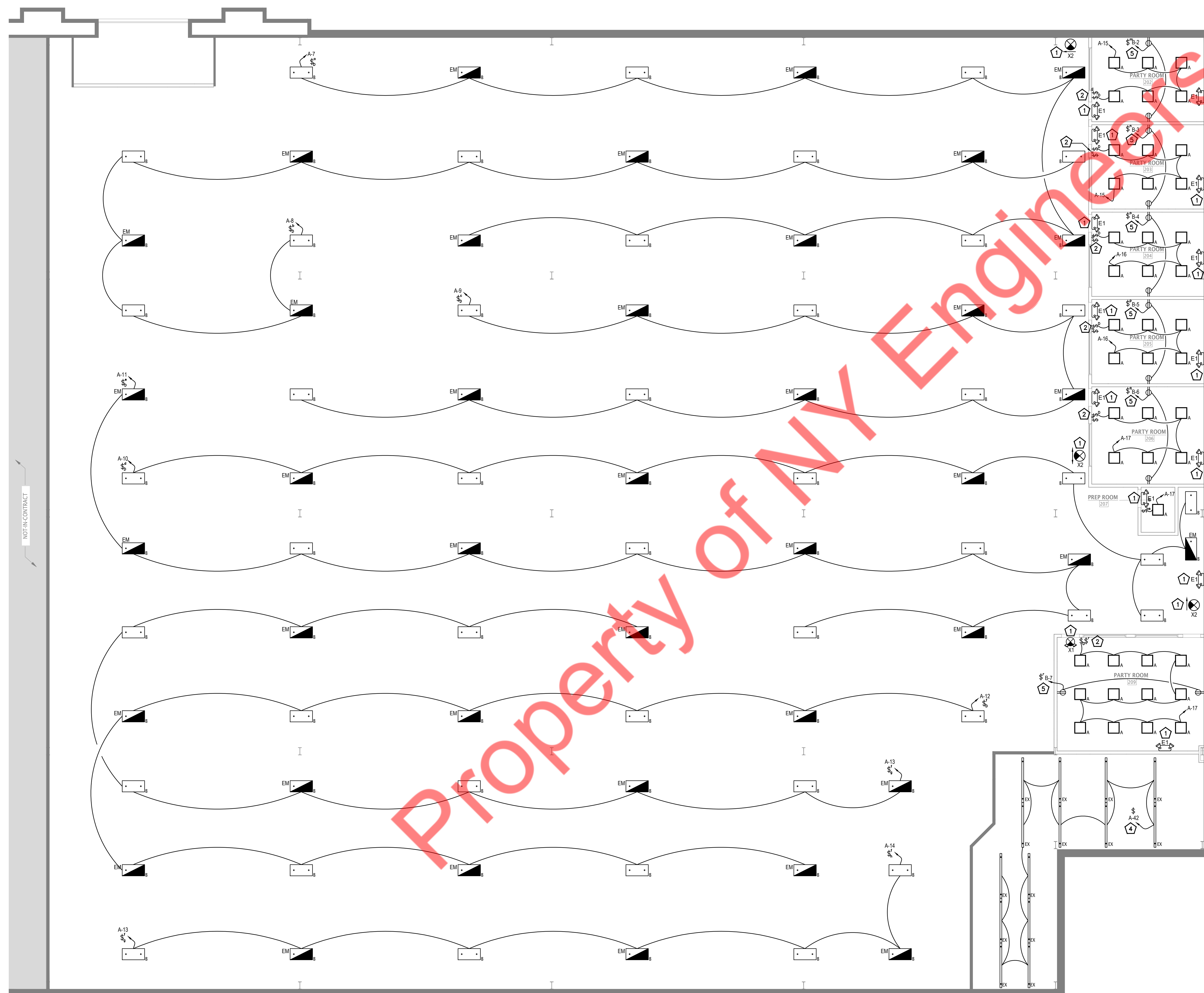
NRG ADVENTURE PARK

ELECTRICAL LIGHTING PLAN -  
FIRST FLOOR

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

E2.00

PERMIT SET



ELECTRICAL LIGHTING PLAN GENERAL NOTES:

1. ELECTRICAL CONTRACTOR SHALL VERIFY THE EXACT LOCATION & QUANTITY OF ALL THE LIGHT FIXTURES IN FIELD AND PROVIDE NEW LIGHTING CONTROLS AS SHOWN.
2. ELECTRICAL CONTRACTOR SHALL UPDATE THE EMERGENCY LIGHT FIXTURES QUANTITY AND LOCATION AS REQUIRED BY LOCAL A.H.J.
3. DIMMER TYPE, REQUIREMENT AND QUANTITY SHALL BE AS PER THE SITE REQUIREMENT IN COORDINATION WITH THE LIGHTING VENDOR/OWNER.
4. EXTERIOR LIGHT FIXTURES & SIGNS WIRING SHALL BE RE ROUTED AND CONTROLLED VIA LIGHTING CONTRACTOR (L.C) WITH TIME CLOCK/PHOTOCELL BY LIGHTING VENDOR AND PROVIDE LIGHTING CONTRACTOR POLES IN COORDINATION WITH LIGHTING VENDOR AND BASE BID ACCORDINGLY.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE LIGHTING CONTRACTOR (L.C). ALL THE LIGHT FIXTURES ARE CONTROLLED VIA LIGHTING CONTRACTOR WITH TIMER. COORDINATE EXACT CONTROL REQUIREMENTS WITH LIGHTING VENDOR AND PROVIDE AUTOMATIC LIGHTING CONTROLS AS PER ECCE. BASE BID ACCORDINGLY.
6. ALL DEVICES, EQUIPMENT, FIXTURES, ETC. MUST BE GROUNDED BY USE OF A PROPERLY SIZED GROUNDING CONDUCTOR. MECHANICAL/ELECTRICAL BONDS OF HE METALLIC RACEWAY SYSTEM SHALL ALSO BE MAINTAINED.
7. BRANCH CIRCUIT WIRE SIZES (AND CONDUITS) SHALL BE INCREASED FROM THOSE INDICATED ON THE PLANS TO PREVENT EXCESSIVE VOLTAGE DROP. BRANCH CIRCUITS SHALL BE INSTALLED WITH WIRES OF SUFFICIENT SIZE SO THAT VOLTAGE DROP BETWEEN THE PANEL AND THE LOADS DOES NOT EXCEED A LIMIT OF 3%.
8. CIRCUITS MAY BE COMBINED IN CONDUIT PROVIDED WIRE IS PROPERLY DERATED AND CONDUIT SIZED PER CODE. UNDER NO CIRCUMSTANCES SHALL MORE THAN NINE(9) CURRENT CARRYING CONDUCTORS BE RUN IN A SINGLE CONDUIT.
9. EXPOSED CONDUITS, WHEN PERMITTED, SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO BUILDING STRUCTURAL MEMBERS.
10. CONTRACTOR TO COORDINATE FINAL POWER & LOCATION REQUIREMENTS WITH ARCHITECT/OWNER BEFORE INSTALLATION. BASE BID ACCORDINGLY.
11. EXIT SIGNS SHOWN WHERE EXPECTED TO BE REQUIRED. G.C. TO COORDINATE FINAL EXIT SIGN LAYOUT AND QUANTITIES WITH FIRE MARSHALL.
12. EXIT SIGN LAYOUT NOT PROVIDED WITHIN PLAY STRUCTURES. G.C. TO VERIFY WITH FIRE MARSHALL TO DETERMINE EXACT EXIT SIGN LOCATIONS AND QUANTITY WITHIN PLAY STRUCTURES TO ENSURE AREA HAS SUFFICIENT EMERGENCY EGRESS LIGHTING AND SIGNAGE.
13. USE OF COMBUSTIBLE MATERIALS IS NOT ALLOWED IN THE RETURN AIR PLENUM. MATERIALS USED IN THE PLENUM SHALL HAVE FLAME SPREAD RATING NOT TO EXCEED 25 AND SMOKE DEVELOPMENT RATING NOT TO EXCEED 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84.

 ELECTRICAL LIGHTING PLAN KEYED NOTES:

1. CONNECT ALL EGRESS/EMERGENCY LIGHTING FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT WIDE HOT WIRE AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT LOCATION OF SWITCHES WITH ARCHITECT/OWNER. CONNECT ALL THE SWITCHES TO THE LIGHTING CONTRACTOR WITH TIMER.
3. JUNCTION BOX WITH TOGGLE DISCONNECT SWITCH FOR CONNECTION TO EXTERNAL SIGNALING. ELECTRICAL CONTRACTOR SHALL VERIFY IN FIELD THE EXACT MOUNTING LOCATION AND CONNECTION REQUIREMENTS WITH ARCHITECT/OWNER PRIOR TO ROUGH IN.
4. EXISTING LIGHT FIXTURE SHALL REMAIN AND REUSE. E.C. SHALL VERIFY THE OPERABLE CONDITION OF EXISTING LIGHT FIXTURE AND PROVIDE NEW IF FOUND IN-OPERABLE. BASE BID ACCORDINGLY.
5. E.C. SHALL COORDINATE THE EXACT HEIGHT AND LOCATION THE LIGHT FIXTURE FOR SPECIAL LIGHTS WITH OWNER/ARCHITECT. BASE BID ACCORDINGLY.

## CIRCUIT DESIGNATION:

FOR CIRCUIT NUMBERING "A-XX"- REFER TO PANEL-"L"  
FOR CIRCUIT NUMBERING "B-XX"- REFER TO PANEL-"L1"

NRG ADVENTURE PARK

## ELECTRICAL LIGHTING PLAN - MEZZANINE FLOOR

DATE: 2025.05.09  
DRAWN BY: NYE  
REVISIONS:

## E2.10

PERMIT SET

EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.

NUMBER OF HANGER RODS SHALL BE REQUIRED FOR PROPER SUPPORT (MIN. OF 2).

CONDUIT (TYP.)

UNISTRUT UNI-CLIP CLAMP, USE FOR ELEC. CONDUIT

CHANNEL SUPPORT (TYP.)

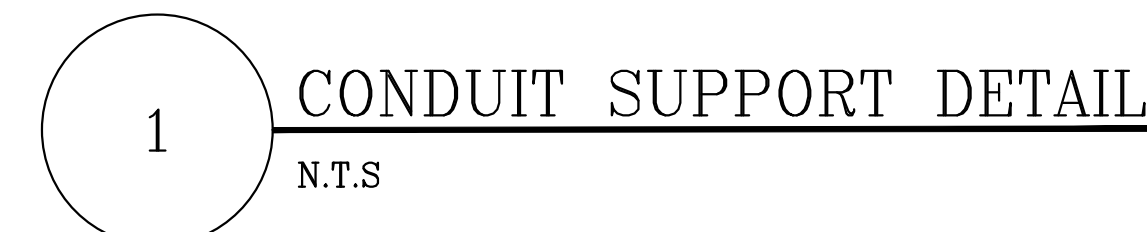
- 3 CONDUIT SUPPORT DETAIL  
N.T.S

1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.
2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

ONW-D-1001-MV-N

- 



SENSOR TYPES INCLUDE

OAC-DT-0501, OAC-DT-1000, OAC-DT-2000  
OAC-U-0501, OAC-U-1000, OAC-U-2000  
OAC-P-0500, OAC-P-1500

SWITCHPACK TYPE INCLUDES

SP20-MV

FOR HOT-USE BLACK LEAD FOR 120VAC.  
USE ORANGE LEAD FOR 277VAC.  
CAP UNUSED LEAD.

LINE { HOT  
NEUTRAL

HOT WHITE BLUE

LOAD

RED (15VDC)  
BLUE (CONTROL)  
BLACK (COMMON)

SWITCH-PACK

BLUE

RED (10-30VDC)  
BLUE (CONTROL)  
BLACK (COMMON)

TO ADDITIONAL SENSORS.  
MAXIMUM 5 SENSORS PER SWITCHPACK.

TO ADDITIONAL SWITCHPACKS.  
MAXIMUM 10 SWITCHPACKS PER SENSOR.

4 OCCUPANCY - AUTO ON/OFF.  
WIRING DIAGRAM - LOW VOLTAGE CEILING SENSOR.  
N.T.S

| PANEL: MDP (EXISTING)                                                                                            |           |                          |           |               |                        |                 |        |                                                |                        | MOUNTING: EXISTING       |           |                            |           |         |
|------------------------------------------------------------------------------------------------------------------|-----------|--------------------------|-----------|---------------|------------------------|-----------------|--------|------------------------------------------------|------------------------|--------------------------|-----------|----------------------------|-----------|---------|
| 480Y/277 VOLTS, 3 PHASE, 4 WIRE                                                                                  |           |                          |           |               |                        |                 |        |                                                |                        | PANEL LOCATION: EXISTING |           |                            |           |         |
| MAIN CB: 800 A                                                                                                   |           | MLO: NA                  |           | BUS: EXISTING |                        | MIN:            |        | FED FROM: EXISTING 800 AMPS SERVICE DISCONNECT |                        |                          |           |                            |           |         |
| NOTE:NOTE: L : LIGHTING, H : HVAC LOAD, M : MOTOR LOAD, R : RECEPTACLES, E: EQUIPMENT, O : OTHER/MISC. (TYPICAL) |           |                          |           |               |                        |                 |        |                                                |                        |                          |           |                            |           |         |
| CKT NO.                                                                                                          | TRIP AMPS | DESCRIPTION OF LOAD      | LOAD TYPE | LOAD (KVA)    | MINIMUM BRANCH CIRCUIT | PER PHASE (KVA) |        |                                                | MINIMUM BRANCH CIRCUIT | LOAD (KVA)               | LOAD TYPE | DESCRIPTION OF LOAD        | TRIP AMPS | CKT NO. |
|                                                                                                                  |           |                          |           |               |                        | A               | B      | C                                              |                        |                          |           |                            |           |         |
| 1                                                                                                                |           | SPACE                    |           |               |                        | 0.00            |        |                                                |                        |                          |           | SPACE                      |           | 2       |
| 3                                                                                                                |           | SPACE                    |           |               |                        |                 | 0.00   |                                                |                        |                          |           |                            |           | 4       |
| 5                                                                                                                |           | SPACE                    |           |               |                        |                 |        | 0.00                                           |                        |                          |           | SPARE                      | 60/3P     | 6       |
| 7                                                                                                                |           | SPACE                    |           |               |                        | 0.00            |        |                                                |                        |                          |           |                            |           | 8       |
| 9                                                                                                                |           | SPACE                    |           |               |                        |                 | 13.01  |                                                |                        | 13.01                    | H         |                            |           | 10      |
| 11                                                                                                               |           | SPACE                    |           |               |                        |                 |        | 13.01                                          | EXISTING               | 13.01                    | H         | RTU-3 (E)                  | 60/3P     | 12      |
| 13                                                                                                               |           | SPACE                    |           |               |                        | 13.01           |        |                                                |                        | 13.01                    | H         |                            |           | 14      |
| 15                                                                                                               |           | SPACE                    |           |               |                        |                 | 13.01  |                                                |                        | 13.01                    | H         |                            |           | 16      |
| 17                                                                                                               |           | SPACE                    |           |               |                        |                 |        | 13.01                                          | EXISTING               | 13.01                    | H         | RTU-5 (E)                  | 60/3P     | 18      |
| 19                                                                                                               |           | SPACE                    |           |               |                        | 13.01           |        |                                                |                        | 13.01                    | H         |                            |           | 20      |
| 21                                                                                                               |           |                          | O         | 22.58         | EXISTING               |                 | 35.60  |                                                |                        | 13.01                    | H         |                            |           | 22      |
| 23                                                                                                               | 100/3P    | 75 KVA TRANSFORMER#1 (E) | O         | 22.58         |                        |                 |        | 35.60                                          | EXISTING               | 13.01                    | H         | RTU-6 (E)                  | 60/3P     | 24      |
| 25                                                                                                               |           |                          | O         | 22.58         |                        |                 |        |                                                |                        | 13.01                    | H         |                            |           |         |
| 27                                                                                                               |           |                          | O         | 19.97         | EXISTING               |                 | 19.97  |                                                |                        |                          |           |                            |           | 28      |
| 29                                                                                                               | 100/3P    | 75 KVA TRANSFORMER#2 (E) | O         | 19.97         |                        |                 |        | 19.97                                          |                        |                          |           | SPARE                      | 60/3P     | 30      |
| 31                                                                                                               |           |                          | O         | 19.97         |                        |                 | 19.97  |                                                |                        |                          |           |                            |           | 32      |
| 33                                                                                                               |           |                          | O         | 0.74          | EXISTING               |                 | 13.76  |                                                |                        | 13.01                    | H         |                            |           | 34      |
| 35                                                                                                               | 200/3P    | PANEL "H" (E)            | O         | 0.74          |                        |                 |        | 13.76                                          | EXISTING               | 13.01                    | H         | RTU-4 (E)                  | 60/3P     | 36      |
| 37                                                                                                               |           |                          | O         | 0.74          |                        |                 |        |                                                |                        | 13.01                    | H         |                            |           |         |
| 39                                                                                                               |           | SPACE                    |           |               |                        | 13.76           | 3.19   |                                                | EXISTING               | 3.19                     | H         |                            |           | 40      |
| 41                                                                                                               |           | SPACE                    |           |               |                        |                 |        | 3.19                                           |                        | 3.19                     | H         | RTU-8 (E)                  | 15/3P     | 42      |
| 43                                                                                                               |           | SPACE                    |           |               |                        |                 | 3.19   |                                                |                        | 3.19                     | H         |                            |           | 44      |
| 45                                                                                                               |           | SPACE                    |           |               |                        |                 | 8.76   |                                                | EXISTING               | 8.76                     | H         |                            |           | 46      |
| 47                                                                                                               |           | SPACE                    |           |               |                        |                 |        | 8.76                                           |                        | 8.76                     | H         | RTU-7 (E)                  | 45/3P     | 48      |
| 49                                                                                                               |           | SPACE                    |           |               |                        | 8.76            |        |                                                |                        | 8.76                     | H         |                            |           | 50      |
| 51                                                                                                               |           | SPACE                    |           |               |                        |                 | 4.55   |                                                | EXISTING               | 4.55                     | O         | "10 KVA" TRANSFORMER#3 (E) | 20/2P     | 52      |
| 53                                                                                                               |           | SPACE                    |           |               |                        |                 |        | 4.55                                           |                        | 4.55                     | O         |                            |           | 54      |
| TOTAL CONNECTED LOAD (KVA)                                                                                       |           |                          |           |               |                        | 107.30          | 111.85 | 111.85                                         |                        |                          |           |                            |           |         |

| PANEL: L (EXISTING)                                                                                              |           |                                    |           |            |                        |                 |       |       |                        | MOUNTING: EXISTING       |           |                                              |           |         |
|------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------|-----------|------------|------------------------|-----------------|-------|-------|------------------------|--------------------------|-----------|----------------------------------------------|-----------|---------|
| 208Y/120                                                                                                         |           | VOLTS,                             |           | 3          | PHASE,                 |                 | 4     | WIRE  |                        | PANEL LOCATION: EXISTING |           |                                              |           |         |
| MAIN CB:                                                                                                         |           | 200 A                              |           | MLO: NA    |                        | BUS: EXISTING   |       | MIN,  |                        | FED FROM: EXISTING       |           |                                              |           |         |
| NOTE:NOTE: L : LIGHTING, H : HVAC LOAD, M : MOTOR LOAD, R : RECEPTACLES, E: EQUIPMENT, O : OTHER/MISC. (TYPICAL) |           |                                    |           |            |                        |                 |       |       |                        |                          |           |                                              |           |         |
| CKT NO.                                                                                                          | TRIP AMPS | DESCRIPTION OF LOAD                | LOAD TYPE | LOAD (KVA) | MINIMUM BRANCH CIRCUIT | PER PHASE (KVA) |       |       | MINIMUM BRANCH CIRCUIT | LOAD (KVA)               | LOAD TYPE | DESCRIPTION OF LOAD                          | TRIP AMPS | CKT NO. |
|                                                                                                                  |           |                                    |           |            |                        | A               | B     | C     |                        |                          |           |                                              |           |         |
| 1                                                                                                                | 20        | MENS, WOMENS, JC & FAMILY RESTROOM | L         | 0.30       | 2#12, #12G, 3/4"       | 1.17            |       |       | 2#12, #12G, 3/4"       | 0.87                     | L         | PARTY ROOM, EVENT OFFICE & SEATING AREA      | 20        | 2       |
| 3                                                                                                                | 20        | KITCHEN FOH & KITCHEN              | L         | 0.78       | 2#12, #12G, 3/4"       |                 | 0.94  |       | 2#12, #12G, 3/4"       | 0.16                     | L         | VESTIBULE LIGHTS                             | 20        | 4       |
| 5                                                                                                                | 20        | BUILDING SIGNAGE                   | L         | 1.00       | 2#12, #12G, 3/4"       |                 |       | 1.08  | 2#12, #12G, 3/4"       | 0.08                     | L         | OFFICE LIGHTS                                | 20        | 6       |
| 7                                                                                                                | 20        | ARCADE & PLAY AREA                 | L         | 1.91       | 2#12, #12G, 3/4"       | 3.82            |       |       | 2#12, #12G, 3/4"       | 1.91                     | L         | ARCADE & PLAY AREA                           | 20        | 8       |
| 9                                                                                                                | 20        | ARCADE & PLAY AREA                 | L         | 1.91       | 2#12, #12G, 3/4"       |                 | 3.82  |       | 2#12, #12G, 3/4"       | 1.91                     | L         | ARCADE & PLAY AREA                           | 20        | 10      |
| 11                                                                                                               | 20        | ARCADE & PLAY AREA                 | L         | 1.91       | 2#12, #12G, 3/4"       |                 |       | 3.82  | 2#12, #12G, 3/4"       | 1.91                     | L         | ARCADE & PLAY AREA                           | 20        | 12      |
| 13                                                                                                               | 20        | ARCADE & PLAY AREA                 | L         | 0.88       | 2#12, #12G, 3/4"       | 2.79            |       |       | 2#12, #12G, 3/4"       | 1.91                     | L         | STORAGE/BREAKROOM                            | 20        | 14      |
| 15                                                                                                               | 20        | PARTY ROOM - 202 & 203             | L         | 0.36       | 2#12, #12G, 3/4"       |                 | 0.72  |       | 2#12, #12G, 3/4"       | 0.36                     | L         | PARTY ROOM - 204 & 205                       | 20        | 16      |
| 17                                                                                                               | 20        | PREP ROOM, PARTY ROOM - 206 & 209  | L         | 0.57       | 2#12, #12G, 3/4"       |                 |       | 1.57  | 2#12, #12G, 3/4"       | 1.00                     | L         | TIME CLOCK & LIGHTING CONTACTOR              | 20        | 18      |
| 19                                                                                                               | 20        | KITCHEN POS STATION                | R         | 0.36       | 2#12, #12G, 3/4"       | 1.04            |       |       | 2#12, #12G, 3/4"       | 0.68                     | E         | E124-SLIDING DOOR MECHANISER                 | #20       | 20      |
| 21                                                                                                               | 20        | E125-NACHO CHEESE                  | E         | 0.17       | 2#12, #12G, 3/4"       |                 | 1.29  |       | 2#12, #12G, 3/4"       | 1.12                     | E         | E107-ICE MAKER MODULAR MACHINE               | #20       | 22      |
| 23                                                                                                               | 20        | E126-DRINK DISPNSER                | E         | 0.34       | 2#12, #12G, 3/4"       |                 |       | 1.04  | 2#12, #12G, 3/4"       | 0.70                     | E         | E106-DOUBLE SOLID DOOR REACH-IN FREEZER      | #20       | 24      |
| 25                                                                                                               | #20/2P*   | E131-ICE MACHINE                   | E         | 0.58       | 2#12, #12G, 3/4"       | 1.28            |       |       | 2#12, #12G, 3/4"       | 0.70                     | E         | E106-DOUBLE SOLID DOOR REACH-IN FREEZER      | #20       | 26      |
| 27                                                                                                               |           |                                    | E         | 0.58       |                        |                 | 1.02  |       | 2#12, #12G, 3/4"       | 0.44                     | E         | E105-DOUBLE SOLID DOOR REACH-IN REFRIGERATOR | #20       | 28      |
| 29                                                                                                               |           |                                    | O         | 6.47       |                        |                 |       | 6.68  | 2#12, #12G, 3/4"       | 0.22                     | E         | E121-REFRIGERATED PIZZA PREP TABLE - 5 PANS  | 20        | 30      |
| 31                                                                                                               | 80/3P*    | NEW PANEL "L3"                     | O         | 6.47       | 4#4, #8G, 1"           | 6.93            |       |       | 2#12, #12G, 3/4"       | 0.46                     | E         | E119-GLASS TOP LID DISPLAY FREEZER           | #20*      | 32      |
| 33                                                                                                               |           |                                    | O         | 6.47       |                        |                 | 6.93  |       | 2#12, #12G, 3/4"       | 0.46                     | E         | E119-GLASS TOP LID DISPLAY FREEZER           | #20*      | 34      |
| 35                                                                                                               |           |                                    | O         | 5.58       |                        |                 |       | 6.04  | 2#12, #12G, 3/4"       | 0.46                     | E         | E119-GLASS TOP LID DISPLAY FREEZER           | #20       | 36      |
| 37                                                                                                               | 80/3P*    | NEW PANEL "L4"                     | O         | 5.58       | 4#4, #8G, 1"           | 5.90            |       |       | 2#12, #12G, 3/4"       | 0.32                     | E         | E123-DRINK DISPENSER                         | 20        | 38      |
| 39                                                                                                               |           |                                    | O         | 5.58       |                        |                 | 5.86  |       | 2#12, #12G, 3/4"       | 0.28                     | E         | E122-UNDERCOUNTER REFRIGERATOR               | 20        | 40      |
| 41                                                                                                               | 20        | KITCHEN GENERAL RECEPTACLES        | R         | 1.26       | 2#12, #12G, 3/4"       |                 |       | 1.62  | 2#12, #12G, 3/4"       | 0.36                     | L         | STORAGE/BREAKROOM                            | 20        | 42      |
| TOTAL CONNECTED LOAD (KVA)                                                                                       |           |                                    |           |            |                        | 22.94           | 20.57 | 21.85 |                        |                          |           |                                              |           |         |

| PANEL:                                                                                                           |           | L2 (NEW)                              |           |            |                        |                 |       |       |                        |            |           | MOUNTING:                            |           | SURFACE   |  |             |  |                     |  |
|------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------|-----------|------------|------------------------|-----------------|-------|-------|------------------------|------------|-----------|--------------------------------------|-----------|-----------|--|-------------|--|---------------------|--|
| 208Y/120                                                                                                         |           | VOLTS,                                |           | 3          |                        | PHASE,          |       | 4     |                        | WIRE       |           | PANEL LOCATION:                      |           |           |  | STORAGE-116 |  |                     |  |
| MAIN CB:                                                                                                         |           | NA                                    |           | MLO:       |                        | 100 A           |       | BUS:  |                        | 125 A      |           | MIN,                                 |           | FED FROM: |  |             |  | EXISTING PANEL "L1" |  |
| NOTE:NOTE: L : LIGHTING, H : HVAC LOAD, M : MOTOR LOAD, R : RECEPTACLES, E: EQUIPMENT, O : OTHER/MISC. (TYPICAL) |           |                                       |           |            |                        |                 |       |       |                        |            |           |                                      |           |           |  |             |  |                     |  |
| CKT NO.                                                                                                          | TRIP AMPS | DESCRIPTION OF LOAD                   | LOAD TYPE | LOAD (KVA) | MINIMUM BRANCH CIRCUIT | PER PHASE (KVA) |       |       | MINIMUM BRANCH CIRCUIT | LOAD (KVA) | LOAD TYPE | DESCRIPTION OF LOAD                  | TRIP AMPS | CKT NO.   |  |             |  |                     |  |
|                                                                                                                  |           |                                       |           |            |                        | A               | B     | C     |                        |            |           |                                      |           |           |  |             |  |                     |  |
| 1                                                                                                                | \$20      | MEN'S RESTROOM - HAND DRYER           | O         | 1.00       | 2#12, #12G, 3/4"C      | 2.00            |       |       | 2#12, #12G, 3/4"C      | 1.00       | O         | MEN'S & WOMEN'S TOILET FIXTURE POWER | \$20      | 2         |  |             |  |                     |  |
| 3                                                                                                                | \$20      | WOMEN'S RESTROOM - HAND DRYER         | O         | 1.00       | 2#12, #12G, 3/4"C      |                 | 2.00  |       | 2#12, #12G, 3/4"C      | 1.00       | O         | FAMILY RESTROOM - HAND DRYER         | \$20      | 4         |  |             |  |                     |  |
| 5                                                                                                                | 20        | SEATING AREA CONV. RECEPTACLES        | R         | 0.72       | 2#12, #12G, 3/4"C      |                 |       | 1.62  | 2#12, #12G, 3/4"C      | 0.90       | R         | KITCHEN FOH AND BOH MENU BOARDS      | 20        | 6         |  |             |  |                     |  |
| 7                                                                                                                | 20        | SEATING AREA 65" TV RECEPTACLES       | R         | 0.54       | 2#12, #12G, 3/4"C      | 1.08            |       |       | 2#12, #12G, 3/4"C      | 0.54       | R         | RECEPTION 55" TV/BOARDS              | 20        | 8         |  |             |  |                     |  |
| 9                                                                                                                | 20        | ENTRY AREA 55" TV RECEPTACLES         | R         | 0.36       | 2#12, #12G, 3/4"C      |                 | 0.90  |       | 2#12, #12G, 3/4"C      | 0.54       | R         | RECEPTION 55" TV/BOARDS              | 20        | 10        |  |             |  |                     |  |
| 11                                                                                                               | 20        | ARCADE & PLAY AREA 55" TV RECEPTACLES | R         | 0.90       | 2#12, #12G, 3/4"C      |                 |       | 1.08  | 2#12, #12G, 3/4"C      | 0.18       | R         | RECEPT. FOR FUTURE GAMIFICATION WALL | 20        | 12        |  |             |  |                     |  |
| 13                                                                                                               |           |                                       | E         | 1.35       |                        | 2.49            |       |       | 2#12, #12G, 3/4"C      | 1.14       | E         | AIRBAG BOWLER                        | 20        | 14        |  |             |  |                     |  |
| 15                                                                                                               | 20/2P     | POWER PLAY                            | E         | 1.35       | 2#12, #12G, 3/4"C      |                 | 1.53  |       | 2#12, #12G, 3/4"C      | 0.18       | E         | CHEER BALL LAUNCHER                  | 20        | 16        |  |             |  |                     |  |
| 17                                                                                                               |           |                                       | E         | 1.35       |                        |                 |       | 1.53  | 2#12, #12G, 3/4"C      | 0.18       | E         | GAME WALL                            | 20        | 18        |  |             |  |                     |  |
| 19                                                                                                               | 20/2P     | TRIGGERTRAC                           | E         | 1.35       | 2#12, #12G, 3/4"C      |                 | 1.53  |       | 2#12, #12G, 3/4"C      | 0.18       | E         | FUTURE PROJECTOR                     | 20        | 20        |  |             |  |                     |  |
| 21                                                                                                               |           |                                       | E         | 1.35       |                        |                 | 2.70  |       | 2#12, #12G, 3/4"C      | 1.35       | E         |                                      | 20        | 22        |  |             |  |                     |  |
| 23                                                                                                               | 20/2P     | BALLISTICS SHOOTING GALLERY           | E         | 1.35       | 2#12, #12G, 3/4"C      |                 |       | 2.70  | 2#12, #12G, 3/4"C      | 1.35       | E         | ARERO STRIKE                         | 20        | 24        |  |             |  |                     |  |
| 25                                                                                                               |           |                                       | E         | 1.35       |                        | 2.85            |       |       | 2#12, #12G, 3/4"C      | 1.50       | E         |                                      | 20        | 26        |  |             |  |                     |  |
| 27                                                                                                               | 20/2P     | BALLISTICS SHOOTING GALLERY           | E         | 1.35       | 2#12, #12G, 3/4"C      |                 | 2.85  |       | 2#12, #12G, 3/4"C      | 1.50       | E         | SUPERCLIMBER                         | 20        | 28        |  |             |  |                     |  |
| 29                                                                                                               |           |                                       | E         | 1.35       |                        |                 |       | 2.49  | 2#12, #12G, 3/4"C      | 1.14       | E         | AIRBAG BOWLER                        | 20        | 30        |  |             |  |                     |  |
| 31                                                                                                               | 20/2P     | DODGE ATTACK                          | E         | 1.35       | 2#12, #12G, 3/4"C      |                 | 1.85  |       | 2#12, #12G, 3/4"C      | 0.50       | E         | CHEER INTERACTIVE GAME               | 20        | 32        |  |             |  |                     |  |
| 33                                                                                                               |           |                                       | E         | 1.35       |                        |                 | 1.53  |       | 2#12, #12G, 3/4"C      | 0.18       | R         | RECEPT. FOR FUTURE GAMIFICATION WALL | 20        | 34        |  |             |  |                     |  |
| 35                                                                                                               | 20/2P     | VALO JUMP                             | E         | 1.35       | 2#12, #12G, 3/4"C      |                 |       | 2.49  | 2#12, #12G, 3/4"C      | 1.14       | E         | AIRBAG BOWLER                        | 20        | 36        |  |             |  |                     |  |
| 37                                                                                                               |           |                                       | E         | 1.35       |                        | 2.49            |       |       | 2#12, #12G, 3/4"C      | 1.14       | E         | AIRBAG BOWLER                        | 20        | 38        |  |             |  |                     |  |
| 39                                                                                                               | 20/2P     | VALO JUMP                             | E         | 1.35       | 2#12, #12G, 3/4"C      |                 | 2.49  |       | 2#12, #12G, 3/4"C      | 1.14       | E         | AIRBAG BOWLER                        | 20        | 40        |  |             |  |                     |  |
| 41                                                                                                               | 20        | ROOF GFI RECEPTACLE                   | R         | 1.08       | 2#12, #12G, 3/4"C      |                 |       | 1.08  |                        |            |           | SPARE                                | 20        | 42        |  |             |  |                     |  |
| TOTAL CONNECTED LOAD (KVA)                                                                                       |           |                                       |           |            |                        | 14.30           | 14.01 | 13.00 |                        |            |           |                                      |           |           |  |             |  |                     |  |

|                                                                                                                      |  |           |  |                     |  |           |  |            |  |                        |  |                 |  |                        |  |                    |  |           |  |                     |  |                       |  |         |  |    |  |
|----------------------------------------------------------------------------------------------------------------------|--|-----------|--|---------------------|--|-----------|--|------------|--|------------------------|--|-----------------|--|------------------------|--|--------------------|--|-----------|--|---------------------|--|-----------------------|--|---------|--|----|--|
| PANEL: E-1 (EXISTING)                                                                                                |  |           |  |                     |  |           |  |            |  | MOUNTING:              |  | EXISTING        |  |                        |  |                    |  |           |  |                     |  |                       |  |         |  |    |  |
| 120/240                                                                                                              |  | VOLTS     |  | 1                   |  | PHASE     |  | 3          |  | WIRE                   |  | PANEL LOCATION: |  | EXISTING               |  |                    |  |           |  |                     |  |                       |  |         |  |    |  |
| MAIN CB: NA                                                                                                          |  |           |  | MLO: 60 A (V.I.F)   |  | BUS:      |  | EXISTING   |  | MIN                    |  | FED FROM:       |  |                        |  | EXISTING           |  |           |  |                     |  |                       |  |         |  |    |  |
| NOTE: L : LIGHTING, H : HVAC LOAD, M : MOTOR LOAD, R : RECEPTACLES, E: KITCHEN EQUIPMENT, O : OTHER/MISC. (TYPICAL). |  |           |  |                     |  |           |  |            |  |                        |  |                 |  |                        |  |                    |  |           |  |                     |  |                       |  |         |  |    |  |
| CKT NO.                                                                                                              |  | TRIP AMPS |  | DESCRIPTION OF LOAD |  | LOAD TYPE |  | LOAD (KVA) |  | MINIMUM BRANCH CIRCUIT |  | PER PHASE (KVA) |  | MINIMUM BRANCH CIRCUIT |  | LOAD (KVA)         |  | LOAD TYPE |  | DESCRIPTION OF LOAD |  | TRIP AMPS             |  | CKT NO. |  |    |  |
|                                                                                                                      |  |           |  |                     |  |           |  |            |  |                        |  | A               |  | B                      |  |                    |  |           |  |                     |  |                       |  |         |  |    |  |
| 20                                                                                                                   |  | 20        |  | POS KITCHEN         |  | R         |  | 0.72       |  | 2#12, #12G, 1/2" C     |  | 1.44            |  |                        |  | 2#12, #12G, 1/2" C |  | 0.72      |  | R                   |  | KIOSK QUAD RECEPTACLE |  | 20      |  | 2  |  |
| 3                                                                                                                    |  | 20        |  | POS RECEPTION       |  | R         |  | 0.36       |  | 2#12, #12G, 1/2" C     |  | 0.72            |  |                        |  | 2#12, #12G, 1/2" C |  | 0.36      |  | R                   |  | POS RECEPTION         |  | 20      |  | 4  |  |
| 5                                                                                                                    |  | 20        |  | POS RECEPTION       |  | R         |  | 0.36       |  | 2#12, #12G, 1/2" C     |  | 0.72            |  |                        |  | 2#12, #12G, 1/2" C |  | 0.36      |  | R                   |  | POS RECEPTION         |  | 20      |  | 6  |  |
| 7                                                                                                                    |  | 20        |  | POS RECEPTION       |  | R         |  | 0.36       |  | 2#12, #12G, 1/2" C     |  | 0.72            |  |                        |  | 2#12, #12G, 1/2" C |  | 0.36      |  | R                   |  | POS RECEPTION         |  | 20      |  | 8  |  |
| 9                                                                                                                    |  | 20        |  | POS RECEPTION       |  | R         |  | 0.36       |  | 2#12, #12G, 1/2" C     |  | 0.36            |  |                        |  |                    |  |           |  |                     |  | SPARE                 |  | 20      |  | 10 |  |
| 11                                                                                                                   |  | 20        |  | SPARE               |  |           |  |            |  |                        |  | 0.00            |  | 0.00                   |  |                    |  |           |  |                     |  | SPARE                 |  | 20      |  | 12 |  |
| 13                                                                                                                   |  | 20        |  | SPARE               |  |           |  |            |  |                        |  | 0.00            |  |                        |  |                    |  |           |  |                     |  | SPACE                 |  |         |  | 14 |  |
| 15                                                                                                                   |  | 20        |  | SPARE               |  |           |  |            |  |                        |  | 0.00            |  | 0.00                   |  |                    |  |           |  |                     |  | SPACE                 |  |         |  | 16 |  |
| 17                                                                                                                   |  | 20        |  | SPARE               |  |           |  |            |  |                        |  | 0.00            |  |                        |  |                    |  |           |  |                     |  | SPACE                 |  |         |  | 18 |  |
| 19                                                                                                                   |  | 20        |  | SPARE               |  |           |  |            |  |                        |  | 0.00            |  | 0.00                   |  |                    |  |           |  |                     |  | SPACE                 |  |         |  | 20 |  |
| 21                                                                                                                   |  |           |  | SPACE               |  |           |  |            |  |                        |  | 0.00            |  |                        |  |                    |  |           |  |                     |  | SPACE                 |  |         |  | 22 |  |
| 23                                                                                                                   |  |           |  | SPACE               |  |           |  |            |  |                        |  | 0.00            |  |                        |  |                    |  |           |  |                     |  | SPACE                 |  |         |  | 24 |  |
| TOTAL CONNECTED LOAD (KVA)                                                                                           |  |           |  |                     |  |           |  |            |  |                        |  | 2.52            |  | 1.44                   |  |                    |  |           |  |                     |  |                       |  |         |  |    |  |

