## DUCT SYMBOLS

| DOUBLE LINE SYMBOL | DESCRIPTION | SINGLE LINE SYMBOL |
|---|---|---|
| 20x16 | DUCT– FIRST NUMBER IS VISIBLE DIMENSION. | 20x16 |
| R | RADIUS ELBOW W/VANE(S) (1.5=R/D STANDARD) | |
| | DUCT SECTION, POSITIVE PRESSURE | |
| | DUCT SECTION, NEGATIVE PRESSURE | |
| | DUCT & AIRFLOW UP(LEFT) POSITIVE PRESSURE<br>DUCT & AIRFLOW DN(RIGHT) POSITIVE PRESSURE | |
| | DUCT & AIRFLOW UP(LEFT) NEGATIVE PRESSURE<br>DUCT & AIRFLOW DN(RIGHT) NEGATIVE PRESSURE | |
| | DUCT & AIRFLOW UP(LEFT) NEG./POS. PRESSURE<br>DUCT & AIRFLOW DN(RIGHT) NEG./POS. PRESSURE | |
| R | CHANGE OF ELEVATION=RISE (R), DROP (D) | R |
| 20x16 | DUCT W/INTERNAL LINING<br>CLEAR INSIDE DIMENSIONS SHOWN | |
| AD | ACCESS DOOR=SIDE (L), BOTTOM (M), TOP (R) | AD |
| | FLEXIBLE CONNECTOR | |
| | FLEXIBLE DUCT | |
| FD | FD– FIRE DAMPER,<br>SD–SMOKE DAMPER,<br>FSD– FIRE/SMOKE DAMPER. | FSD |
| (TYPE) | MANUAL VOLUME DAMPER–SPECIFIC TYPE,<br>NO LABEL–BUTTERFLY, OBD–OPPOSED BLADED DAMPER,<br>PBD–PARALLEL BLADE DAMPER | (TYPE) |
| M | MOTORIZED DAMPER OR<br>ZONE CONTROL DAMPER | M |
| | BRANCH TAP–W/45 DEG. ENTRY | |
| | BRANCH TAP–CONICAL<br>SPIN–IN | |
| | BRANCH TAP–STRAIGHT<br>SPIN–IN | |
| 20x10 10x10 | TRANSITION | 20x10 10x10 |
| | EXISTING DUCTWORK<br>TO BE DEMOLISHED | |
| | EXISTING DUCTWORK<br>TO REMAIN | |
| RTU–# FCU–# XXX–# | HVAC – EQUIP AS NOTED | |
| | AIR DEVICE, SUPPLY– CEILING. CLEAR | |
| A<br>X"ø<br>X CFM | AIR DEVICE TAG<br>SPIN–IN DIMENSION<br>AIRFLOW (CFM) | |
| | AIR DEVICE, RETURN– CEILING. | |
| | AIR DEVICE, EXHAUST– CEILING. | |
| | AIR DEVICE, SUPPLY– SIDEWALL. | |
| | AIR DEVICE, RETURN/EXHAUST– SIDEWALL. | |

## MECHANICAL ABBREVIATIONS

| | |
|---|---|
| BD | BACK DRAFT DAMPER |
| CFM | CUBIC FEET OF AIR PER MINUTE |
| CD | CONDENSATE DRAIN PIPE |
| DN | DOWN |
| EER | ENERGY EFFICIENCY RATIO |
| IEER | INTEGRATED ENERGY EFFICIENCY RATIO |
| SEER | SEASONAL ENERGY EFFICIENCY RATIO |
| HSPF | HEATING SEASONAL PERFORMANCE FACTOR |
| HP | HEAT PUMP UNIT |
| VD | VOLUME DAMPER |
| MD | MOTORIZED DAMPER |
| RTU | ROOFTOP UNIT |
| EF | EXHAUST FAN |
| AHU | AIR HANDLING UNIT |
| MD | MOTORIZED DAMPER |
| AHU | AIR HANDLING UNIT |

## MECHANICAL DRAWING LIST



## 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 (IBC) WITH AMENDMENTS

B. 2021 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS

C. 2021 INTERNATIONAL MECHANICAL CODE (IMC) WITH AMENDMENTS

D. 2021 INTERNATIONAL FIRE CODE (IFC) WITH AMENDMENTS

E. 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) WITH AMENDMENTS

F. 2020 NATIONAL ELECTRIC CODE (NEC) WITH AMENDMENTS

## CITY OF SCOTTSDALE, AZ BUILDING DEPARTMENT NOTES

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

1. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
2. VENTILATION FOR ALL AREA SHALL COMPLY WITH INTERNATIONAL MECHANICAL CODE 2021 CHAPTER 4.
3. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021]
   A. VENTILATION SYSTEM BALANCING INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 403.1
4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   A. STANDARDS OF HEATING – INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 309.1
   B. DUCT CONSTRUCTION AND INSTALLATION– INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 603
   C. AIR INTAKES, EXHAUSTS AND RELIEF – INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 401.5
   D. AIR FILTERS – INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 605
   D. SMOKE DETECTORS AND FIRE AND SMOKE DAMPERS – INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] 606 & 607
   E. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS –INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 513
5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
6. 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 INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] – 403.3
7. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE–RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
8. 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.
9. 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.
10. VENTILATION SYSTEMS SHALL BE BALANCED TO MAINTAIN THE MINIMUM VENTILATION AIRFLOW RATE AS SHOWN IN VENTILATION REQUIREMENT TABLE. THIS SYSTEM SHALL BE BALANCED BY APPROVED METHOD – INTERNATIONAL MECHANICAL CODE 2021 [IMC 2021] SECTION 608.1 CONTRACTOR TO SUBMIT THE AIR – BALANCE REPORT TO INSPECTOR OF RESPECTIVE BUILDING DEPARTMENT PRIOR TO FINAL INSPECTION.

## SCOPE OF WORK

1. 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, RFI'S, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
2. 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 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.
3. 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 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 NOTES

1. 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.
2. 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, OF 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL MAKE ALLOWANCE IN PRICING FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED.
8. 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. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI–ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 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.
9. 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.
10. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
11. WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
12. 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.
13. ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
14. 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 BUTTONS, TABS, AND MARKERS TO IDENTIFY LOCATION OF CONCEALED VALVES, DAMPERS AND EQUIPMENT.
15. 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.
16. 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.
17. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
18. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE
19. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
20. 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.
21. 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.
22. SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.
23. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
24. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
25. 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.
26. 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.
27. 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:

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

## GENERAL HVAC NOTES

1. 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.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. 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.
4. 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.
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' 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.
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
11. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT. OF, ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50 FT. OF BOILER OR PRESSURE–REDUCING VALVES.
12. LOCATE ALL TEMPERATURE, PRESSURE, 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.



NY ENGINEERS
382 NE 191st ST, SUITE
49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

MECHANICAL GENERAL NOTES, SYMBOL LIST & ABBREVIATIONS

# M0.1

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

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

15. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO 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.

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

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

18. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR 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.

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

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

21. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT AND ROOFTOP 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.

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

23. REINFORCEMENT, DETAILING, AND PLACEMENT OF CONCRETE SHALL CONFORM TO ASTM 315 AND ACI 318. CONCRETE SHALL CONFORM TO ASTM C94. CONCRETE WORK SHALL CONFORM TO ACI 318 PART ENTITLED "CONSTRUCTION REQUIREMENTS",COMPRESSIVE STRENGTH IN 28 DAYS SHALL BE 3,000 PSI. TOTAL AIR CONTENT OR EXTERIOR CONCRETE SHALL BE BETWEEN 5 AND 7 PERCENT BY VOLUME. SLUMP SHALL BE BETWEEN 3 AND 4 IN. CONCRETE SHALL BE CURED FOR 7 DAY AFTER PLACEMENT.

24. CONCRETE HOUSEKEEPING PADS TO SUIT MECHANICAL EQUIPMENT SHALL BE SIZED AND LOCATED BY THE MECHANICAL CONTRACTOR. MINIMUM CONCRETE PAD THICKNESS SHALL BE 6 IN. PAD SHALL EXTEND BEYOND THE EQUIPMENT A MINIMUM OF 6 IN. ON EACH SIDE. CONCRETE HOUSEKEEPING PADS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR. IT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO COORDINATE THE SIZE AND LOCATION OF CONCRETE HOUSEKEEPING PADS WITH THE GENERAL CONTRACTOR.

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

26. 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.

# SPECIFICATIONS

## SECTION 0001 – NOTICE TO BIDDERS

1.1 BIDDERS REPRESENTATIONS

A. THE BIDDER BY MAKING A BID REPRESENTS THAT:

THE BIDDER HAS READ AND UNDERSTANDS THE BIDDING DOCUMENTS, TO THE EXTENT THAT SUCH DOCUMENTATION RELATES TO THE WORK FOR WHICH THE BID IS SUBMITTED, AND FOR OTHER PORTIONS OF THE PROJECT, IF ANY, BEING BID CONCURRENTLY OR PRESENTLY UNDER CONSTRUCTION.

B. THE BID IS MADE IN COMPLIANCE WITH THE BIDDING DOCUMENTS.

C. THE SPECIFICATIONS AND DRAWINGS ARE INTENDED TO SERVE JOINTLY AS A BASIS FOR THE BIDDER TO SUBMIT A CONTRACT PRICE FOR THE MATERIAL AND LABOR.

D. SHOULD CONFLICTS OR DISCREPANCIES OCCUR WITHIN THE BIDDING DOCUMENTS, THE ITEM OR ITEMS IN DISPUTE THAT REPRESENT THE GREATER COST SHALL PREVAIL IN THE FINAL BID.

E. THE BID IS BASED UPON THE MATERIALS, EQUIPMENT AND SYSTEMS REQUIRED BY THE BIDDING DOCUMENTS WITHOUT EXCEPTION.

1.2 EXISTING CONDITIONS AND COORDINATION

A. THE BIDDER HAS VISITED THE SITE, BECOME FAMILIAR WITH LOCAL CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED AND HAS CORRELATED THE BIDDER'S PERSONAL OBSERVATIONS WITH THE REQUIREMENTS OF THE PROPOSED BIDDING DOCUMENTS.

B. THE BIDDER SHALL PROPOSE COORDINATION OF WORK SUCH THAT CONFLICTS WITH OTHER TRADES AND SPACE ALLOCATIONS ARE AVOIDED.

1.3 RESPONSIBILITIES

A. THE BIDDER UNDERSTANDS THAT ANY CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE TIMELY COMPLETION AND ACCEPTANCE OF THEIR WORK AND THAT ANY ITEMS DAMAGED, LOST OR STOLEN DURING TIME OF CONSTRUCTION SHALL BE REPAIRED OR REPLACED WITHOUT ANY ADDITIONAL COST TO THE OWNER.

B. THE BIDDER UNDERSTANDS THAT ANY PROPOSED WORK IN OCCUPIED TENANT SPACES SHALL BE PERFORMED DURING TIMES OF NON-TENANT OCCUPANCY OR AS SCHEDULED OR DIRECTED BY THE BUILDING MANAGER.

C. THE BIDDER UNDERSTANDS THAT ANY PROPOSED SHUT-DOWN OF EXISTING SYSTEMS DURING CONSTRUCTION SHALL BE PRE-ARRANGED WITH THE BUILDING MANAGER AND THAT SUCH SHUT-DOWNS ARE TO BE KEPT TO A MINIMUM.

END OF SECTION 0001

## SECTION 0101 – QUALITY OF WORK

1.1 WORKMANSHIP

A. ALL WORK SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE.

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.

C. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE FROM THE SITE, ALL TOOLS, DEMOLISHED APPLIANCES AND ANY SURPLUS MATERIAL.

1.2 CODE COMPLIANCE

A. ALL WORK SHALL MEET ALL STATE AND LOCAL CODES HAVING JURISDICTION.

END OF SECTION 0101

## SECTION 0102 –REQUIRED DOCUMENTS

1.1 SHOP DRAWINGS

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.

1.2 SUBMITTALS

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.

1.3 RECORD DRAWINGS

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.

1.4 EQUIPMENT OPERATING INSTRUCTIONS

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.

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.

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.

END OF SECTION 0102

## SECTION 078413-PENETRATION FIRE-STOPPING

1.1 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: AN FM GLOBAL-APPROVED FIRE-STOP CONTRACTOR OR A UL-QUALIFIED FIRE-STOP CONTRACTOR.

B. FIRE-TEST-RESPONSE CHARACTERISTICS: UL, INTERTEK ETL SEMKO OR FM GLOBAL

1.2 PENETRATION FIRESTOPPING

A. PENETRATIONS IN FIRE-RESISTANCE-RATED WALLS: F-RATINGS PER ASTM E 814 OR UL 1479.

B. PENETRATIONS IN HORIZONTAL ASSEMBLIES: F- AND T-RATINGS PER ASTM E 814 OR UL 1479:

C. PENETRATIONS IN SMOKE BARRIERS: L-RATINGS PER UL 1479.

D. W-RATINGS: PER UL 1479.

1.3 INSTALLATION

A. IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.

1.4 FIELD QUALITY CONTROL

A. INSPECTION OF INSTALLED FIRE-STOPPING: BY OWNER-ENGAGED AGENCY ACCORDING TO ASTM E 2174.

1.5 THROUGH-PENETRATION FIRESTOP SYSTEM SCHEDULE

WHERE UL-CLASSIFIED SYSTEMS ARE INDICATED, THEY REFER TO SYSTEM NUMBERS IN UL'S "FIRE RESISTANCE DIRECTORY" UNDER PRODUCT CATEGORY XHEZ.

FOR THE FOLLOWING SYSTEMS:

METALLIC AND NON-METALLIC PIPES, CONDUIT, OR TUBING, ELECTRICAL CABLES, CABLE TRAYS WITH ELECTRIC CABLES, MISCELLANEOUS ELECTRICAL PENETRANTS, INSULATED PIPES, GROUPINGS OF PENETRANTS, USE ON OR MORE THE FOLLOWING MATERIALS:

a. LATEX SEALANT
b. SILICONE SEALANT
c. INTUMESCENT PUTTY
d. MORTAR
h. SILICONE FOAM
i. PILLOWS/BAGS
j. INTUMESCENT WRAP STRIPS
k. INTUMESCENT COMPOSITE SHEET

1.6 MANUFACTURERS

1. HILTI CONSTRUCTION CHEMICAL, INC
2. TREMCO INC.
3. 3M FIRE PROTECTION PRODUCTS

END OF SECTION 078413

## SECTION 230529 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

1.1 PERFORMANCE REQUIREMENTS

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.

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.

1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND COMPONENTS.

1.2 SUBMITTALS

A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER

1.3 QUALITY ASSURANCE

A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE – STEEL."

1.4 COMPONENTS

A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL

B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL

C. FIBERGLASS PIPE HANGERS: -CLEVIS, CENTURY COMPOSITES, COOPER B-LINE

D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER

E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE

F. THERMAL-HANGER SHIELD INSERTS:

G. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS

H. PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYPE

I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

## SECTION 230548 – VIBRATION CONTROLS FOR HVAC EQUIPMENT

PART 1 – GENERAL

1.1 PERFORMANCE REQUIREMENTS

A. SEISMIC-RESTRAINT LOADING:

1. SITE CLASS AS DEFINED IN THE IBC: A, B
2. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: I II III
   a. COMPONENT IMPORTANCE FACTOR: 1.0
   b. COMPONENT RESPONSE MODIFICATION FACTOR: 2.5
   c. COMPONENT AMPLIFICATION FACTOR: 2.5.
3. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND) 18%
4. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1-SECOND PERIOD: 8%

1.2 COMPONENTS

A. VIBRATION ISOLATORS:

1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS
2. MOUNTS: DOUBLE-DEFLECTION TYPE.
3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST-DUCTILE-IRON HOUSING.
4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN-SPRING TYPE.
5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN-SPRING TYPE WITH SEISMIC RESTRAINT.
6. HOUSED SPRING MOUNTS: DUCTILE-IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.
7. ELASTOMERIC HANGERS: DOUBLE-DEFLECTION TYPE.
8. SPRING HANGERS: COMBINATION COIL-SPRING AND ELASTOMERIC-INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.
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.
10. PIPE RISER RESILIENT SUPPORT: ALL-DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.
11. RESILIENT PIPE GUIDES.

B. AIR-MOUNTING SYSTEMS:

1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED-AIR BELLOWS.
2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.

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.

D. VIBRATION ISOLATION EQUIPMENT BASES:

1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

1.3 FIELD QUALITY CONTROL

A. TESTING: BY EITHER: OWNER-ENGAGED AGENCY, CONTRACTOR-ENGAGED AGENCY, OR CONTRACTOR.

PART-2 PRODUCTS

1.4 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES

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:

B. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

1. ACE MOUNTINGS CO., INC.
2. AMBER/BOOTH COMPANY, INC.
3. CALIFORNIA DYNAMICS CORPORATION.
4. COOPER B-LINE, INC.; A DIVISION OF COOPER INDUSTRIES.
5. HILTI, INC.
6. ISOLATION TECHNOLOGY, INC.
7. KINETICS NOISE CONTROL.
8. LOOS & CO.; CABLEWARE DIVISION.
9. MASON INDUSTRIES.
10. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
11. UNISTRUT; TYCO INTERNATIONAL, LTD.
12. VIBRATION ELIMINATOR CO., INC.
13. VIBRATION ISOLATION.
14. VIBRATION MOUNTINGS & CONTROLS, INC.

END OF SECTION 230548

## SECTION 230593 – TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.1 SUMMARY

A. TESTING, ADJUSTING, AND BALANCING FOR THE FOLLOWING:

1. AIR SYSTEMS: CONSTANT-VOLUME.

1.2 QUALITY ASSURANCE

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.

1.3 EXECUTION

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.

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.

C. THE REPORT SHALL INDICATE A SCHEMATIC DIAGRAM INDICATING LOCATIONS OF ALL EQUIPMENT TESTED AND MEASUREMENT LOCATIONS.



NY ENGINEERS
382 NE 191st ST, SUITE
49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

MECHANICAL NOTES
(1 OF 2)

M0.2

D. PRIOR TO FINAL INSPECTION OF THE WORK, THE TAB SPECIALIST SHALL BALANCE ALL SYSTEMS AS INDICATED ABOVE TO THE REQUIREMENTS OF THE DESIGN.

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.

F. THE CONTRACTOR SHALL HAVE THE TESTING AND BALANCING SPECIALIST COORDINATE ALL WORK OF THIS S3ECTION WITH THE BUILDING MANAGER. BALANCING WORK SHALL NOT CONFLICT WITH OTHER WORK SO AS TO MAINTAIN COMPLETION WITHIN THE SPECIFIED TIME.

G. ALL INSTRUMENTS USED FOR TAB SHALL BE MAINTAINED IN GOOD WORKING CONDITION AND ACCURATELY CALIBRATED.

H. TOLERANCES: PLUS OR MINUS 5 PERCENT OF DESIGN VALUES.

I. INSPECTIONS: RANDOM CHECKS BY OWNER OR ARCHITECT TO VERIFY FINAL TESTING, ADJUSTING, AND BALANCING REPORT.

J. ADDITIONAL TESTS: RANDOM TESTS WITHIN 90 DAYS OF COMPLETING TAB TO VERIFY BALANCE CONDITIONS AND SEASONAL TESTS.

END OF SECTION 230593

## SECTION 230713 – DUCT INSULATION

1.1 QUALITY ASSURANCE

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 ASTME 84.

1.2 FIELD QUALITY CONTROL

A. FIELD INSPECTIONS: BY OWNER–ENGAGED AGENCY.

1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE;

A. CONCEALED, RECTANGULAR, ROUND AND FLAT–OVAL, SUPPLY–RETURN, OUTDOOR–AND EXHAUST–AIR DUCT AND AIR PLENUM INSULATION:

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–8 |
| OUTSIDE OF BUILDING: | R–8 |

1.4 ITEMS NOT INSULATED:

1. FIBROUS–GLASS DUCTS.
2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1.
3. FACTORY–INSILATED FLEXIBLE DUCTS.
4. FACTORY–INSULATED PLENUMS AND CASINGS.
5. FLEXIBLE CONNECTORS.
6. VIBRATION–CONTROL DEVICES.
7. 'FACTORY–INSULATED ACCESS PANELS AND DOORS.
8. DUCTS THAT HAVE INTERNAL ACOUSTICAL LINING.

1.5 PRODUCTS

A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:

1. JOHNS–MANVILLE
2. OWENS–CORNING

1.6 ACOUSTICAL TREATMENT

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,

END OF SECTION 230713

## SECTION 233113 – METAL DUCTS

1.1 CONSTRUCTION

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 1 INCH WG PRESSURE, SEAL CLASS "A".

B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 1" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:

1. CONSTRUCT SO THAT ALL INTERIOR SURFACES ARE SMOOTH. USE SLIP AND DRIVE OR FLANGED AND BOLTED CONSTRUCTION WHEN FABRICATING RECTANGULAR DUCTWORK. USE SPIRAL LOCK SEAM CONSTRUCTION WHEN FABRICATING ROUND SPIRAL DUCTWORK. SHEET METAL SCREWS MAY BE USED ON DUCT HANGERS, TRANSVERSE JOINTS AND OTHER SMACNA APPROVED LOCATIONS IF THE SCREW DOES NOT EXTEND MORE THAN 1/2 INCH INTO THE DUCT.
2. SHEET STEEL SHALL COMPLY WITH ASTMA653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC IRON ALLOY–COATED (GALVANINEALED) BY HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENT FOR SHEET METALLIC–COATED BY HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES ALL 90° ELBOWS.
3. 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.
4. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWG A5.2.

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:

| USG | MAX. SIDE INCHES | TRANSVERSE JOINTS AND | BRACING |
|---|---|---|---|
| 22 | UP TO 12 | S SLIP, DRIVE SLIP, ONE INCH | POCKET LOCK ON 8 FOOT CENTERS |
| 22 | 13 TO 24 | 1"X1"X1/8" ANGLES ON 4 | FOOT CENTERS |
| 20 | 25 TO 35 | 1"X1"X1/8" ANGLES ON 2 | FOOT CENTERS |

D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:

1. UPSTREAM OF EACH REHEAT COIL AND VAV BOX.
2. DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.

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

E. ALL DUCTWORK SHALL BE SEALED TO CLASS "A" AND LEAK TESTED TO MEAT SMACNA CLASS 6 FOR RECTANGULAR AND CLASS 3 FOR ROUND DUCTS.

1.2 MATERIALS

A. SINGLE–WALL RECTANGULAR DUCTS AND FITTINGS.
B. DOUBLE–WALL RECTANGULAR DUCTS AND FITTINGS.
1. FIBROUS–GLASS OR FLEXIBLE ELASTOMERIC DUCT LINER FOR INTERSTITIAL INSULATION.
2. PERFORATED INNER DUCT.
C. SINGLE–WALL ROUND AND FLAT–OVAL DUCTS AND FITTINGS.
D. DOUBLE–WALL ROUND AND FLAT–OVAL DUCTS AND FITTINGS.
1. FIBROUS–GLASS OR FLEXIBLE ELASTOMERIC DUCT LINER FOR INTERSTITIAL INSULATION.
2. PERFORATED INNER DUCT.
E. SHEET METAL MATERIALS:
1. GALVANIZED SHEET STEEL.
2. PVC–COATED, GALVANIZED SHEET STEEL.
3. CARBON–STEEL SHEETS.
4. STAINLESS–STEEL SHEETS.
5. ALUMINUM SHEETS.
6. FACTORY–APPLIED ANTI–MICROBIAL COATING.

F. DUCT LINER:
1. FIBROUS GLASS, TYPE I, FLEXIBLE.
a. WITH ANTI–MICROBIAL EROSION–RESISTANT COATING.
2. FLEXIBLE ELASTOMERIC.
3. NATURAL FIBER.
G. SEALANT MATERIALS:
1. TWO–PART TAPE SEALING SYSTEM.
2. WATER–BASED JOINT AND SEAM SEALANT.
3. SOLVENT–BASED JOINT AND SEAM SEALANT.
4. FLANGED JOINT SEALANT.
5. FLANGE GASKETS.
6. ROUND DUCT JOINT O–RING SEALS.

1.3 SEISMIC–RESTRAINT DEVICES

A. CHANNEL SUPPORT SYSTEM.
B. STAINLESS–STEEL RESTRAINT CABLES.
C. HANGER ROD STIFFENER: STEEL TUBE OR STEEL SLOTTED–SUPPORT–SYSTEM SLEEVE WITH INTERNALLY BOLTED CONNECTIONS OR REINFORCING STEEL ANGLE CLAMPED TO HANGER ROD.

1.4 DUCT CLEANING

A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.
B. CLEAN THE FOLLOWING ITEMS:
1. AIR OUTLETS AND INLETS.
2. SUPPLY, RETURN, AND EXHAUST FANS.
3. AIR–HANDLING UNITS.
4. COILS AND RELATED COMPONENTS.
5. RETURN–AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
6. SUPPLY–AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.

1.5 DUCT SCHEDULE

A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:
1. MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.

END OF SECTION 233113

## SECTION 233713 – DIFFUSERS, REGISTERS, AND GRILLES

1.1 PRODUCTS

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.
B. MANUFACTURERS: TITUS
1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
a. CARNES.
b. HART & COOLEY INC.
c. KRUEGER.
d. METALAIRE, INC.
e. NAILOR INDUSTRIES INC.
f. RUSKIN

C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.
D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

## THERMOSTATIC CONTROL NOTES

C403.4.1 THERMOSTATIC CONTROLS

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.

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:

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).

THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C403.4.1.2 DEADBAND

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.

EXCEPTIONS:

THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.

OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

C403.4.1.3 SETPOINT OVERLAP RESTRICTION

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.

C403.4.2 OFF–HOUR CONTROLS

EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.

EXCEPTIONS:

ZONES THAT WILL BE OPERATED CONTINUOUSLY.

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.

C403.4.2.1 THERMOSTATIC SETBACK

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).

C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN

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.

C403.4.2.3 AUTOMATIC START AND STOP

AUTOMATIC START AND STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE AUTOMATIC START CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY. AUTOMATIC STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM WITH DIRECT DIGITAL CONTROL OF INDIVIDUAL ZONES. THE AUTOMATIC STOP CONTROLS SHALL BE CONFIGURED TO REDUCE THE HVAC SYSTEM'S HEATING TEMPERATURE SETPOINT AND INCREASE THE COOLING TEMPERATURE SETPOINT BY NOT LESS THAN 2°F (1.11°C) BEFORE SCHEDULED UNOCCUPIED PERIODS BASED ON THE THERMAL LAG AND ACCEPTABLE DRIFT IN SPACE TEMPERATURE THAT IS WITHIN COMFORT LIMITS.



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TENANT FINISH FOR
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PARADISE VALLEY

| | |
|---|---|
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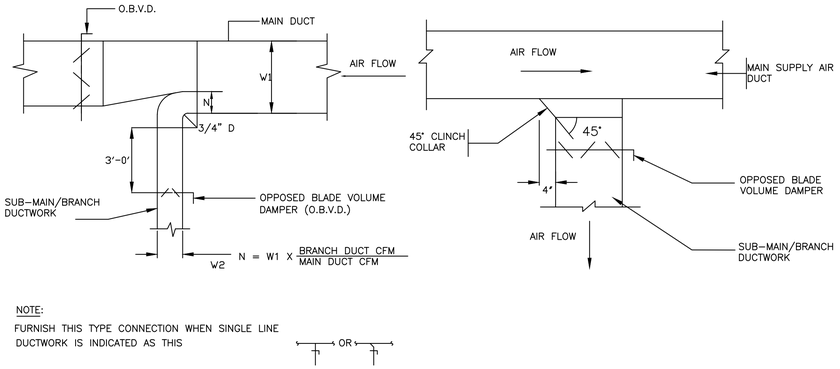
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

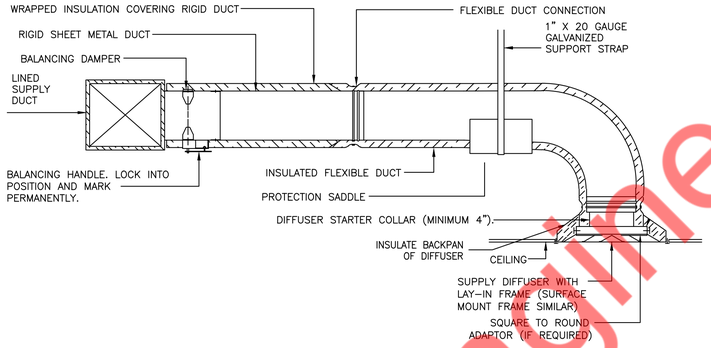
| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

MECHANICAL NOTES
(2 OF 2)

M0.3

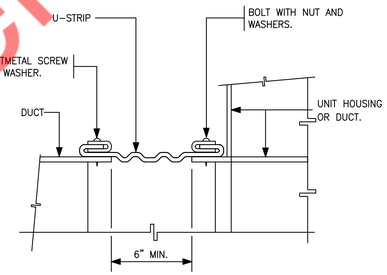



1 M1.0 SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION
N.T.S

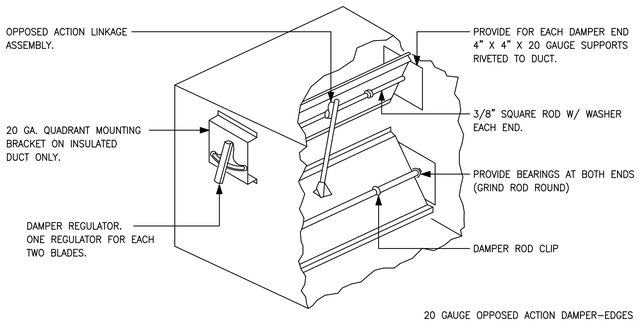



NOTES: 1) PROVIDE AT FLEXIBLE DUCT CONNECTION "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX.
2) PROVIDE MINIMUM 4" COLLARS FOR ATTACHMENT OF THE FLEXIBLE DUCT TO DUCT, DAMPERS AND DIFFUSERS.
3) BAND RIGID ROUND DUCT INSULATION TO DUCT AND PROVIDE TAPE FOR INSULATION OVERLAP.
4) FLEXIBLE DUCTS SHALL NOT EXCEED FIVE (5) FEET LENGTH.

2 M1.0 DIFFUSER CONNECTION DETAIL-FLEX DUCT
N.T.S

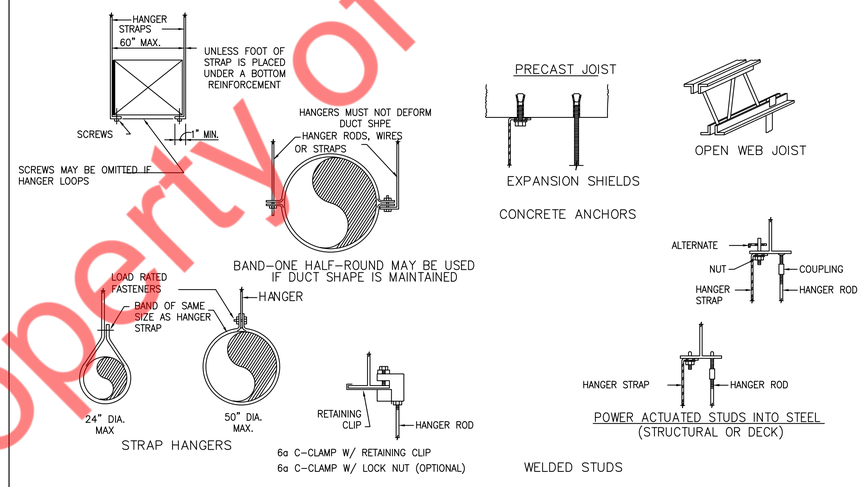



3 M1.0 FLEXIBLE CONNECTION(DUCT-EQUIPMENT)
N.T.S

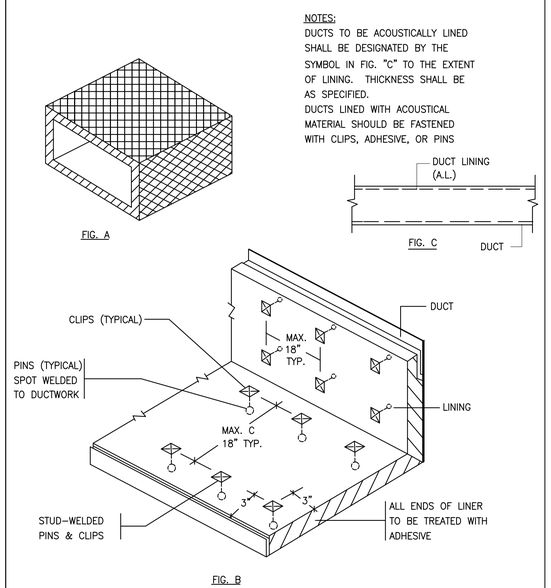



NOTE : 1. FOR DUCTS OVER 29" WIDE AND/OR OVER 12" HIGH.

4 M1.0 LOW PRESSURE BALANCING DAMPER
N.T.S




5 M1.0 UPPER & LOWER ATTACHMENTS & DEVICES
N.T.S




6 M1.0 ACOUSTICAL TREATMENT DUCT LINING
N.T.S



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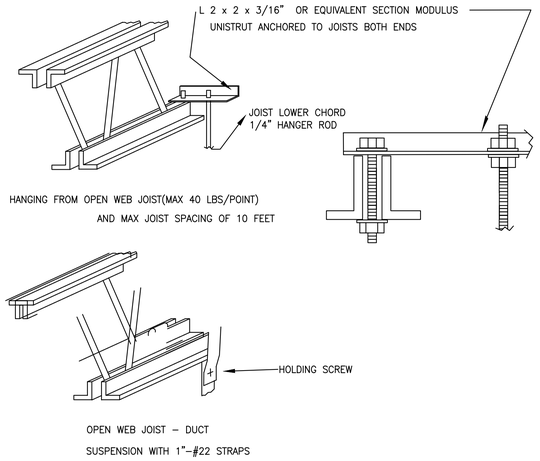
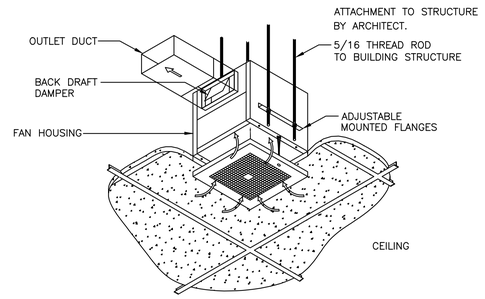
MECHANICAL DETAILS
(1 OF 3)

M1.0

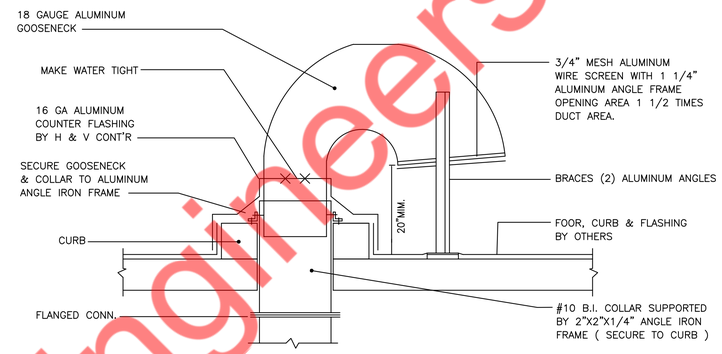



1 M1.1 DUCT MOUNTING DETAIL
N.T.S

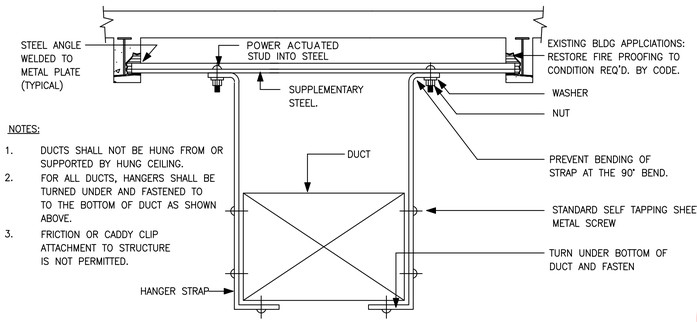



RIGHT ANGLE DISCHARGE

2 M1.1 CEILING FAN HANGING SUPPORT DETAIL
N.T.S



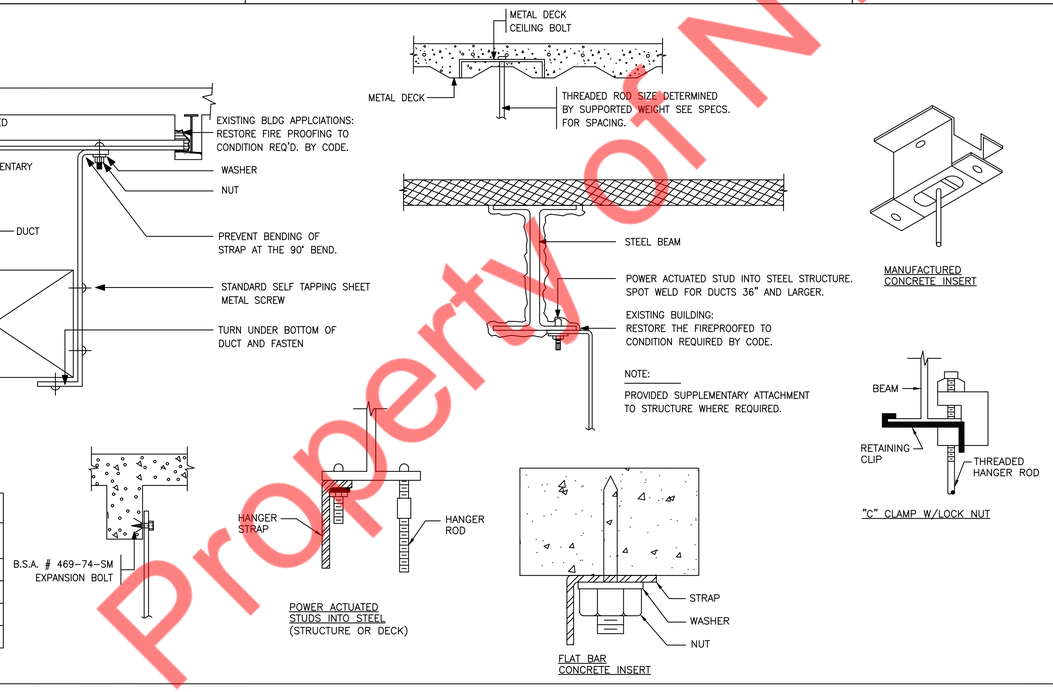

3 M1.1 TYPICAL DETAIL OF ROOF GOOSENECK
N.T.S



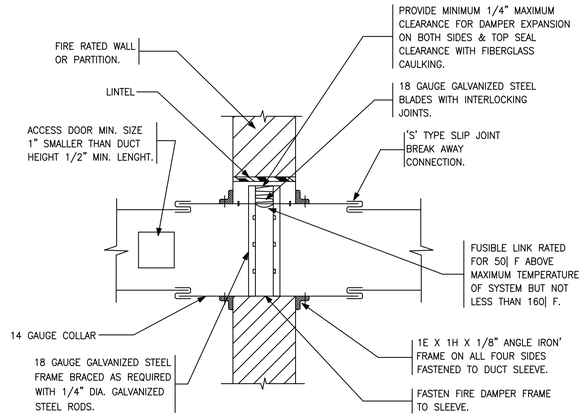

NOTES:

1. DUCTS SHALL NOT BE HUNG FROM OR SUPPORTED BY HUNG CEILING.
2. FOR ALL DUCTS, HANGERS SHALL BE TURNED UNDER AND FASTENED TO TO THE BOTTOM OF DUCT AS SHOWN ABOVE.
3. FRICTION OR CADDY CLIP ATTACHMENT TO STRUCTURE IS NOT PERMITTED.

| DUCT HANGER SCHEDULE | | |
|---|---|---|
| DUCT CROSS SECTIONAL AREA | STRAP HANGER SIZE | MAX. SPACING |
| UNDER 2 SQ FT. | 1" X 1/16" | 6'–0" O.C. |
| 2 TO 4 SQ FT. | 1" X 1/8" | 8'–0" O.C. |
| 4 TO 8 SQ FT. | 1" X 1/8" | 6'–0" O.C. |
| OVER 8 SQ FT. | 1" X 1/8" | 4'–0" O.C. |




4 M1.1 DUCT HANGING DETAILS
N.T.S




VERTICAL MOUNT

5 M1.1 SHUTTER TYPE FIRE DAMPER
N.T.S



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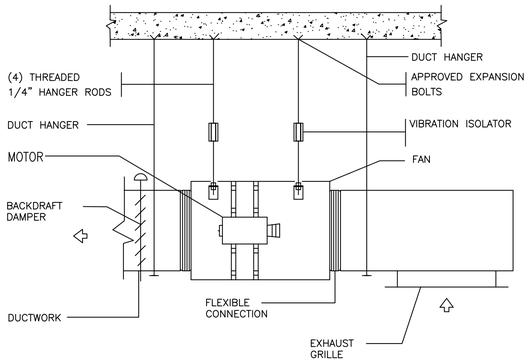
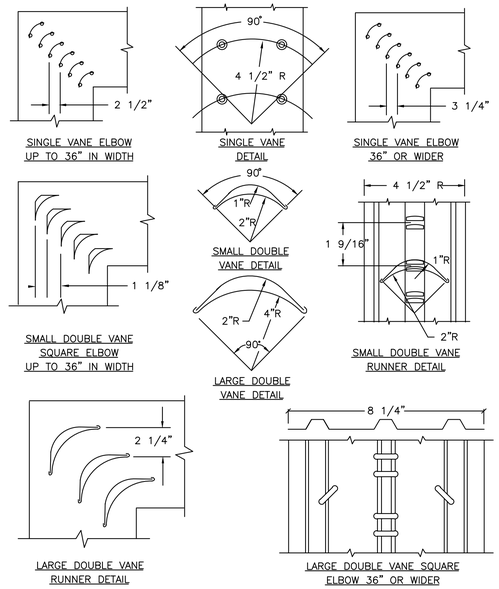
MECHANICAL DETAILS
(2 OF 3)

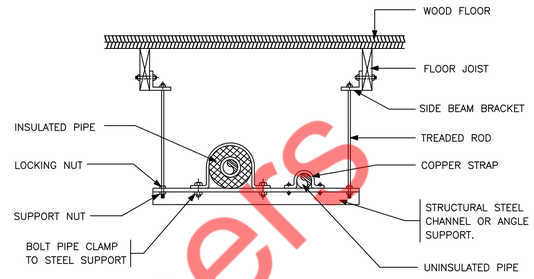
M1.1




1 / M1.2 INLINE FAN DETAIL
N.T.S




2 / M1.2 LOW VELOCITY DUCTWORK ELBOWS
N.T.S



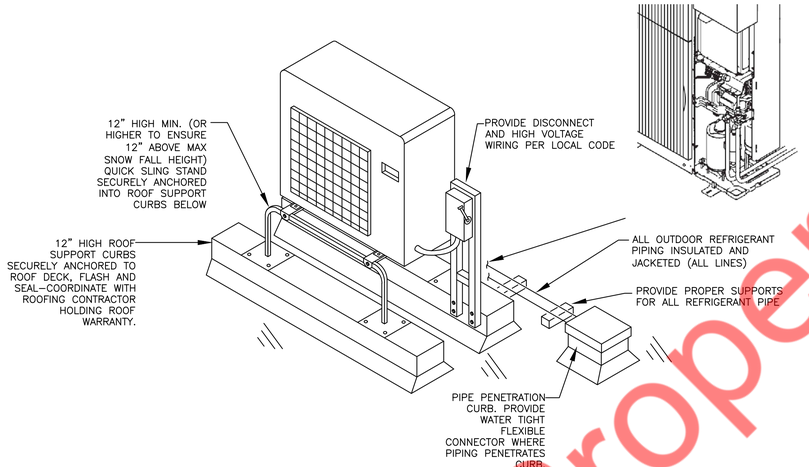

TYPICAL TRAPEZE HANGER SUPPORT

PIPE HANGER ROD AND SPACING SCHEDULE

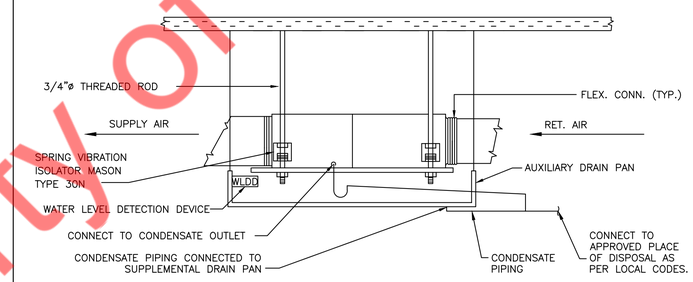
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NOMINAL PIPE OR TUBE SIZE – INCHES | 5/8 | 3/4 | 7/8 | 1 | 1 1/2 | 2 | 2 1/2 | – | – | – | – | – |
| HANGER ROD SIZES INCHES | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | 3/8 | – | – | – | – | – |
| MAX. SPACING BETWEEN PIPE SUPPORTS – FEET | – | 6 | – | 7 | 9 | 10 | 11 | – | – | – | – | – |
| MAX. SPACING BETWEEN CU. TUBE SUPPORTS–FT. | 6 | 6 | 6 | 6 | 8 | 9 | 10 | – | – | – | – | – |

NOTES : TRAPEZE HANGER SPACING SHALL BE BASED ON SPACING OF SMALLEST PIPE ON TRAPEZE. TRAPEZE SHALL BE DESIGNED WITH A FACTOR OF SAFETY OF 5 FOR CENTER OF SPAN CONCENTRATED LOAD.

3 / M1.2 METHOD OF HANGING REFRIGERANT PIPING
N.T.S

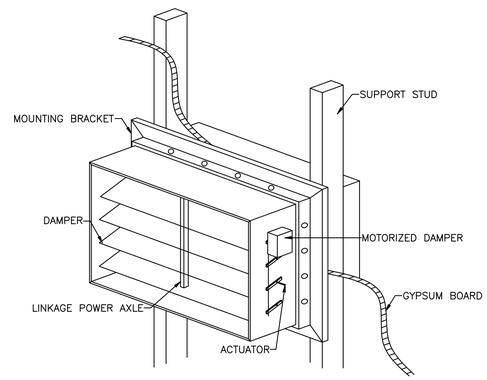



4 / M1.2 OUTDOOR UNIT INSTALLATION DETAILS
N.T.S




1. CONDENSATE FROM THE ALL AHU'S SHALL DE DISPOSED TO THE APPROVED PLUMBING FIXTURE OR DISPOSAL AREA AS PER THE LOCAL CODE.
2. CONDENSATE PIPING SIZES, MATERIALS, AND HORIZONTAL SLOPES SHALL BE CONSIDERED ACCORDING TO IMC SECTION 307.
3. AN AUXILIARY DRAIN PAN SHALL BE PROVIDED UNDER THE AHU'S EQUIPPED WITH A WATER–LEVEL DETECTION DEVICE CONFORMING TO UL 508 THAT WILL SHUT OFF THE AHU'S PRIOR TO OVERFLOW OF THE PAN.

5 / M1.2 TYPICAL AIR HANDLER MOUNTING DETAIL
N.T.S




6 / M1.2 MOTORIZED DAMPER DETAIL
N.T.S



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MECHANICAL DETAILS
(3 OF 3)

M1.2

## ROOF TOP UNIT SCHEDULE

| UNIT ID | MANUFACTURER | STATUS | MODEL | AREA SERVED | NOMINAL CAPACITY TONS | SUPPLY FAN | | | HEATING CAPACITY | COOLING CAPACITY | | ELECTRICAL | | | | HSPF | EER | SEER | OPERATING WEIGHT (LBS.) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | SUPPLY CFM | OUTSIDE AIR CFM | ESP (IN. OF W.G.) | MBH | TOTAL MBH | SENSIBLE MBH | VOLTS | PHASE | MCA (A) | MOCP (A) | | | | |
| RTU-1(E) | S.A.E | EXISTING | S.A.E | SEE PLAN | 5.0 | 2000 | 595 | S.A.E | 36.7 (V.I.F) | 51.2 (V.I.F) | 44.5 (V.I.F) | 208 (V.I.F) | 3 (V.I.F) | 29.0 (V.I.F) | 35.0 (V.I.F) | S.A.E | S.A.E | S.A.E | S.A.E |

**NOTES :**

1. EXISTING RTU TO REMAIN AND TO BE REUSED WITH ALL ACCESSORIES. REPLACE FILTERS IF REQUIRED.
2. S.A.E : SAME AS EXISTING. VIF : VERIFY IN FIELD.
3. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGUARTION OF UNITS ON SITE.
4. IF REQUIRED, PROVIDE NEW THERMOSTAT & TEMPERATURE SENSOR COMPATIBLE WITH THE EXISTING RTU. CO-ORDINATE FINAL LOCATION WITH ARCHITECT/OWNER.
5. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPER ON RTUS TO MATCH VALUES MENTIONED IN ABOVE TABLE.
6. CONTRACTOR TO VERIFY IN FIELD THE CAPACITIES OF THE EXISTING RTU SERVING THE SPACE IS AS PER THE SCHEDULE. IF NOT REPORT BACK TO ENGINEER PRIOR STARTING THE CONSTRUCTION.
7. CONTRACTOR TO FIELD VERIFY IF RTU IS WORKING AT 100% RATED CAPACITY/LOADS. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.
8. IF REQUIRED, CONTRACTOR SHALL REFURBISH EXISTING MECHANICAL EQUIPMENT TO REMAIN AND BRING TO "LIKE NEW" CONDITION.

## MECHANICAL AIR TERMINAL DEVICES SCHEDULE

| | | | | | |
|---|---|---|---|---|---|
| MANUFACTURER | TITUS | TITUS | TITUS | TITUS | TITUS |
| DESIGNATION | A | B | E | R | R1 |
| USE | SUPPLY | SUPPLY | EXHAUST | RETURN | RETURN |
| MODEL | TDC-AA | TDC-AA | 56FL | 56FL | 56FL |
| MOUNTING | CEILING | CEILING | CEILING | CEILING | CEILING |
| LOCATION | AS SHOWN | AS SHOWN | AS SHOWN | AS SHOWN | AS SHOWN |
| FACE SIZE | 24"X24" | 12"X12" | 6"X6" | 24"X24" | 12"X12" |
| NECK SIZE | REFER TABLE-A | REFER TABLE-A | - | - | - |
| FRAME TYPE | LAYIN/ FLANGED | FLANGED | FLANGED | LAYIN/ FLANGED | FLANGED |
| ACCESSORIES | VOLUME DAMPER | VOLUME DAMPER | VOLUME DAMPER | VOLUME DAMPER | VOLUME DAMPER |

**NOTES:**

1. MAX. NC LEVEL 30 OR LESS.
2. COORDINATE WITH ARCHITECT FOR PAINT & FINISH.
3. PROVIDE 4-WAY AIR THROW PATTERN UNLESS NOTES OR INDICATED.
4. PROVIDE INSULATED BACKS ON ALL DIFFUSERS.

| NECK SIZE TABLE-A | |
|---|---|
| 6" x 6" | 0-100 |
| 8" x 8" | 101-200 |
| 10" x 10" | 201-400 |
| 12" x 12" | 401-600 |

## MID STATIC DUCTED UNIT SCHEDULE (INDOOR)

MAKE: LG (OR EQUIVALENT)

| TAG | AREA SERVED | STATUS | TYPE | CAPACITY (TON) | SUPPLY AIRFLOW (CFM) | OUTDOOR AIR (CFM) | ELECTRICAL DATA | DIMENSIONS (WxHxD) (IN.) | REFRIGERANT PIPE SIZE (IN.) | | WEIGHT (LBS.) | MODEL NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | LIQUID | SUCTION | | |
| AHU-1(N) | SEE PLAN | NEW | MID STATIC DUCTED | 1.5 | 635 | 200 | POWERED BY HP-1(N) | 37X25X10 | 3/8" | 5/8" | 62.0 | KNUJB181A (OR EQUIVALENT) |

**NOTES :-**

1. SUPPLY AIR CFM BASED ON HIGH SPEED.
2. REFRIGERANT R32 SHALL BE PROVIDED.
3. PROVIDE ALL ASSOCIATED ACCESSORIES.
4. ALL REFRIGERANT PIPING TO BE SIZED AS PER MANUFACTURERS RECOMMENDATIONS.
5. CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEEDS THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH. CONTRACTOR TO FIELD VERIFY THE EXACT TOTAL REFRIGERANT LENGTH AND COORDINATE WITH THE MANUFACTURER PRIOR ORDERING UNIT.
6. CONNECT 3/4" CD FROM AHU-1(N) TO NEAREST APPROVED PLACE OF DISPOSAL. PROVIDE CONDENSATE PUMP IF REQUIRED.
7. PROVIDE THE UNITS WITH ALL REQUIRED ACCESSORIES AS PER THE MANUFACTURERS RECOMENDATION AND PER THE LOCAL CODE.

## HEAT PUMP SPLIT SYSTEM UNIT SCHEDULE (OUTDOOR)

| TAG | LOCATION | STATUS | INDOOR UNIT SERVED | CAPACITY (TON) | TOTAL COOLING CAP. (MBH) | SENSIBLE COOLING CAP. (MBH) | TOTAL HEATING CAP. (MBH) | DIMENSIONS (HxWxD) (IN.) | WEIGHT (LBS) | PIPE DIA. (IN.) | | ELECTRICAL DATA | | | EER 2 | SEER 2 | HSPF 2 | MANUFACTURER | MODEL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | LIQ. | GAS | VOLT/PH//HZ | MCA (A) | MOCP (A) | | | | | |
| HP-1(N) | SEE PLAN | NEW | AHU-1(N) | 1.5 | 17.2 | 13.0 | 17.4 | 33X38X13 | 136.0 | 3/8" | 5/8" | 208-230/1/60 | 16.0 | 25.0 | 12.40 | 17.5 | 9.2 | LG (OR EQUIVALENT) | KUSXB181A (OR EQUIVALENT) |

**NOTES :-**

1. UNIT SHALL HAVE TEN YEAR EXTENDED WARRANTY FOR COMPRESSORS/PARTS.
2. PROVIDE COMPRESSOR CYCLE PROTECTOR.
3. CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEED THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.
4. OUDOOR UNIT TO BE LOCATED WITH PROPER CLEARANCES AND MUST PREVENT RE-CIRCULATION OF AIR. COORDINATE WITH MANUFACTURER AND ARCHITECT.
5. UNIT SHALL NOT PRODUCE NOISE LEVELS IN EXCESS OF 42 DECIBELS FOR A SINGLE AIR CIRCULATING DEVICE AND 45 DECIBELS FOR THE CUMULATIVE NOISE LEVEL OF MULTIPLE AIR CIRCULATING DEVICES AS MEASURED 3 FEET FROM THE NOISE SOURCE AT AN OPEN DOOR OR WINDOW OF A NEARBY RESIDENCE.

## VENTILATION CALCULATION AS PER 2021 IMC

| ROOM TAG | AREA | OCCUPANCY AS PER 2021 IMC /1000SQ.FT. | OCCUPANY AS PER 2021 IMC CODE | FINAL OCCUPANCY | MIN OUTSIDE AIR AS PER 2021 IMC | | REQUIRED OUTSIDE AIR CFM | PROVIDED OUTSIDE AIR CFM | EXHAUST CFM/SQ.FT./FIXTURE | EXHAUST CFM | PROVIDED EXHAUST CFM |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | CFM/SQ.FT | CFM/PERSON | | | | | |
| RECEPTION | 210 | 30 | 7 | 7 | 0.06 | 5 | 48 | | - | - | - |
| WAX LAB | 56 | 25 | 2 | 2 | 0.12 | 20 | 47 | | 0.6 | 34 | 40 |
| WAX ROOM 1 | 63 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 38 | 120 |
| WAX ROOM 2 | 63 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 38 | 120 |
| WAX ROOM 3 | 63 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 38 | 120 |
| BREAKROOM | 112 | 50 | 6 | 6 | 0.06 | 5 | 37 | | - | - | - |
| HALWAY | 194 | 0 | 0 | 0 | 0.06 | 0 | 12 | 795 | - | - | - |
| WAX LOUNGE | 52 | 5 | 1 | 1 | 0.06 | 5 | 9 | | - | - | - |
| WAX ROOM 4 | 65 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 39 | 120 |
| WAX ROOM 5 | 65 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 39 | 40 |
| WAX ROOM 6 | 65 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 39 | 40 |
| WAX ROOM 7 | 65 | 25 | 2 | 2 | 0.12 | 20 | 48 | | 0.6 | 39 | 40 |
| UNISEX RESTROOM | 56 | 0 | 0 | 0 | 0 | 0 | 0 | | 50 CFM/FIXTURE | 50 | 50 |
| **TOTAL** | **1129** | - | - | **30** | - | - | **489** | **795** | - | **186** | **690** |

SYSTEM REQUIRING COMMISSIONING

| SYSTEM | SUB-SYSTEM | QUANTITY | CAPACITY (MBH) COOLING | CAPACITY (MBH) HEATING | TOTAL CAPACITY (MBH) COOLING | TOTAL CAPACITY (MBH) HEATING | REQUIRED COMMISSIONING |
|---|---|---|---|---|---|---|---|
| WATER HEATING | EX.WH-1 | 1 | - | 14.2 | - | 14.2 | HEATING (>600MBH) - NO |
| | EX.WH-2 | 1 | - | 36.8 | - | 36.8 | COOLING (>480MBH) - NO |
| COOLING AND HEATING | RTU-1(E) | 1 | 51.2 | 36.7 | 51.2 | 36.7 | |
| | HP-1(N) | 1 | 17.2 | 17.4 | 17.2 | 17.4 | **COMMISSIONING IS NOT REQUIRED.** |
| | | | | TOTAL | 68.4 | 105.1 | |

## MECHANICAL FAN SCHEDULE

| TAG | AREA SERVED | FLOW RATE | STATIC PRESSURE | ELECTRIC DATA | | | | WEIGHT (LBS.) | MAXIMUM LOUDNESS | BASIS OF DESIGN | | REMARK |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | EXTERNAL | SPEED | INPUT WATT | HP | V/PH/HZ | | | MANUFACTURER | MODEL | |
| | | CFM | IN W.G. | RPM | | | | | DBA | | | |
| EF-1(N) | SEE PLAN | 50 | 0.3 | 900 | 14.0 | - | 115/1/60 | 15 | 0.7 | GREENHECK (OR EQUIVALENT) | SP-A90 (OR EQUIVALENT) | 1,3,4,5 |
| EF-2(N) | SEE PLAN | 480 | 0.5 | 1550 | - | 1/8 | 115/1/60 | 40 | 8.1 | GREENHECK (OR EQUIVALENT) | SQ-95 (OR EQUIVALENT) | 1,3,4,5 |
| EF-3(N) | SEE PLAN | 160 | 0.5 | 938 | 46.0 | - | 115/1/61 | 25 | 2.9 | GREENHECK (OR EQUIVALENT) | CSP-A250 (OR EQUIVALENT) | 2,3,4,5 |

**NOTES:**

1. INTERCONNECT WITH RTU-1(E).
2. INTERCONNECT WITH AHU-1(N).
3. PROVIDE FACTORY MOUNTED AND INSTALLED DISCONNECT.
4. PROVIDE BACK DRAFT/ GRAVITY DAMPER & SPEED CONTROLLER.
5. CONTRACTOR TO INSTALL UNITS AS PER MANUFACTURERS RECOMMENDATION.

## AIR BALANCE

| UNIT | AREA SERVED | SUPPLY AIR | OUTSIDE AIR | RETURN AIR | EXHAUST AIR |
|---|---|---|---|---|---|
| RTU-1(E) | SEE PLAN | 2000 CFM | 595 CFM | 1405 CFM | - |
| AHU-1(N) | SEE PLAN | 635 CFM | 200 CFM | 435 CFM | - |
| EF-1(N) | SEE PLAN | - | - | - | 50 CFM |
| EF-2(N) | SEE PLAN | - | - | - | 480 CFM |
| EF-3(N) | SEE PLAN | - | - | - | 160 CFM |
| | TOTAL: | 2635 CFM | 795 CFM | 1840 CFM | 690 CFM |
| | BUILDING PRESSURE: | ..... | | 105 CFM | **POSITIVE** |

NOTES:

1. CONTRACTOR TO ADJUST MOTORIZED DAMPER ON FRESH AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE.



NY ENGINEERS
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49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

MECHANICAL SCHEDULES

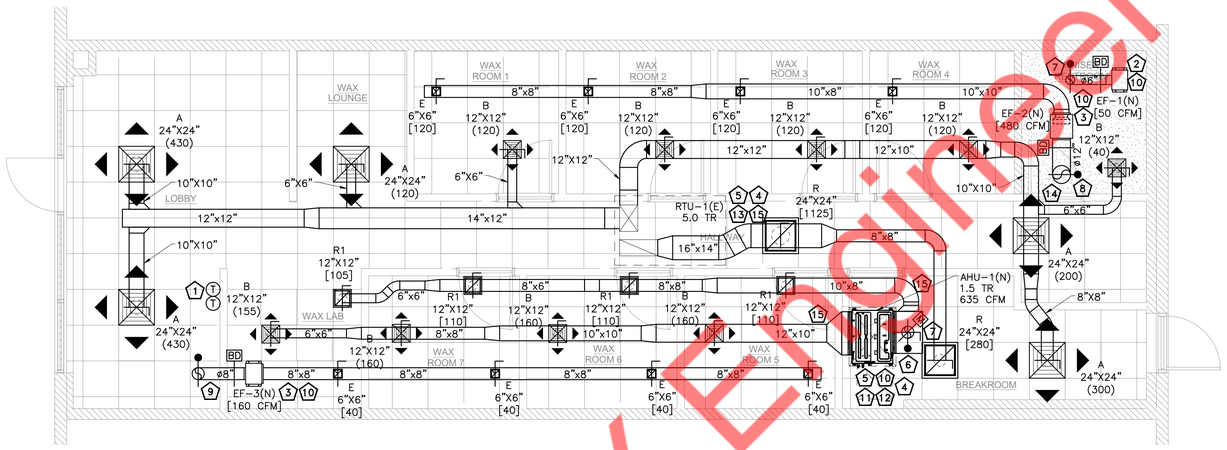
M2.0

MECHANICAL FLOOR PLAN GENERAL NOTES

A. CONTRACTOR SHALL BALANCE EACH AIR DIFFUSER WITH THE CFM SHOWN PLAN.
B. DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR DUCTWORK ROUTING. OFFSET AND RUN PIPING, DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
C. COORDINATE LOCATIONS AND SIZES OF ROOF/WALL OPENINGS WITH OWNER AND STRUCTURE ENGINEERS.
D. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
E. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
F. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
G. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
H. ALL EXPOSED DUCTWORK SHALL BE AS SHOWN,DOUBLE WALL, INSULATED METAL, PRIMED FOR PAINTING. ALL CONCEALED DUCTWORK SHALL BE INSULATED METAL RECTANGULAR AND CIRCULAR DUCT SHALL BE INSULATED INTERNALLY UNLESS OTHERWISE ALLOWED IN WRITING BY THE ENGINEER OF RECORD. COORDINATE FINAL FINISH WITH ARCHITECT.
I. COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
J. CONTRACTOR TO REFER TO EXHAUST FAN SCHEDULE FOR EXHAUST FAN INTERLOCKING CONTROLS.
K. 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.
L. COORDINATE FINAL LOCATION OF EQUIPMENT WITH STRUCTURAL DRAWINGS.
M. BEFORE STARTING DEMOLITION, PROVIDE NECESSARY PROTECTIVE DEVICES WHERE REQUIRED AND IN STRICT ACCORDANCE WITH OSHA AND ICRA REGULATIONS.
N. TAKE NECESSARY PRECAUTIONS TO PREVENT DUST AND DIRT MIGRATING TO OCCUPIED AREAS OF THE BUILDING. THIS INCLUDES BLANKING OFF ANY RETURN AIR GRILLES/ DUCTS IN THE WORK AREA. PROVIDE TEMPORARY EXHAUST FANS, DUCTED DIRECTLY TO OUTDOORS, TO MAINTAIN NEGATIVE PRESSURE WITHIN THE WORK AREA.
O. KEEP ALL ADJOINING AREAS ADJACENT TO THE WORK AREAS CLEAN AND FREE OF DEBRIS.
P. ALL DEMOLISHED MATERIALS SHALL BE REMOVED AND DISPOSED OF OFF SITE.
Q. REPAIR/ REPLACE EXISTING EQUIPMENT/ MATERIALS NOT SCHEDULED OR NOTED TO BE DEMOLISHED BUT BECOME DAMAGED DURING THE PROGRESS OF THE WORK. MAKE ANY AND ALL SUCH REPAIRS, REPLACEMENTS, MODIFICATIONS TO RESTORE THE DAMAGED ITEMS TO THEIR ORIGINAL CONDITIONS AT THE TIME OF DAMAGE, TO THE SATISFACTION OF AND AT NO ADDITIONAL COST TO THE OWNER.
R. PROVIDE WEATHER PROOF COATING FOR ALL EXTERIOR PIPING INSULATION.
S. MECHANICAL CONTRACTOR TO COORDINATE ALL DUCT WORK, CROSSINGS, OVERLAPPING AND PENETRATIONS WITH SITE CONDITIONS AND AS PER EXISTING JOIST LAYOUT AND SKYLIGHT IN FIELD. MODIFY DUCT WORK WHEREVER REQUIRED AS PER SMACNA STANDARDS.
T. PROVIDE FIRE/SMOKE +SMOKE COMBINATION DAMPERS WHEREVER REQUIRED.COORDINATE WITH ARCHITECTURAL DRAWINGS FOR SMOKE/FIRE RATING OF THE WALLS/SLABS/ROOF.COORDINATE ELECTRICAL POWER REQUIREMENT FOR DAMPER ACTUATORS WITH ELECTRICAL CONTRACTOR.

MECHANICAL FLOOR PLAN KEY NOTES:

1. LOCATION OF DIGITAL THERMOSTAT CONTROL. INSTALL AND WIRE NEW 7-DAY PROGRAMMABLE THERMOSTAT FOR RTU-1(E) & AHU-1(N). COORDINATE EXACT LOCATION WITH ARCHITECT AND OWNER PRIOR TO ROUGH-IN. PROVIDE LOCKABLE COVER. VERIFY WORKING CONDITION OF EXISTING T-SATS. REPLACE IF REQUIRED/NOT WORKING.
2. CEILING MOUNTED EXHAUST FAN. INTERCONNECT WITH RTU-1(E). FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
3. INLINE EXHAUST FAN. INTERCONNECT EF-2(N) WITH RTU-1(E) & EF-3(N) WITH AHU-1(N). FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
4. PROVIDE REMOTE TEMP SENSOR MOUNTED IN RETURN DUCT AND WIRE BACK TO T-STAT OF RESPECTIVE UNITS.
5. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
6. MD TO BE INTERLOCKED WITH AHU-1(N).
7. ø8" OUTSIDE AIR DUCT FROM THE ROOF.
8. ø12" EXHAUST DUCT UP THROUGH ROOF.
9. ø8" EXHAUST DUCT UP THROUGH ROOF.
10. COORDINATE FINAL LOCATION OF EQUIPMENT WITH ARCHITECT/OWNER.
11. IF REQUIRED, PROVIDE CONDENSATE PUMP. CONNECT 3/4" CD FROM AHU-1(N) WITH 1/8" PER FEET OF SLOPE TO THE EXISTING STORM WATER DRAINAGE NETWORK.
12. INSTALL REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNITS AS PER THE MANUFACTURERS RECOMMENDATIONS. PROVIDE INSULATION TO REFRIGERANT PIPING AS PER 2021 IECC. COORDINATE REFRIGERANT PIPE ROUTING WITH ARCHITECT/OWNER.
13. EXISTING SUPPLY & RETURN METAL DUCT FROM ROOF. EXISTING FIRE DAMPER TO REMAIN. PROVIDE NEW FIRE DAMPER IF EXISTING ARE NOT FUNCTIONAL OR DOES NOT EXISTING.
14. PROVIDE 3/4" DOOR UNDERCUT.
15. COORDINATE THE DUCTWORK WITH THE STRUCTURAL MEMBERS AS PER THE SITE CONDITIONS. IF ANY DISCREPANCY FOUND, INFORM ENGINEER OF RECORD PRIOR CONSTRUCTION/ BASE BID.



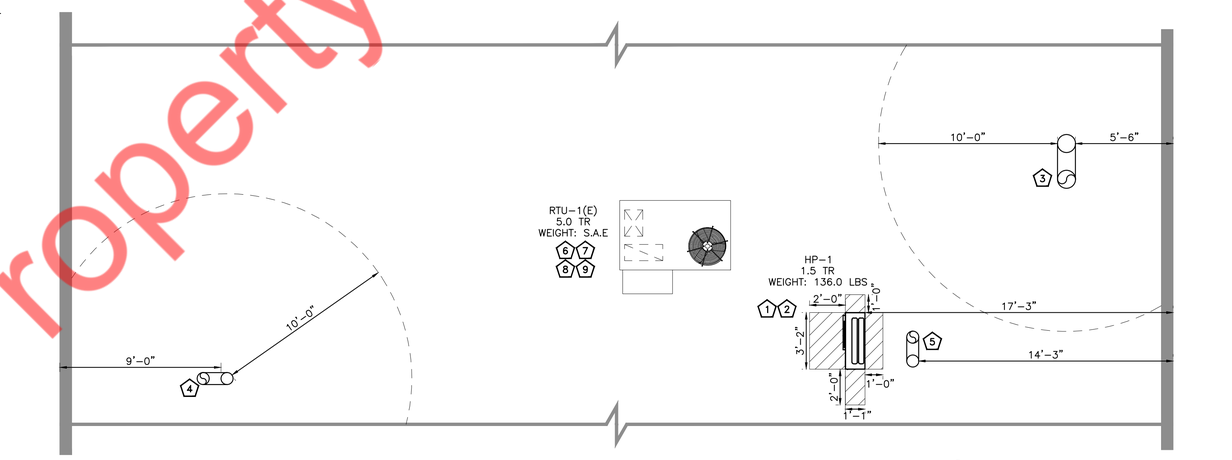

1 M3.0 MECHANICAL FLOOR PLAN
SCALE : 1/4"=1'-0"

MECHANICAL ROOF PLAN GENERAL NOTES

A. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURE ENGINEERS.
B. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
C. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
D. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
E. KEEP ALL ADJOINING AREAS ADJACENT TO THE WORK AREAS CLEAN AND FREE OF DEBRIS.
F. G.C. TO VERIFY THE CAPACITY AND CONDITION OF THE EXISTING HVAC UNIT BEFORE TO STARTING ANY NEW WORK.
G. CONTRACTOR SHALL COORDINATE WITH LANDLORD ROOFING CONTRACTOR FOR ANY ROOF PENETRATIONS, MODIFICATIONS AND REPAIRS.

MECHANICAL ROOF PLAN KEY NOTES:

1. INSTALL REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNITS AS PER THE MANUFACTURERS RECOMMENDATIONS. PROVIDE INSULATION TO REFRIGERANT PIPING AS PER 2021 IECC. COORDINATE REFRIGERANT PIPE ROUTING WITH ARCHITECT/OWNER.
2. INSTALL OUTDOOR HEAT PUMP UNIT WITH ALL REQUIRED ACCESSORIES. COORDINATE EXACT LOCATION WITH ARCHITECT / OWNER. PROVIDE CONCRETE PADS/STEEL RAILING AS REQUIRED. INSTALL OUTDOOR UNITS WITH THE HELP OF VIBRATION ISOLATORS.
3. ø12" EXHAUST DUCT TERMINATE WITH GOOSENECK, WEATHER SKIRT, AND BIRD SCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
4. ø8" EXHAUST DUCT TERMINATE WITH GOOSENECK, WEATHER SKIRT, AND BIRD SCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
5. ø8" OUTSIDE AIR DUCT. TERMINATE WITH GOOSENECK,WEATHER SKIRT, AND BIRD SCREEN.
6. EXISTING ROOFTOP UNIT TO REMAIN AND TO BE REUSED. CONTRACTOR TO FIELD VERIFY EXACT LOCATION IN THE FIELD. PROVIDE DUCT MODIFICATIONS IF REQUIRED. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE.
7. CONDENSATE DRAIN LINES FROM EXISTING RTU TO REMAIN AS IT IS. IF PIPING IS DAMAGED OR BLOCKED, REPAIR OR REPLACE AS/IF DAMAGED. USE PVC, CPVC, ABS OR SIMILAR APPROVED MATERIALS AS PER LOCAL CODE.
8. CONTRACTOR TO VERIFY IN FIELD THE CAPACITIES OF THE EXISTING RTU SERVING THE SPACE IS AS PER SCHEDULE. IF NOT REPORT BACK TO ENGINEER PRIOR STARTING THE CONSTRUCTION/ BASE BID.
9. CONTRACTOR TO FIELD VERIFY IF RTU IS WORKING AT 100% RATED CAPACITY/LOADS. INFORM TO DESIGN ENGINEER IF ANY DISCREPANCIES ARE FOUND IN PERFORMANCE PRIOR TO CONSTRUCTION.




2 M3.0 MECHANICAL ROOF PLAN
SCALE : 1/4"=1'-0"



NY ENGINEERS
382 NE 191st ST, SUITE
49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

MECHANICAL FLOOR & ROOF PLAN

M3.0

COMcheck Software Version COMcheckWeb

# Mechanical Compliance Certificate

## Project Information

Energy Code: 2021 IECC
Project Title:
Location:
Climate Zone:
Project Type: Alteration

Construction Site: Owner/Agent: Designer/Contractor:

## Mechanical Systems List

**Quantity** **System Type & Description**

1 HP-1(N) (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 17 kBtu/h,
Proposed Efficiency = 9.20 HSPF2, Required Efficiency = 7.50 HSPF2
Cooling Mode: Capacity = 17 kBtu/h,
Proposed Efficiency = 17.50 SEER2, Required Efficiency = 14.30 SEER2
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00

## Mechanical Compliance Statement

*Compliance Statement:* The proposed mechanical alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

MICHAEL TOBIAS — Name - Title
Signature
08/26/25 — Date



COMcheck Software Version COMcheckWeb

# Inspection Checklist

Energy Code: 2021 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section # & Req.ID | Plan Review | Complies? | Comments/Assumptions |
|---|---|---|---|
| C103.2 [PR2][1] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical and service water heating systems and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks. Hot water system sized per manufacturer's sizing guide. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)



| Section # & Req.ID | Plumbing Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C404.5, C404.5.1, C404.5.2 [PL6][1] | Heated water supply piping conforms to pipe length and volume requirements. Refer to section details. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)



| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C402.2.6 [ME41][1] | Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C403.12.3 [ME61][2] | HVAC piping insulation insulated in accordance with Table C403.11.3. Insulation exposed to weather is protected from damage and is provided with shielding from solar radiation. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.8.1 [ME65][1] | HVAC fan systems at design conditions do not exceed allowable fan system motor nameplate hp or fan system bhp. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. *See the Mechanical Systems list for values.* |
| C403.8.3 [ME117][2] | Fans have a fan energy index (FEI) >= 1.00. Variable volume fans will have an FEI >= 0.95. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.9 [ME144][2] | Large diameter fans where installed shall be tested and labeled in accordance with AMCA 230. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.13.1 [ME71][2] | Systems that heat outside the building envelope are radiant heat systems controlled by an occupancy sensing device or timer switch. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C403.3 [ME55][2] | HVAC equipment efficiency verified. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | *See the Mechanical Systems list for values.* |
| C403.2.2 [ME59][1] | Natural or mechanical ventilation is provided in accordance with International Mechanical Code Chapter 4. Mechanical ventilation has capability to reduce outdoor air supply to minimum per IMC Chapter 4. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.7.1 [ME59][1] | Demand control ventilation provided for spaces >500 ft2 and >15 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Multiple-zone systems with design outdoor air of less than 750 cfm. |
| C403.7.2 [ME115][1] | Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C403.7.6 [ME141][1] | HVAC systems serving guestrooms in Group R-1 buildings with > 50 guestrooms: Each guestroom is provided with controls that automatically manage temperature setpoint and ventilation (see sections C403.7.6.1 and C403.7.6.2). | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)



| Section # & Req.ID | Mechanical Rough-In Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C403.7.4 [ME57][1] | Exhaust air energy recovery on systems meeting Table C403.7.4(1) and C403.7.4(2). | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C403.7.5 [ME116][1] | Kitchen exhaust systems comply with replacement air and conditioned supply air limitations, and satisfy hood rating requirements and maximum exhaust rate criteria. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C403.12.1, C403.12.2 [ME60][2] | HVAC ducts and plenums insulated in accordance with C403.11.1 and constructed in accordance with C403.11.2, verification may need to occur during Foundation Inspection. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.1.4 [ME63][2] | Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C408.2.2.1 [ME53][1] | Air outlets and zone terminal devices have means for air balancing. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.11.3, C403.11.3.1, C403.11.3.2 [ME123][1] | Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections C403.11.3.1 and refrigeration compressor systems that comply with C403.11.3.2.. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)



| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C405.7 [EL26][2] | Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Transformers meet the Energy Policy Act of 2005 special purposes exclusions. |
| C405.8 [EL27][2] | Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist). | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.9.1, C405.9.2 [EL28][2] | Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.10 [EL29][2] | Total voltage drop across the combination of feeders and branch circuits <= 5%. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.1.1 [EL30][2] | At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.11, C405.11.1 [EL31][2] | 50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)



| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C303.3, C408.2.5.3 [FI8][1] | Furnished O&M manuals for HVAC systems within 90 days of system acceptance. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.1.1 [FI50][1] | HVAC systems and equipment design loads calculated in accordance with ANSI/ASHRAE/ACCA Standard 183 or by an approved equivalent computational procedure | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.3.1 [FI27][1] | HVAC systems and equipment capacity does not exceed calculated loads. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.1 [FI47][1] | Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.1.1 [FI42][1] | Heat pump controls prevent supplemental electric resistance heat from coming on when not needed. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.1.2 [FI38][1] | Thermostatic controls have a 5 °F deadband. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.1.3 [FI20][1] | Temperature controls have setpoint overlap restrictions. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.2 [FI39][1] | Each zone equipped with setback controls using automatic time clock or programmable control system. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C403.4.2.1, C403.4.2.2 [FI40][1] | Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.1.1 [FI57][1] | Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.1 [FI28][1] | Commissioning plan developed by registered design professional or approved agency. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)



| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C408.2.3.1 [FI31][1] | HVAC equipment, systems and system-to-system relationships have been tested to ensure proper operation. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.3.2 [FI10][1] | HVAC and service water heating control systems have been tested to ensure proper operation, calibration and adjustment of controls. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.4 [FI29][1] | Preliminary commissioning report completed and certified by registered design professional or approved agency. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.5 [FI7][1] | Furnished HVAC as-built drawings submitted within 90 days of system acceptance. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.5.1 [FI43][1] | An air and/or hydronic system balancing report is provided for HVAC systems. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.5.2 [FI30][1] | Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)





NY ENGINEERS
382 NE 191st ST, SUITE
49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

ENERGY ANALYSIS

M4.0

## PLUMBING LEGENDS

| SYMBOL | DESCRIPTION |
|---|---|
| SAN | SANITARY SEWER(UNDERGROUND) |
| | VENT PIPING |
| | COLD WATER |
| | EXISTING COLD WATER |
| | HOT WATER |
| | ISOLATION VALVE |
| | DOUBLE CHECK VALVE ASSEMBLY |
| | PIPE DOWN |
| | PIPE UP |
| WSM | WATER SUB METER |
| CO-1 | CLEAN OUT |
| | POINT OF NEW CONNECTION |

## PLUMBING DRAWING LIST

| | |
|---|---|
| P0.1 | PLUMBING SYMBOLS & ABBREVIATIONS |
| P0.2 | PLUMBING SPECIFICATIONS & SCHEDULE |
| P0.3 | PLUMBING DETAILS |
| P1.0 | PLUMBING SANITARY, VENT, WATER PIPING PLAN & RISERS |

## 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 (IBC) WITH AMENDMENTS

B. 2021 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS

C. 2021 INTERNATIONAL MECHANICAL CODE (IMC) WITH AMENDMENTS

D. 2021 INTERNATIONAL FIRE CODE (IFC) WITH AMENDMENTS

E. 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) WITH AMENDMENTS

F. 2020 NATIONAL ELECTRIC CODE (NEC) WITH AMENDMENTS

## PLUMBING ABBREVIATIONS

| | |
|---|---|
| CW | COLD WATER |
| HW | HOT WATER |
| SAN | SANITARY |
| EX.WH-1/2 | EXISTING WATER HEATER |
| DF | DRINKING FOUNTAIN |
| DW-1 | DISH WASHER |
| LAV-1 | LAVATORY |
| EX.WC | WATER CLOSET |
| I.W | INDIRECT WASTE |
| KS-1 | KITCHEN SINK |
| RF-1 | REFRIGERATOR |
| V.I.F | VERIFY IN FIELD |
| CO-1 | CLEAN OUT |
| WSM | WATER SUB METER |
| W | WASTE |
| TYP. | TYPICAL |
| DN | DOWN |
| DCVA | DOUBLE CHECK VALVE ASSEMBLY |
| EX. | EXISTING |

## 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. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL 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.

1. PIPE AND FITTINGS
2. VALVES
3. HANGERS AND SUPPORTS
4. PLUMBING PIPING LAYOUT
5. TESTS
6. PLUMBING FIXTURES
7. WATER HEATERS & ACCESSORIES
8. MIXING VALVES
9. 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 OR MANUFACTURER'S 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 2021 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS FOR ADDITIONAL DEFINITIONS.

1.05 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 VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.

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

1.06 PRODUCTS

A. SANITARY AND VENT PIPING:

1. ABOVE GRADE/ UNDERGROUND PIPING SHALL BE CAST IRON PIPE WHICH SHOULD COMPLY WITH ASTM A 74 STANDARD/CISPI 301.
2. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE 3" TO 6"(I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 2-1/2" OR LESS(I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
3. 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. WATER PIPING:

1. ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
2. FITTINGS IN WATER PIPING SHALL BE COPPER OR COPPER ALLOY.
3. JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
4. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
5. COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR WATER.
6. ALL WATER PIPING ABOVE GRADE SHALL BE FIRE-RETARDANT, FACTORY-APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY-APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY 2021 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C404.4 REFER WITH BELOW TABLE SECTION C403.12.3

| MINIMUM PIPE INSULATION THICKNESS | | | | | | | |
|---|---|---|---|---|---|---|---|
| FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F) | INSULATION CONDUCTIVITY | | NOMINAL PIPE OR TUBE SIZE (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 |

7. AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE C404.6.1, WATER DISTRIBUTION SYSTEM HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:

A. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.

B. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).

2. HEATED WATER SUPPLY PIPING SHALL BE IN ACCORDANCE WITH INTERNATIONAL ENERGY CONSERVATION CODE 2021 SECTION C404.5.1. THE FLOW RATE THROUGH 1/4-INCH PIPING SHALL BE NOT GREATER THAN 0.5 GPM. THE FLOW RATE THROUGH 5/16-INCH PIPING SHALL BE NOT GREATER THAN 1 GPM. THE FLOW RATE THROUGH 3/8-INCH PIPING SHALL BE NOT GREATER THAN 1.5 GPM. HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER INTERNATIONAL ENERGY CONSERVATION CODE 2021 SECTION C404.5.1. THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE.

| NOMINAL PIPE SIZE (INCHES) | MAXIMUM PIPING LENGTH (FEET) | |
|---|---|---|
| | PUBLIC LAV | OTHER FIXTURES |
| ½" | 2' | 43' |
| ¾" | 0.5' | 21' |
| 1" | 0.5' | 13' |
| 1¼" | 0.5' | 8' |
| 1½" | 0.5' | 6' |
| 2" OR LARGER | 0.5' | 4' |

C. INSTA HOT WATER HEATER

1. THE TANKLESS WATER HEATER SHALL BE UL LISTED FOR THE US AND NSF CERTIFIED.
2. UNIT SHALL BE PROTECTED BY A SHEET METAL HOUSING. HEAT EXCHANGER SHALL BE RATED FOR MAXIMUM WORKING PRESSURE NOT LESS THAN 150 PSIG.
3. ALL ASPECTS OF INSTALLATION OF WATER HEATER PLANT SHALL BE IN STRICT ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS. MATERIALS SHALL CONFORM TO ALL MANUFACTURER RECOMMENDATION INCLUDING ELECTRICAL CONNECTIONS AND WIRING.
4. WATER HEATER PIPING SHALL BE FIELD CONSTRUCTED OF MATERIALS AS SPECIFIED. WATER HEATER SHALL BE INSTALLED WITH INDIVIDUAL ISOLATING SHUTOFF VALVES FOR SERVICE AND MAINTENANCE.

D. MIXING VALVES

1. VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS OR STAINLESS STEEL.
2. 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 5GPM @ 45 PSIG DIFFERENTIAL.
3. TYPES OF VALVES: TYPE A– THERMOSTATICALLY OPERATED BY MEANS OF BI-METALLIC STRIP, OR EXPANSION BELLOWS; 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.
4. 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.

E. HOT WATER RE-CIRCULATING PUMP

1. IN-LINE PUMP: SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD-FREE BRONZE IMPELLER.
2. THE PUMP SHALL HAVE A GROUND AND POLISHED STEEL SHAFT WITH A HARDENED INTEGRAL THRUST COLLAR. THE SHAFT SHALL BE SUPPORTED BY TWO HORIZONTAL SLEEVE BEARINGS DESIGNED TO CIRCULATE OIL. THE PUMPS ARE TO BE EQUIPPED WITH A MECHANICAL SEAL WITH CARBON SEAL FACE ROTATING AGAINST CERAMIC SEAT. THE MOTOR SHALL BE NON-OVERLOADING AT ANY POINT ON PUMP CURVE.
3. DIRECT CONNECT PUMP TO ELECTRIC MOTOR WITH FLEXIBLE COUPLING. THE MOTOR SHALL BE OF THE DRIP-PROOF, SLEEVE- BEARING, QUIET OPERATING, RUBBER-MOUNTED CONSTRUCTION. EQUIPMENT MOTOR WITH BUILT-IN THERMAL OVERLOAD PROTECTION.
4. INSTALL IN-LINE CIRCULATING PUMPS BETWEEN PIPE FLANGES IN PIPING SYSTEMS. INSTALL OVERHEAD PIPE SUPPORTS, BOTH SIDES OF IN-LINE PUMPS, INSTALLED IN HORIZONTAL PIPING RUNS.

F. HANGERS AND SUPPORTS:

1. 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.
2. SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
3. ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS..
4. SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.
2. DEVICES:
   a. 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.

   b. 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.

   c. CLEANOUT DECK PLATE
   - IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WITH COATED CAST IRON BODY; ROUND, POLISHED NICKEL BRONZE SCORIATED 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.



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| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS 1 | 09.22.2025 |

PLUMBING SYMBOLS & ABBREVIATIONS

P0.1

3. INDIRECT WASTE FUNNEL

a. IT SHOULD BE COMBINATION OF FUNNEL DRAIN AND P TRAP WITH POLISHED CHROME PLATED CAST BRASS CONSTRUCTION WITH 4" TOP DIA., 4" DEEP WITH THREADED OUTLET.

H. INSTALL PIPING TO CONSERVE BUILDING SPACE. DO NOT INTERFERE WITH USE OF BUILDING SPACE AND THE WORK OF OTHER TRADES. ALL PIPING RUN IN CEILING SHALL BE INSTALLED TIGHT TO THE STRUCTURE ABOVE.

I. VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES.

INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS OR CONNECTED EQUIPMENT. PROVIDE PIPE ANCHORS, GUIDES AND EXPANSION JOINTS OR LOOPS IN ALL HOT WATER AND HOT WATER CIRCULATING MAIN SUPPLY PIPING AND SEGMENTS OF SUCH PIPE THAT EXCEED 30'–0" IN LENGTH.

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

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

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

N. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

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

P. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

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

R. 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.

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

T. 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.

U. WHEN THE WATER PIPING SYSTEM IS COMPLETE, THOROUGHLY FLUSH ALL DIRT, SEDIMENT, SOLDER, ETC., OUT OF THE SYSTEM, REMOVING ALL STRAINERS, VALVE STEM SEATS, ETC., REQUIRED TO ACCOMPLISH THE FLUSHING.

V. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY CODE.

W. CONNECT GAS PIPING TO ALL GAS–FIRED EQUIPMENT WITH GAS COCK, DIRT LEG AND UNION.

X. FOR ALL GAS–FIRED EQUIPMENT, VERIFY INPUT RATING AND PRESSURE REQUIREMENTS. PROVIDE GAS PRESSURE REGULATORS VENTED TO THE BUILDING EXTERIOR ON GAS SUPPLY TO ALL EQUIPMENT REQUIRING LOWER THAN LINE GAS PRESSURE.

Y. ALL PIPING INSTALLED ON THE ROOF SHALL BE SUPPORTED BY "PILLOW BLOCK" PIPE STANDS AS MANUFACTURED BY MIRO INDUSTRIES, OR APPROVED EQUAL. WOOD PIPE SUPPORTS SHALL NOT BE ACCEPTABLE. PROVIDE TRAFFIC/WALK PADS BELOW ALL PIPE STANDS.

Z. INSTALL SLEEVES FOR ALL PIPES WHICH PASS THROUGH WALLS, FLOORS, AND CEILINGS. WHERE PIPES ARE TO BE INSULATED, THE SLEEVE SHALL BE LARGE ENOUGH TO ACCOMMODATE INSULATION. SLEEVES SHALL BE FLUSH WITH FINISHED SURFACES AT BOTH ENDS. ON FINISHED SURFACES IN EXPOSED AREAS PROVIDE ESCUTCHEONS COMPATIBLE WITH FINISH.

AA. PROVIDE WATER HAMMER ARRESTERS ON SUPPLY PIPING TO ALL FLUSHOMETER VALVES AND QUICK–CLOSING VALVES.

AB. UNLESS OTHERWISE INDICATED, TRAPS SEALS AT ALL FLOOR DRAINS SHALL BE MAINTAINED BY AN APPROVED TRAP PRIMING DEVICE.

AC. MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES FOR ALL PLUMBING SYSTEM COMPONENTS AND EQUIPMENT.

AD. MAINTAIN MINIMUM 10'–0" CLEARANCE BETWEEN ALL PLUMBING V.T.R.S AND ALL OUTDOOR AIR INTAKES. OFFSET VENT STACKS AND STACK VENTS IF AND AS REQUIRED BELOW ROOF TO MAINTAIN SUCH CLEARANCE WHETHER OR NOT SUCH OFFSET IS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED SEISMIC SUPPORTS.

2. INSTALLATION

2.01 GENERAL

A. ALL WORK WHICH REQUIRES DISRUPTION OF THE ROOFING SHALL BE DONE BY A CONTRACTOR CERTIFIED BY THE ROOFING MANUFACTURER AS REQUIRED TO MAINTAIN ANY EXISTING ROOF WARRANTIES.

B. EXTERIOR INSTALLATIONS TO BE WEATHER PROOF IN ALL RESPECTS.

C. EXTERIOR MATERIALS AND EQUIPMENT SHALL BE PAINTED TO PREVENT CORROSION, COLOR PER ARCHITECT.

D. COORDINATE THE PLUMBING WORK WITH ALL OTHER AFFECTED WORK AND THE CONSTRUCTION SCHEDULE.

E. REAM PIPE AND TUBE ENDS. REMOVE BURRS. BEVEL PLAIN AND FERROUS END PIPE.

F. REMOVE SCALE AND FOREIGN MATERIAL, FROM INSIDE AND OUTSIDE, BEFORE ASSEMBLY.

G. PREPARE PIPING CONNECTIONS TO EQUIPMENT WITH FLANGES AND UNIONS.

H. COORDINATION WITH THE WORK OF OTHER TRADES IS REQUIRED. PROVIDE OFFSETS IN PIPING SYSTEMS OR MINOR DEVIATIONS TO THE INDICATED PIPE ROUTING IN ORDER TO COORDINATE THE PLUMBING WORK WITH THE WORK OF ALL OTHER TRADES AND THE GENERAL BUILDING CONDITIONS.

I. NO DOMESTIC WATER PIPING SHALL BE INSTALLED IN UNHEATED SPACES.

J. PRIOR TO DISCONNECTING AND CONNECTING NEW WORK TO EXISTING SYSTEMS, THE PLUMBING CONTRACTOR SHALL NOTIFY THE PROPERTY MANAGER AND OFFER A PROPOSED SCHEDULE OF WORK. ESB WILL AUTHORIZE CONNECTIONS AND COORDINATE NECESSARY SHUT DOWNS AND DRAIN DOWNS AS REQUIRED. SHUT DOWNS AND DRAIN DOWNS MAY BE PERFORMED BY THE PLUMBING CONTRACTOR ONLY AFTER RECEIVING ESB AUTHORIZATION, AND SHOULD BE PERFORMED UNDER SUPERVISION OF ESB PERSONNEL. THREE (3) DAYS ADVANCE NOTICE TO THE PROPERTY MANAGER IS REQUIRED.

K. THE PLUMBING CONTRACTOR IS ADVISED THAT DUE TO THE NATURE OF THE OPERATIONS AND TENANT REQUIREMENTS, CONNECTIONS TO EXISTING SYSTEMS MAY HAVE TO BE MADE AFTER REGULAR WORKING HOURS. THE PROPERTY MANAGER WILL ADVISE THE PLUMBING CONTRACTOR OF THE TIME CONSTRAINTS UPON RECEIPT AND APPROVAL OF THE PLUMBING CONTRACTOR'S REQUEST FOR SHUT DOWN AND CONNECTION TO EXISTING SYSTEMS.

L. WHEN CONNECTING TO EXISTING STACKS AND RISERS, PROVISION IS TO BE MADE FOR FUTURE CONNECTIONS BY PROVIDING CAPPED AND VALVED OUTLETS ON DOMESTIC WATER RISERS AND PLUGGED OUTLETS ON THE SANITARY AND VENT STACKS.

2.02 ABOVE GRADE

A. INSTALL PLUMBING PIPING IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PIPING COMPLIES WITH REQUIREMENTS AND SERVES INTENDED PURPOSES.

B. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN WATER SYSTEMS, PROVIDE DRAIN VALVES AT MAIN SHUT–OFF VALVES AND ALL LOW POINTS IN PIPING.

C. USE EXISTING CONNECTIONS AT MAINS WHERE AVAILABLE FOR NEW BRANCH PIPING. LOCATE ALL RISERS AND PIPING BEFORE CONSTRUCTION COMMENCES AND TAKE CARE NOT TO DAMAGE SAME. ANY DAMAGE OCCURRING TO THE EXISTING PIPING WILL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

2.03 INSULATION

COVER ALL AUTOMATIC–CIRCULATING HOT WATER SYSTEMS PIPING SHALL BE INSULATED WITH 1 INCH (25 MM) OF INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/H X FT2 X OF (1.53 W PER 25 MM/M2 X K). THE FIRST 8 FEET (2438 MM) OF PIPING IN NON CIRCULATING SYSTEMS SERVED BY EQUIPMENT WITHOUT INTEGRAL HEAT TRAPS SHALL BE INSULATED WITH 0.5 INCH (12.7 MM) OF MATERIAL HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/H X FT2 X OF (1.53 W PER 25 MM/M2 X K)

3. TESTING

A. AT THE COMPLETION OF THE PLUMBING WORK, COMPLETELY TEST THE ENTIRE INSTALLATION OF ALL SYSTEMS FOR PROPER OPERATION AND COMPLIANCE WITH APPLICABLE CODES AND LOCAL REQUIREMENTS. CORRECT ALL DEFICIENCIES FOUND.

B. TESTING OF THE INSTALLED SYSTEMS SHALL BE MADE BY THE CONTRACTOR IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER.

C. THE CONTRACTOR SHALL NOT COVER UP OR PERMANENTLY CONCEAL PIPING, DEVICES OR ANY PORTION OF NEWLY CONSTRUCTED PLUMBING SYSTEM(S) UNTIL SUCH SYSTEM, OR PORTION OF THE SYSTEM, HAS BEEN TESTED IN THE PRESENCE OF A REPRESENTATIVE OF THE OWNER AND INSPECTED BY THE LOCAL INSPECTOR AND APPROVED IN WRITING, EXCEPT PIPING PASSING THROUGH FLOORS, WALLS, PARTITIONS, OR BEAMS, FOR DISTANCES EQUAL TO THE THICKNESS OF SUCH FLOOR, WALL, PARTITION OR BEAM.

D. THIS CONTRACTOR SHALL NOTIFY THE VARIOUS DEPARTMENTS, BUREAUS AND INDIVIDUALS AT LEAST TWO WEEKS IN ADVANCE OF THE TIME THAT THE TESTS ARE TO BE CONDUCTED.

E. ALL DEFECTIVE PARTS SHALL BE REPLACED OR CORRECTED BY THIS CONTRACTOR AND AN EXTRA TEST OR TESTS SHALL BE MADE UNTIL THE OPERATION IS SATISFACTORY. ALL ARRANGEMENTS AND EXPENSES NECESSARY TO CONDUCT ALL TESTS REQUIRED BY THESE SPECIFICATIONS AND THE VARIOUS AGENCIES HAVING JURISDICTION OVER THE WORK INSTALLED UNDER THIS CONTRACT SHALL BE MADE BY THIS CONTRACTOR. NO EXTRA COMPENSATION WILL BE ALLOWED FOR THESE TESTS, THE COST THEREOF BEING INCLUDED IN THE LUMP SUM BID FOR THIS CONTRACT.

F. WHERE ANY EVIDENCE OF STOPPAGE IS FOUND IN PIPING OR EQUIPMENT, THIS CONTRACTOR SHALL DISCONNECT, CLEAN, REPAIR AND RECONNECT ALL OBSTRUCTED PIPING OR EQUIPMENT AND SHALL ALSO PAY FOR ALL NECESSARY CUTTING AND REPAIRS TO ADJOINING WORK.

G. ALL PIPING AND EQUIPMENT SHALL BE THOROUGHLY CLEANED INSIDE AND OUT, OF DIRT, CUTTINGS, OILS AND OTHER FOREIGN SUBSTANCES AND SHALL BE LEFT CLEAN.

H. ALL REQUIRED TESTS SHALL BE WITNESSED BY LOCAL AUTHORITIES AND THE OWNER'S REPRESENTATIVE.

I. ALL EQUIPMENT WILL BE FACTORY TESTED.

J. CONTRACTOR SHALL IDENTIFY TO THE OWNER'S REPRESENTATIVE ANY LEAKS OR DAMAGE THAT OCCURS AS A RESULT OF SYSTEM TESTING. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO LIMIT ANY POTENTIAL DAMAGE. CORRECTIVE ACTION REQUIRED AS A RESULT OF TESTING SHALL BE PERFORMED IMMEDIATELY AND AT THE CONTRACTOR'S EXPENSE.

K. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.

L. TESTING REQUIREMENTS

a. TEST ALL DOMESTIC WATER PIPING HYDROSTATICALLY TO 125 PSIG.
b. HYDROSTATIC TEST PRESSURES SHALL REMAIN CONSTANT WITH NO VARIATION FOR 120 MINUTES.
c. TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
d. THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ESB SPACES.

M. REFILL ENTIRE POTABLE HOT AND COLD WATER SUPPLY SYSTEM WITH CHLORINE SOLUTION (HTH OLIN CHEMICAL CORP.) AT A STRENGTH TO MEET STANDARDS OF THE DEPARTMENT OF HEALTH, AND FOR A PERIOD OF RETENTION AS STIPULATED.

N. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

4. WARRANTY

EQUIPMENT, MATERIALS AND WORKMANSHIP FURNISHED UNDER THIS CONTRACT SHALL BE GUARANTEED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF THE WORK BY THE OWNER. THE CONTRACTOR SHALL KEEP THE WORK IN GOOD REPAIR FOR ONE YEAR AFTER THE DATE OF FINAL APPROVAL. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, PROMPTLY CORRECT AND REPAIR ANY AND ALL BREAKS, FAILURES OR WEAR DUE TO FAULTY MATERIALS, WORKMANSHIP OR EQUIPMENT. ALL SETTLEMENTS OF SURFACES THAT MAY OCCUR WITHIN THAT PERIOD SHALL ALSO BE PROMPTLY REPAIRED.

PLUMBING FIXTURE SCHEDULE

| LEGEND | PLUMBING FIXTURE | MAKE | MODEL | CONNECTION SIZE – INCHES | | | | | | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | TRAP | SOIL/WASTE | VENT | COLD WATER | HOT WATER | THERMOSTATIC MIXING VALVE | |
| EX.WC | EXISTING WATER CLOSET | EXISTING TO REMAIN | | – | E | E | E | – | – | FLUSH TANK |
| LAV–1 | LAVATORY | KOHLER CHESAPEAKE | K–17722–0 | 2" | 2" | 1½" | ½" | ½" | PROVIDE | P–TRAP VOLTAIRE BRASS SINGLE HOLE SINGLE FAUCET BY OWNER INSTALLED BY PC |
| KS–1 | KITCHEN SINK | – | – | 2" | 2" | 2" | ½" | ½" | PROVIDE | P–TRAP BY MILLWORK VENDOR |
| DF–1 | DRINKING FOUNTAIN | – | – | 2" | 2" | 1½" | ½" | – | – | P–TRAP |
| RF–1 | REFRIGERATOR | – | – | – | – | – | ½" | – | – | – |
| DW–1 | DISH WASHER | – | – | – | – | – | – | ½" | – | I.W |

NOTE: CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ALL PLUMBING FIXTURES SPECIFICATIONS AND MOUNTING HEIGHT INSTALLATION.

EXISTING INSTANTANEOUS HOT WATER HEATER SCHEDULE

| TAG No. | QUANTITY | FIXTURES SERVING | RECOVERY CAP. (GPM @ RISE) | TYPE | ELECTRICAL | | | | MANUFACTURER & MODEL NO. | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | VOLTS | PHASE | HERTZ | INPUT KW | | |
| EX.WH–1 | 1 | LAVATORY | 0.5 GPM @ 57°F | ELECTRIC INSTANTANEOUS WATER HEATER | 208 | 1 | 60 | 4.16 | CHRONOMITE SR–20L/208 HTR–I | –HEATERS SHALL HAVE 150PSI WORKING PRESSURE. |
| EX.WH–2 | 1 | KITCHEN SINK AND DISH WASHER | 1.5 GPM @ 49°F | ELECTRIC INSTANTANEOUS WATER HEATER | 208 | 1 | 60 | 10.8 | TEMPRA 15/15 PLUS | –HEATERS SHALL HAVE 150PSI WORKING PRESSURE. |



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| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
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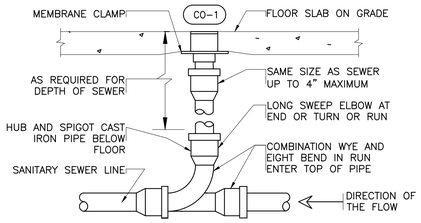
| 2 | BD COMMENTS | 09.22.2025 |

PLUMBING SPECIFICATIONS & SCHEDULE

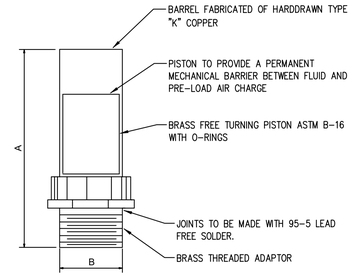
P0.2




*NOTE- COORDINATE WITH ARCHITECT FOR PATCHING/TRENCHING THE SLAB.

| FLOOR CLEANOUT DETAIL NOTES |
|---|
| 1) LOCATE CLEANOUT AT THIS LOCATIONS:<br>A) BUILDING EXIT<br>B) AT TURNS OF PIPES GREATER THAN 45 DEGREES<br>C) AT 90' INTERVALS ON STRAIGHT RUNS<br>D) WHERE IS SHOWN ON PLANS<br>E) WHERE IS 18" CLEAR AROUND |

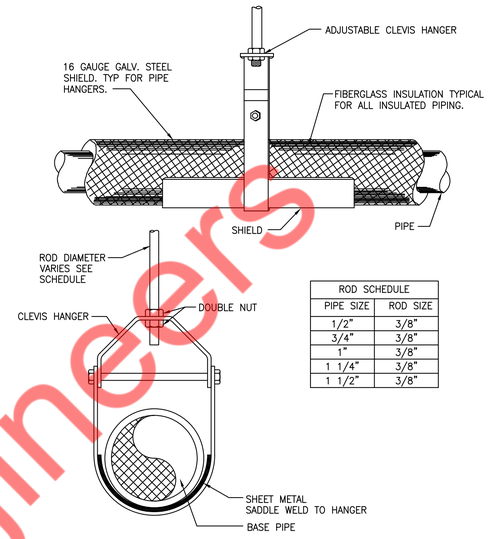
## 1 FLOOR CLEANOUT DETAIL
NTS




| PIPE SIZE | P.D.I. SYMBOL | FIXTURE UNIT RATINGS | A SIZE | B SIZE |
|---|---|---|---|---|
| 1/2" | A | 1 - 11 | 5" | 1/2" |
| 3/4" | B | 12 - 32 | 5" | 3/4" |
| 1" | C | 33 - 60 | 7" | 1" |
| 1-1/4" | D | 61 - 113 | 7" | 1-1/4" |
| 1-1/2" | E | 114 - 154 | 9" | 1-1/2" |
| 2" | F | 155 - 330 | 9" | 2" |

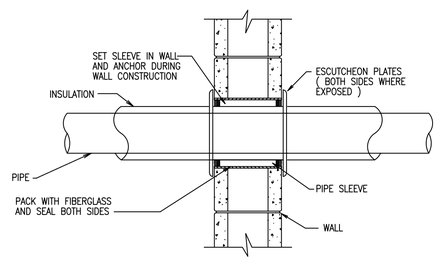
NOTE: LOCATE ONE FOR EACH BANK OF FLUSHOMETER FIXTURES AT LAST FIXTURE PROVIDE A STAINLESS STEEL ACCESS DOOR FOR EACH SUFFICIENT IN SIZE TO ALLOW REPLACEMENT OF ARRESTOR AT A FUTURE DATE.

## 2 WATER HAMMER ARRESTOR DETAILS
NTS

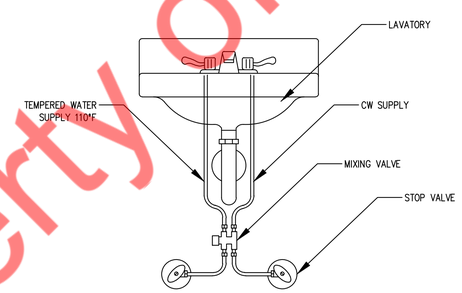



| ROD SCHEDULE | |
|---|---|
| PIPE SIZE | ROD SIZE |
| 1/2" | 3/8" |
| 3/4" | 3/8" |
| 1" | 3/8" |
| 1 1/4" | 3/8" |
| 1 1/2" | 3/8" |

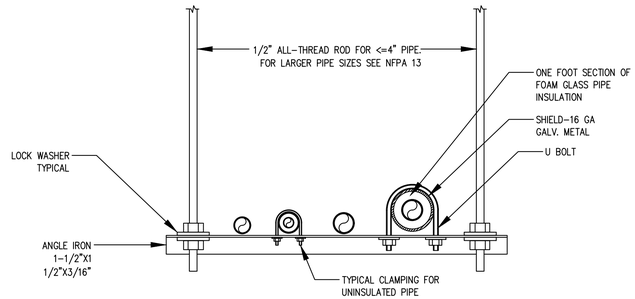
## 3 HANGER DETAILS
NTS




## 4 PIPE SLEEVE THROUGH INTERIOR WALL DETAIL
NTS




## 5 MXV - MIXING VALVE DETAIL
NTS




## 6 PIPE HANGER DETAILS
NTS



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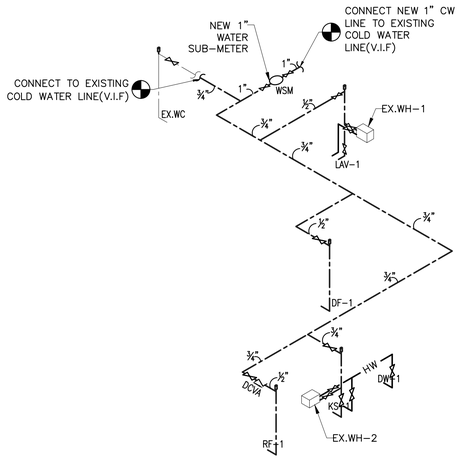
PLUMBING DETAILS

P0.3




3 P1.0 PLUMBING RISER - WATER
NTS

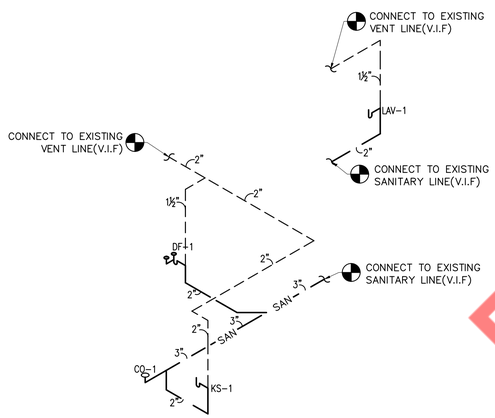

1 P1.0 PLUMBING WATER PLAN
SCALE : 1/4"=1'-0"

### GENERAL WATER NOTES

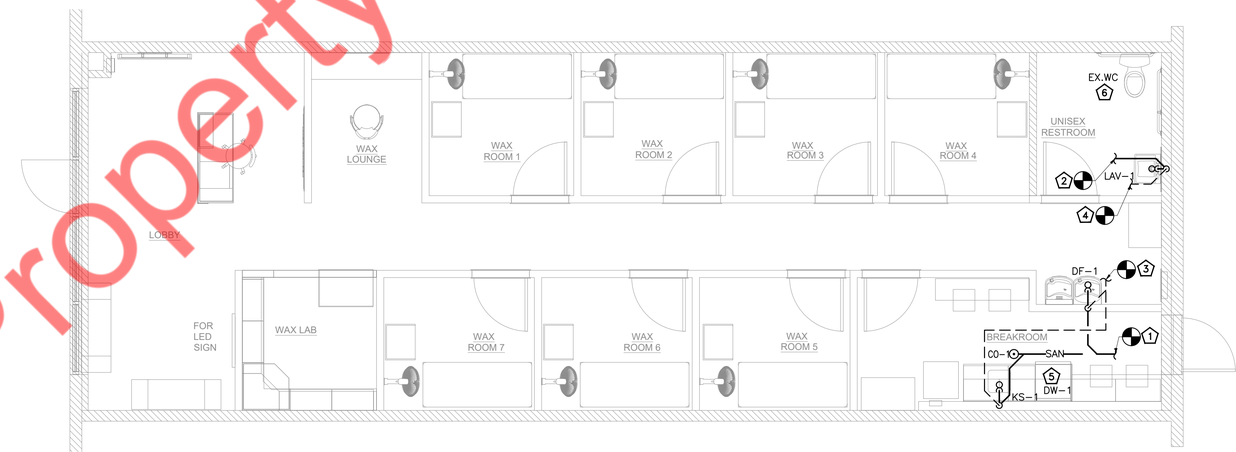
1. CW/HW/HWR PIPING TO BE PROVIDED WITH INSULATION AS PER 2015 INTERNATIONAL ENERGY CONSERVATION CODE (REFER SHEET P0.1).
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
4. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, SHUT-OFF VALVES AS REQUIRED.
5. REFER RISER DIAGRAM FOR WATER PIPE SIZING.

### WATER PLAN KEY NOTES

1. CONNECT NEW 1" CW LINE TO EXISTING COLD WATER LINE OF ADEQUATE SIZE IN SPACE. PROVIDE NEW WATER SUB-METER. CONTRACTOR TO FIELD VERIFY THE SIZE AND LOCATION OF EXISTING CW LINE AND UPGRADE/MAKE NECESSARY CHANGES IF REQUIRED.
2. EXISTING WATER CLOSET TO REMAIN WITH EXISTING CW CONNECTION, ASSOCIATED ACCESSORIES & FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING & REPLACE IF REQUIRED.
3. EXTEND AND CONNECT NEW 3/4" CW PIPING TO THE EXISTING WATER CLOSET PIPING.
4. EXISTING WATER HEATERS TO RELOCATE WITH ALL ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY CONDITION OF WATER HEATERS AND NOTIFY ENGINEER IF UNIT IS NOT IN WORKING CONDITION.




4 P1.0 PLUMBING RISER - SANIATRY AND VENT
NTS




2 P1.0 PLUMBING SANITARY AND VENT PLAN
SCALE : 1/4"=1'-0"

### GENERAL SANITARY NOTES

1. CONTRACTOR TO FIELD VERIFY THE EXISTING SANITARY PIPING SIZE, LOCATION & INVERT ON SITE.
2. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.

### SANITARY AND VENT PLAN KEY NOTES

1. CONNECT NEW 3" SANITARY LINE TO EXISTING SANITARY LINE OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY THE SIZE, LOCATION & INVERT OF EXISTING SANITARY LINE AND MAKE NECESSARY CHANGES IF REQUIRED.
2. CONNECT NEW 2" SANITARY LINE TO EXISTING SANITARY LINE OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY THE SIZE, LOCATION & INVERT OF EXISTING SANITARY LINE AND MAKE NECESSARY CHANGES IF REQUIRED.
3. CONNECT NEW 2" VENT LINE TO EXISTING VENT LINE OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING VENT LINE ON SITE AND MAKE NECESSARY CHANGES IF REQUIRED.
4. CONNECT NEW 1-1/2" VENT LINE TO EXISTING VENT LINE OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING VENT LINE ON SITE AND MAKE NECESSARY CHANGES IF REQUIRED.
5. DRAIN WASTE LINE FROM DISH WASHER INTO THE KITCHEN SINK P TRAP.
6. EXISTING WATER CLOSET TO REMAIN WITH EXISTING SANITARY AND VENT CONNECTIONS, ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.



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PLUMBING SANITARY, VENT, WATER PIPING PLAN & RISERS

P1.0

## LIGHTING

| | |
|---|---|
| | LED LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N. |
| A | LUMINAIRE TYPE : INDICATED BY UPPERCASE LETTER SEE LIGHTING FIXTURE SCHEDULE. |
| a | SWITCHING INDICATED BY LOWER CASE LETTERS. |
| EM | DENOTES LUMINAIRE ON EMERGENCY CIRCUIT. |
| | CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONALARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN |

## SWITCHES AND CONTROLS

| | |
|---|---|
| $ | 20A WALL SWITCH |
| $3 | 20A 3-WAY WALL SWITCH U.N.O. |
| $OS | WALL MOUNTED OCCUPANCY SWITCH |
| OS | CEILING MOUNTED OCCUPANCY SENSOR. |
| PC | WALL MOUNTED PHOTOCELL MOUNTED IN NEMA 3R ENCLOSURE. |

## WIRING SYSTEMS

| | |
|---|---|
| 3 UP- | POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED. |
| 3,5 UP- | POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED. |
| 3,5,7 UP- | POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED. |

## ELECTRICAL DRAWING LIST



## 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 (IBC) WITH AMENDMENTS

B. 2021 INTERNATIONAL PLUMBING CODE (IPC) WITH AMENDMENTS

C. 2021 INTERNATIONAL MECHANICAL CODE (IMC) WITH AMENDMENTS

D. 2021 INTERNATIONAL FIRE CODE (IFC) WITH AMENDMENTS

E. 2021 INTERNATIONAL ENERGY CONSERVATION CODE (IECC) WITH AMENDMENTS

F. 2020 NATIONAL ELECTRIC CODE (NEC) WITH AMENDMENTS

## POWER AND TELECOMMUNICATION

| | |
|---|---|
| J | JUNCTION BOX WITH BLANK COVER PLATE, |
| | DUPLEX RECEPTACLE. |
| GFI | GFI DUPLEX RECEPTACLE. |
| USB | USB DUPLEX RECEPTACLE. |
| | QUAD RECEPTACLE – 20A–1P, 125V, NEMA 5–20R. |
| CL | DUPLEX RECEPTACLE – 20A–1P, 120V, MOUNTED FLUSH IN CELLING |
| FL | DUPLEX RECEPTACLE – 20A–1P, 120V, MOUNTED FLUSH IN FLOOR |
| | 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. |
| | DATA OUTLET – (1) PORT UNO, +18" AFF, UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1" CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WITH 1 1/4" DIAMETER GROMMETED OPENING. |
| FL | FLOOR MTD. FLUSH DATA OUTLET, WIRE TYPE : CAT6, WIRING STANDARD: T568B |
| CL | CELLING MTD. DATA OUTLET, WIRE TYPE : CAT6, WIRING STANDARD: T568B |
| FL | FLOOR MTD. FLUSH TELEPHONE/DATA OUTLET WIRE TYPE : CAT6, WIRING STANDARD: T568B |
| CL | CELLING MTD. TELEPHONE/DATA OUTLET |

## MOTORS AND CONTROLS

| | |
|---|---|
| A | 30A/240V NON FUSED DISCONNECT SWITCH |
| B | 60A/240V NON FUSED DISCONNECT SWITCH |
| C | 100A/240V NON FUSED DISCONNECT SWITCH |
| SM | MANUAL MOTOR SWITCH |

## ANNOTATION

| | |
|---|---|
| +24" | INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR. |
| X | KEYED NOTE REFERENCE |
| 1 / E/2-1 | DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM |

## POWER DISTRIBUTION

| | |
|---|---|
| | DISTRIBUTION PANELBOARD, 208Y/120V–SURFACE OR FLUSH MOUNTED. |

## ELECTRICAL ABBREVIATIONS

| | | | |
|---|---|---|---|
| A | AMPERES | EA | EACH |
| A/C, AC | ABOVE COUNTER | EC | EMPTY CONDUIT/ ELECTRICAL CONTRACTOR |
| AF | AMPERE FRAME/AMP FUSE | EF | EXHAUST FAN |
| AFF | ABOVE FINISHED FLOOR | EM | EMERGENCY |
| AS | AMP SWITCH | EMT | ELECTRICAL METALLIC TUBING |
| AIC | AMPS INTERRUPTING CAPACITY | EQUIP | EQUIPMENT |
| AT | AMP TRIP | ER | EXISTING TO BE RELOCATED |
| ATS | AUTOMATIC TRANSFER SWITCH | ETR | EXISTING TO REMAIN |
| AUTO | AUTOMATIC | EWF | ELECTRIFIED WORKSTATION FURNITURE |
| AWG | AMERICAN WIRE GAUGE | EWH | ELECTRIC WATER HEATER |
| C | CONDUIT | FA | FIRE ALARM |
| C/B,CB | CIRCUIT BREAKER | FBO | FURNISHED BY OTHERS, INSTALLED & WIRED BY EC |
| CKT | CIRCUIT | FDR | FEEDER |
| CLG | CEILING | FIBO | FURNISHED & INSTALLED BY OTHERS, WIRED BY EC |
| COMM | COMMUNICATION | FIXT | FIXTURE |
| CT | CURRENT TRANSFORMER | FL | FLOOR |
| CU | COPPER | FLUOR | FLUORESCENT |
| °C | DEGREE CELSIUS | G | GROUND |
| °F | DEGREE FAHRENHEIT | GFI | GROUND FAULT INTERRUPTER |
| DIA | DIAMETER | GP | GENERAL PURPOSE |
| DISC | DISCONNECT | HC | HUNG CEILING |
| DN | DOWN | HP | HORSEPOWER |
| DP | DISTRIBUTION PANEL | HWH | HOW WATER HEATER |
| DWH | DOMESTIC WATER HEATER | HZ | HERTZ |
| DWG | DRAWING | IC | INTERRUPTING CAPACITY |
| JB | JUNCTION BOX | PP | POWER PANEL |
| KCMIL | ONE THOUSAND CIRCULAR MILS | PVC | POLYVINYL CHLORIDE |
| KV | KILOVOLT | PWR | POWER |
| KVA | KILOVOLT–AMPERES | R | REMOVE |
| KW | KILOWATTS | RE | RELOCATED EXISTING |
| LP | LIGHTING PANEL | REC | RECEPTACLE |
| LTG | LIGHTING | RGS | RIGID GALVANIZED STEEL |
| MAX | MAXIMUM | RR | REMOVE & RELOCATE |
| MC | MOTOR CONTROLLER | SECT | SECTION |
| MCB | MAIN CIRCUIT BREAKER | SPDT | SINGLE POLE DOUBLE THROW |
| MER | MECHANICAL EQUIPMENT ROOM | SPST | SINGLE POLE SINGLE THROW |
| MIN | MINIMUM | SPEC | SPECIFICATION |
| MLO | MAIN LUGS ONLY | SW | SWITCH |
| MTD | MOUNTED | SWBD | SWITCHBOARD |
| MTS | MANUAL TRANSFER SWITCH | SYM | SYMMETRICAL |
| N | NEUTRAL | SYS | SYSTEMS |
| NE | NEW DEVICE TO REPLACE EXISTING | TELE | TELEPHONE |
| NIC | NOT IN CONTRACT | TEMP | TEMPERATURE |
| NL | NIGHT LIGHT | TXF | TOILET EXHAUST FAN |
| NTS | NOT TO SCALE | TYP | TYPICAL |
| OC | ON CENTER | UNO | UNLESS NOTED OTHERWISE |
| P | POLES | V | VOLT/VOLTAGE |
| PB | PULLBOX | VA | VOLT AMPERE |
| PC | PERSONAL COMPUTER | VAV | VARIABLE AIR VOLUME |
| ø | PHASE | VFD | VARIABLE FREQUENCY DRIVE |
| PNL | PANEL | VP | VAPORPROOF |
| W | WATT | WP | WEATHER PROOF |
| W | WIRE | XFMR | TRANSFORMER |
| WH | WALL HEATER | ZRT | ZONE REGISTER TERMINALS |
| E | EXISTING | IG | ISOLATED GROUND |
| TR | TAMPER RESISTANCE | | |

## GENERAL NOTES
( APPLY TO ALL "E" DRAWINGS)

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE 2020 NATIONAL ELECTRIC CODE (NEC) WITH AMENDMENTS, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
2. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
4. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
5. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD), OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
7. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
8. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
10. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
11. MINIMUM SIZE OF CONDUIT SHALL BE ¾", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
12. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
13. PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CANCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
15. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
16. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
17. ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
18. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
19. ALL CONDUITS AND EQUIPMENT TO BE CONCEALED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
20. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
21. OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE-RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE-RATED BOXES OR PUTTY PADS ARE UTILIZED.
22. COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITRH THE ENGINEER AND OWNER BEFORE INSTALLATION.
23. COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
24. REFER TO ARCHITECTURAL PLANS FOR FINAL LOACTIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
25. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
26. LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
27. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.



NY ENGINEERS
382 NE 191st ST, SUITE
49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

ELECTRICAL SYMBOLS
LIST & ABBREVIATIONS

E0.1

# ELECTRICAL SPECIFICATIONS

1. GENERAL:

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

B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN 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.

C. 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.

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

E. 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.

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

G. 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.

H. 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 ND 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.

I. 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.

J. 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.

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

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

M. 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.

2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

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

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

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

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

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

6) "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.

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

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

B. 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.

C. QUALITY ASSURANCE

1) 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.

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

3) CURRENT CHARACTERISTICS:

a. SERVICE: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

b. DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.

4) HEIGHTS OF OUTLETS:

a. 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

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

D. PRODUCT DELIVERY, STORAGE AND HANDLING

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

2) 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.

E. MATERIALS

1) 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.

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

3) INSERTS AND SUPPORTS:

a. 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.

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

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

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

F. 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: OUTLET 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.

G. 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.

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

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

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. 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.

C. 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

D. 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.

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

F. 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.

4. SHOP DRAWINGS

A. 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.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

1) 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.

2) 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.

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES

2) FUSES

3) CIRCUIT BREAKERS

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

5) RACEWAYS

6) WIRE AND CABLE

7) WALL SWITCHES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES.

E. 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 DRAWING. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.

5. AS–BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

A. 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.

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. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

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

D. 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.

6. LOW–VOLTAGE DISTRIBUTION EQUIPMENT:

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

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

C. 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. 680BF. 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.

7. FUSES:

A. 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.

B. 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 BUSSMANN 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.

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

D. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.

E. 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 INTERCHANGEABLE TRIPS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED:

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

2) 120/240 VOLTS, 225–AMP FRAME: 22,000 AMPS MINIMUM

8. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

H. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.

I. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD–LOCKABLE.

J. PANELBOARD SHALL BE CONSTRUCTED OF CODE–GAUGE STEEL, GRAY FINISH OVER RUST INHIBITOR, FOR SURFACE MOUNTING. BOX AND PANEL FRAME SHALL BE FLANGED AND REINFORCED FOR RIGID SUPPORT OF INTERIOR AND ACCURATE ALIGNMENT OF INTERIOR WITH FRONT. TRIMS TO BE FASTENED TO BACK BOX WITH SCREWS.

K. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).

L. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 10,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

M. DISCONNECTS

1) DISCONNECT SWITCHES SHALL CONFORM TO NEMA AND UL STANDARDS, AND SHALL BE HORSEPOWER RATED.

2) SWITCHING MECHANISM SHALL BE QUICK–MAKE, QUICK–BREAK, SINGLE THROW WITH EXTERNAL OPERATING HANDLE MECHANICALLY INTERLOCKED WITH ENCLOSURE COVER TO PROVIDE ACCESS TO INTERIOR WHEN DISCONNECT IS IN OFF POSITION ONLY. PROVIDE MEANS TO LOCK OPERATING HANDLE IN THE OPEN AND CLOSED POSITION. DESIGNATE ON THE ENCLOSURE THE OPEN AND CLOSED POSITION OF THE OPERATING HANDLE.

3) SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.

4) SWITCHES SHALL BE EQUIPPED WITH REJECTION TYPE FUSE HOLDERS, FUSIBLE AS SHOWN ON THE DRAWINGS; PROVIDE COMPLETE WITH FUSES AS SCHEDULED.

G. INSTALLATION

1) DISTRIBUTION PANELBOARD SHALL BE MOUNTED TO STRUCTURAL STEEL CHANNEL (KINDORF) WHICH SHALL BE BOLTED TO THE WALL USING EXPANSION ANCHORS FOR LARGE PANELS.

H. IDENTIFICATION

1) PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.

2) NAMEPLATES SHALL BE MOUNTED ON THE FRONT COVER SECURED WITH SELF–TAPPING SCREWS OR NUTS AND BOLTS. NAMEPLATES SHALL BE LAMINATED PHENOLIC, BLACK WITH A MINIMUM OF ¼" HIGH WHITE LETTERING.

I. DISTRIBUTION AND SUB–DISTRIBUTION PANELBOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

J. POWER PANELBOARDS SHALL BE SIMILAR TO GENERAL ELECTRIC TYPE "OMR", AS MANUFACTURED BY ATLAS SWITCH COMPANY, ELECTRIC SWITCHBOARD COMPANY OR APPROVED EQUAL.

K. PANELBOARD SHALL HAVE MAIN CIRCUIT BREAKER OR MAIN LUGS AS INDICATED ON THE DRAWINGS. QUANTITY, POLES AND TRIP RATINGS OF BRANCH CIRCUIT BREAKERS TO BE AS INDICATED ON DRAWINGS.

L. PANELBOARD SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMACOID NAMEPLATE SCREWED ONTO PANE TRIM WITH DESIGNATION LISTED (PANELBOARD NAME, VOLTAGE, RATING OR MAINS IN AMPS).

B. MATERIALS

1) RACEWAYS:

a. RIGID STEEL CONDUIT: FULL–WEIGHT PIPE, GALVANIZED, THREADED.

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

c. FLEXIBLE STEEL CONDUIT: CONTINUOUS SINGLE STRIP, GALVANIZED.

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

e. 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.

2) FITTINGS AND ACCESSORIES:

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

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

c. FLEXIBLE METALLIC CONDUIT: ANGLE WEDGE TYPE WITH INSULATED THROAT.

d. BUSHINGS: METALLIC INSULATED TYPE.



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UNI K WAX
PARADISE VALLEY

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|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

ELECTRICAL SPECIFICATIONS - 1

E0.2

# ELECTRICAL SPECIFICATIONS (CONT.)

3) BOXES:

a. 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.

b. 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 265/460 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.

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 POKE-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 CODE 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.

EXPOSED 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 MANUFACTIURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

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 TABLE 300.19(A).

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.

D. 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.

9. 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. USE ELECTRO-METALLIC TUBING (EMT) AND METAL-CLAD (MC) CABLES AS BRANCH CIRCUITS. THE INSTALLATION SHALL COMPLY WITH NEC CODES 334.10, 334.12, 320.10, AND 320.12.

F. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM:
BLACK FOR A PHASE
RED FOR B PHASE
BLUE 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, 120/208 VOLT, AC. SIMILAR TO LEVITON DECORA SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

C. STRAIGHT BLADE RECEPTACLES SHALL BE COMMERCIAL SPECIFICATION GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, DECORA SERIES BY LEVITON. GROUNDED, EXCEPT AS NOTED.

1) SINGLE GANG, RECESSED, DUPLEX RECEPTACLE: TAMPER RESISTANT, 2-POLE, 3-WIRE GROUNDING, 15A, 125V, NEMA 5-20R; LEVITON 689 SERIES (COLOR AS SPECIFIED BY ARCHITECT).
2) USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT,

E. DEVICE PLATES: SEE ARCHITECT FOR TYPE. FOR RECEPTACLES WITH OTHER THAN 120 VOLT, INSCRIBED VOLTAGE AVAILABLE.

F. COLORS: COORDINATE COLORS WITH ARCHITECT.

G. 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. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ET1 AND CBM APPROVED. ENERGY SAVING TYPE. TRIGGER START FOR 24-INCH LAMPS AND RAPID START FOR 48-INCH. TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL.

D. 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.

E. 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.

F. CONTINUOUS ROW, TWO LAMP STRIP FIXTURES SHALL BE STAGGERED TYPE.

G. 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. 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. TELEPHONE CONDUIT SYSTEM:

A. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

C. OUTLETS SHALL BE:

1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.

D. PROVIDE FISHWIRES, IN RACEWAYS OVER 10 FT LONG.

E. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM OUTLET BOX TO BUSHED END THRU WALL 6" BELOW THE PLASTER CEILING.

F. FACE RACEWAYS IN ROOMS SHALL HUBBELL HBL500, HBL750 OR HBL2000 SERIES OR AS ACCEPTABLE.

14. GROUNDING AND BONDING:

F. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH 2020 NATIONAL ELECTRIC CODE (NEC) WITH AMENDMENTS, 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.

G. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.

H. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.

I. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.

J. 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.

15. PANELBOARDS:

A. PANELBOARDS SHALL BE OF THE DEAD FRONT TYPE MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE.

B. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS. MINIMUM GUTTER SPACES SHALL BE 5-3/4". SIDES, TOP AND BOTTOM, INCREASE FOR THROUGH FEEDERS. PROVIDE 25% COPPER GROUND BUS AND 100% COPPER NEUTRAL BUS AND INCREASE NEUTRAL BUS INDICATED.

C. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AND AS NOTED ON THE CONTRACT DRAWINGS. A TOTAL OF 5 SPARE LOCKING TABS SHALL BE FURNISHED TO THE OWNER.

D. BUSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO LIMIT THE TEMPERATURE RISE, WHEN CARRYING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF 55 DEGREES C. AS DEFINED IN IEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

E. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE HINGED DOOR-IN-DOOR CONSTRUCTION WITH CYLINDER LOCKS AND CATCHES. LOCKS MUST BE COMPATIBLE WITH BUILDING STANDARD KEY SYSTEM AND WHEN NONE EXISTS, THEY SHALL BE SIMILAR TO A YALE NO. 911 KEY.

F. DISTRIBUTION AND SUB-DISTRIBUTION PANELBOARD SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

G. ALL STANDARD PANELBOARDS SHALL BE A MINIMUM OF 20" WIDE AND 5 3/4" DEEP.

H. FURNISH ALL PANELBOARDS WITH FEED-THRU LUGS UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

I. ALL NEW PANELBOARDS SHALL BE PROVIDED WITH AN ENGRAVED WHITE CORE LAMACOID NAMEPLATE, WITH 3/4 IN. WHITE LETTERING ON A BLACK BACKGROUND, WITH DESIGNATION LISTED (PANELBOARD NAME), FASTENED WITH EPOXY CEMENT OR OVAL HEAD CHROME PLATED MACHINE SCREWS.

J. THE CIRCUIT DIRECTORY SHALL BE TYPEWRITTEN AND PROVIDED INSIDE EACH PANEL DOOR TO INDICATE EQUIPMENT AND/OR AREA SERVED. DIRECTORY HOLDER SHALL BE METAL FRAME WITH CLEAR PLASTIC, TRANSPARENT COVER. THE TYPEWRITTEN LIST INDICATING CIRCUIT NUMBERS, OUTLETS SUPPLIED AND THEIR LOCATIONS SHALL BE PROVIDED.

K. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

L. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG.

M. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

N. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.



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TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

ELECTRICAL SPECIFICATIONS - 2

E0.3

## FUNCTIONAL AND TESTING CONTROLS NOTES:

A. PRIOR TO PASSING FINAL INSPECTION, THE REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS.

B. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH SECTION C408.3.1.1 (OCCUPANT SENSOR CONTROLS), C408.3.1.2 (TIME–SWITCH CONTROLS) AND C408.3.1.3 (DAYLIGHT RESPONSIVE CONTROLS) FOR THE APPLICABLE CONTROL TYPE. ALL TEST DOCUMENTATION, INCLUDING MANUALS AND REPORTS SHALL COMPLY WITH C408.3.2.

## LIGHTNG GENERAL NOTES: (APPLY TO ALL FIXTURES WHERE APPLICABLE)

A. EMERGENCY FIXTURES – ALL FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A 90–MINUTE BATTERY PACK AND ALL FLUORESCENT FIXTURES.

B. VERIFY VOLTAGES – THE E.C. SHALL VERIFY VOLTAGES ON DRAWINGS PRIOR TO ORDERING OR ANY WORK, THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES IN THE VOLTAGE OF THE CIRCUITING ON THE DRAWINGS AND THE LUMINAIRE SCHEDULE PRIOR TO ANY PURCHASE OR WORK.

C. VERIFY LAMPING – THE E.C. SHALL VERIFY LAMPING WITH THE MANUFACTURER PRIOR TO ORDERING AND NOTIFY THE ENGINEER OF ANY LAMPING DISCREPANCIES.

D. PROVIDE A COMPLETE INSTALLATION – THE E.C. SHALL PROVIDE ALL LABOR AND MATERIAL TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM PER THE DESIGN INTENT AS DICTATED BY THE SWITCHING TYPE AND LOCATION (INCLUDING DIMMER SWITCHES AND COMPATIBLE BALLASTS OR TRANSFORMERS), CEILING TYPE AND LOCATION, CIRCUITING, VOLTAGES, AND LAMPING TYPES.

## ELECTRICAL GENERAL NOTES:

A. CONTRACTOR IS ADVISED TO UPDATE THE EMERGENCY LIGHT FIXTURES LOCATIONS/QUANTITY PER SITE REQUIREMENT UP ON FINAL INSPECTION OR PER LOCAL AHJ REQUIREMENT. ONE FOOT CANDLE OF EMERGENCY ILLUMINATION SHALL BE PROVIDED ALONG ALL EGRESS PATHWAYS AND EMERGENCY SIGN SHALL BE INSTALLED AT ALL INTERSECTIONS, EXIT CORRIDORS, PATHWAYS AND EXIT EGRESS OPENINGS IN ACCORDANCE WITH THE IBC 1008.3.1 MEANS OF EGRESS ILLUMINATION.THE EMERGENCY POWER SYSTEM SHALL PROVIDE POWER FOR A DURATION OF ≥90MINUTES AND SHALL CONSIST OF STORAGE BATTERIES.

## ELECTRICAL LIGHTING KEYED NOTES:

1. CONNECT ALL EMERGENCY EGRESS FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER LOCAL CODES.
2. EPROVIDE A DISCONNECT SWITCH AT FEEDER OR BRANCH CIRCUIT ENTERS THE SIGN PER NEC, VERIFY EXACT MOUNTING HEIGHT AND LOCATION FOR SIGNAGE POWER WITH ARCHITECTURAL ELEVATIONS, SIGN VENDOR, AND LANDLORD. ROUTE CIRCUIT TO PANEL VIA TIME CLOCK.
3. PROVIDE RECEPTACLE FOR SHOW WINDOW AS AS PER N.E.C. 210.62. VERIFY EXACT LOCATION WITH ARCHITECT.
4. WALL MOUNTED OCCUPANCY SENSOR. PROVIDE DUAL TECHNOLOGY COOPER GREENGATE ONW–D–1001–MV OR EQUAL SPECIFICATION WALL MOUNTED OCCUPANCY SENSOR.
5. INTERCONNECT EXHAUST FAN EF–1(N), EF–2(N) WITH RTU–1(E). ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MECHANICAL EQUIPMENTS WITH MECHANICAL DRAWINGS.
6. INTERCONNECT EXHAUST FAN EF–3(N) WITH AHU–1(N). ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MECHANICAL EQUIPMENTS WITH MECHANICAL DRAWINGS.
7. LIGHTING NEAR ELECTRICAL PANELS SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPILED AS PER NEC 110.26(D).

## LIGHTING FIXTURE SCHEDULE:

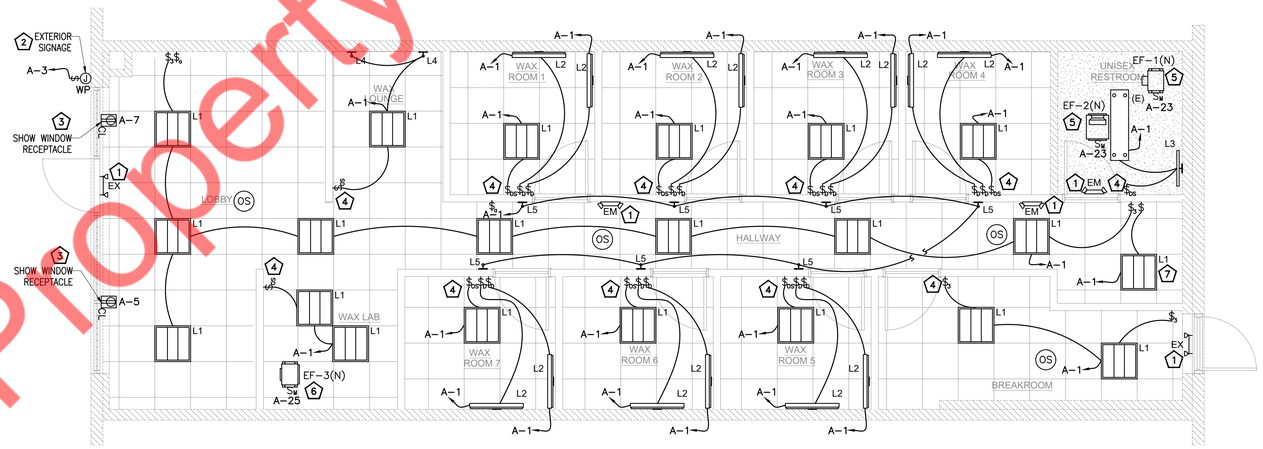
| Fixture Type | Discription | Manufacturer & CAT. Number | Lamp Type | Lamp Wattage | Voltage | Mounting information |
|---|---|---|---|---|---|---|
| L1 | TROFFER LIGHT 2X2 LAMP | JESCO LIGHTING PLD-22-40W-40 | LED | 40 W | 120 | CEILING |
| L2 | WALL SCONCE | DWELED WS-6736-27-AL | LED | 29W | 120 | WALL |
| L3 | WALL SCONCE | WEST ELM LIGHT ROD LED SCONCE(22") | LED | 3W | 120 | WALL |
| L4 | WALL SCONCE | TBD | LED | 12W | 120 | WALL |
| L5 | WALL SCONCE | MERCER41 HAAMED LED FLUSH MOUNTED SCONCE | LED | 12W | 120 | WALL |
| EM | EMERGENCY BUG EYE | TBD | LED | TBD | 120 | WALL |
| EX | EXIT LIGHT | TO REMAIN | LED | TBD | 120 | WALL/CEILING |
| (E) | EXISTING LIGHTS TO REMAIN | | | | | |

## LIGHTING CONTROLS:

| AREA | CONTROLS |
|---|---|
| LOBBY, HALLWAY, BREAKROOM | LIGHTING THESE AREAS SHALL BE CONTROLLED VIA CEILING MOUNTED OCCUPANCY SENSOR. |
| WAX ROOM 1, WAX ROOM 2, WAX ROOM 3, WAX ROOM 4, WAX ROOM 5, WAX ROOM 6, WAX ROOM 7, UNISEX RESTROOM, WAX LAB, WAX LOUNGE | WALL MOUNTED OCCUPANCY SENSOR WITH MANUAL SWITCH FOR MANUAL/AUTOMATIC ON/OFF OF FIXTURES. |
| WAX ROOM 1, WAX ROOM 2, WAX ROOM 3, WAX ROOM 4, WAX ROOM 5, WAX ROOM 6, WAX ROOM 7 | DIMMER WALL SWITCH FOR MANUAL/ AUTOMATIC ON/OFF OF FIXTURES. |

## LIGHTING CONTROLS NOTES:

1. AUTOMATIC LIGHTING CONTROLS: OCCUPANCY SENSOR SHALL BE CAPABLE OF TURNING OFF LIGHTS WITHIN 15 MINUTES OF ALL OCCUPANT LEAVING THE SPACE AND SHALL BE MANUAL ON.
2. ALL ILLUMINATED EXIT SIGN TO HAVE A MAX WATTAGE OF 5 PER SIDE.
3. ALL EMERGENCY LIGHT SHALL OPERATE IN EMERGENCY CONDITION.




1 / E1.0 ELECTRICAL LIGHTING PLAN
SCALE : 1/4"=1'-0"

Project North



NY ENGINEERS
382 NE 191st ST, SUITE
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ELECTRICAL LIGHTING PLAN

E1.0

## ELECTRICAL GENERAL NOTES:

A. FIELD VERIFY FINAL LOCATION OF ALL EQUIPMENT WITH PROVIDER PRIOR TO ROUGH-IN. ALL RECEPTACLES IN BATHROOMS, KITCHENS, ROOFTOPS, OUTDOORS, AND WITHIN 6FT. OF A SINK SHALL BE GFCI (OR SERVED BY A GFI CIRCUIT BREAKER) PER NEC 210.8(B). THE E.C. SHALL PROVIDE GFCI OUTLETS (OR CIRCUIT BREAKERS) IN ALL LOCATIONS REQUIRED BY THE NEC.

B. PROVIDE PHOTOCELL ON/TIMECLOCK OFF CONTROLS. PROVIDE ALL COMPONENTS REQUIRED FOR A COMPLETE INSTALLATION.

C. NUMBERS NEXT TO DEVICES REFER TO CIRCUIT DESIGNATION IN UNIT PANEL UNLESS NOTED.

D. ALL TELE/DATA LOCATIONS SHALL INCLUDE 4* SQUARE J-BOX AND 3/4" CONDUIT TO CEILING SPACE. ALL TELEPHONE/DATA CABLE IS TO BE PLENUM RATED WIRE OR SHALL BE INSTALLED IN CONDUIT ABOVE CEILING OR IN WALLS.

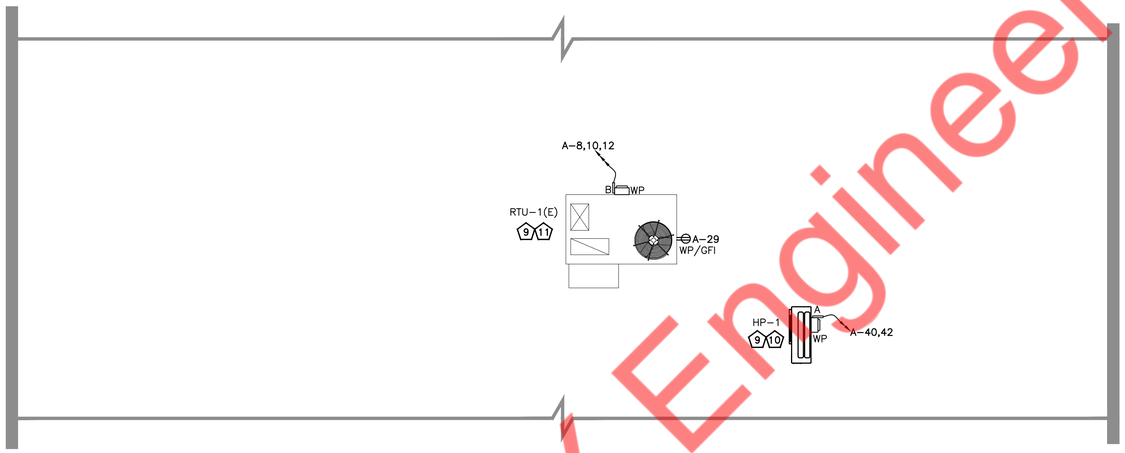
E. PROVIDE ALL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE THE NEW WORK AS INDICATED ON THE ELECTRICAL PLANS. FIELD VERIFY EXISTING CONDITIONS. PROVIDE ANY ADDITIONAL WORK NECESSARY AS REQUIRED TO PRESERVE EXISTING DEVICES AND BRANCH CIRCUIT COMPONENTS TO REMAIN. REFER TO THE ARCHITECTURAL PLANS FOR DEMOLITION SCOPE OF WORK AND VISIT THE SITE PRIOR TO BID TO DETERMINE THE ELECTRICAL SCOPE OF WORK REQUIRED.

F. THIS DESIGN IS DIAGRAMMATICAL. REFER TO MANUFACTURER'S RECOMMENDATIONS AND INSTALLATION MANUALS FOR SPECIFIC LOCATIONS AND INSTALLATION DETAILS. REFER TO ARCHITECTURAL DRAWINGS FOR ANY DIMENSIONS.

G. ALL REUSED MATERIALS OR EQUIPMENT SHALL BE IN GOOD CONDITION AND THE SYSTEM SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND IN GOOD WORKING ORDER AT THE COMPLETION OF THE PROJECT.

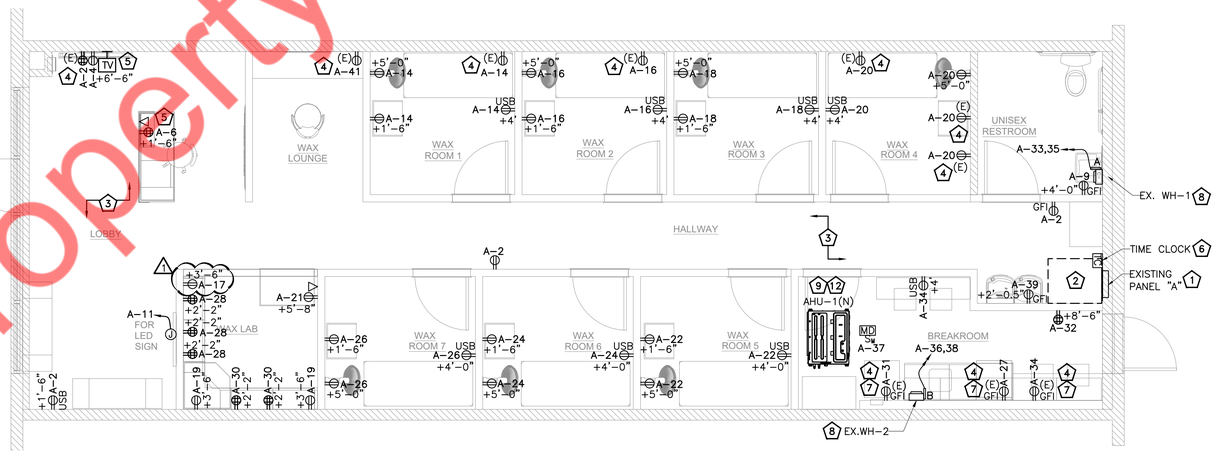
## ELECTRICAL POWER KEYED NOTES:

1. EXISTING 250A(M.L.O), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A"(NAME TO BE VERIFY ON FIELD) TO REMAIN. E.C. TO FIELD VERIFY THE EXACT SIZE, LOCATION & OPERABLE CONDITION OF THE PANEL, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
2. E.C SHALL VERIFY/PERFORM THE INSTALLATION OF ELECTRICAL PANELS IN COMPLIANCE WITH NEC ARTICLE 110.26(A) AND (B). E.C. SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE.
3. ALL 15/20A RECEPTACLES IN THE LOBBY, RECEPTION SHALL BE TAMPER RESISTANCE AS PER NEC 406.12(5).
4. EXISTING RECEPTACLE OUTLETS SHALL REMAIN. E.C. SHALL COORDINATE IN FIELD THE OPERABLE CONDITIONS OF THE SAME AND PROVIDE NEW IF FOUND INOPERABLE AS SHOWN ON THE DRAWING. BASE BID ACCORDINGLY.
5. TV/MONITOR – PROVIDE POWER AND DATA/CAT6 JACKS AS REQUIRED. FIELD VERIFY REQUIREMENTS WITH TENANT AND TV PROVIDER. FIELD VERIFY FINAL LOCATION, MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ANY ROUGH-IN.
6. TIME CLOCK FOR EXTERIOR SIGNAGE. E.C SHALL COORDINATE WITH ARCHITECT/ OWNER FOR EXACT LOCATION AND MOUNTING HEIGHT IN FIELD. BASE BID ACCORDINGLY.
7. ELECTRICAL CONTRACTOR SHALL VERIFY WHETHER THE EXISTING RECEPTACLE IS EQUIPPED WITH GFI PROTECTION. IF NOT, REPLACE IT WITH A NEW GFI BREAKER AS SHOWN IN THE DRAWING. BASE BID ACCORDINGLY.
8. EXISTING PLUMBING UNITS (EX. WH-1 &2) ALONG WITH ELECTRICAL FIXTURE AND ELECTRICAL CONNECTIONS SHALL REMAIN CONNECTED TO THE EXISTING ELECTRICAL PANEL "A" AS SHOWN IN PANEL SCHEDULE. E.C. TO COORDINATE WITH PLUMBING CONTRACTOR FOR ANY REQUIREMENT BASED ON FIELD CONDITION. E.C SHALL VERIFY THE OPERABLE CONDITION OF EXISTING ELECTRICAL CONNECTION. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
9. ELECTRICAL CONTRACTOR SHALL COORDINATE FOR EXACT LOCATION OF MECHANICAL EQUIPMENTS WITH MECHANICAL DRAWINGS.
10. 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. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
11. EXISTING MECHANICAL UNITS RTU-1(E) ALONG WITH ELECTRICAL FIXTURE AND ELECTRICAL CONNECTIONS SHALL REMAIN CONNECTED TO THE EXISTING ELECTRICAL PANEL "A" AS SHOWN IN PANEL SCHEDULE. E.C. TO COORDINATE WITH MECHANICAL CONTRACTOR FOR ANY REQUIREMENT BASED ON FIELD CONDITION. E.C SHALL VERIFY THE OPERABLE CONDITION OF EXISTING ELECTRICAL CONNECTION. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
12. INDOOR AC UNIT AC-1(N) IS POWERED BY THE OUTDOOR UNIT HP-1(N). E.C TO CO-ORDINATE WITH THE MANUFACTURER OF EQUIPMENT FOR ALL ELECTRICAL REQUIREMENTS PRIOR TO ROUGH-IN TO ENSURE EQUIPMENT OPERATION. BASE BID ACCORDINGLY.




2 / E2.0 ELECTRICAL ROOF PLAN
SCALE : 1/4"=1'-0"

Project North N




1 / E2.0 ELECTRICAL POWER PLAN
SCALE : 1/4"=1'-0"

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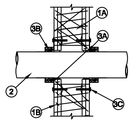
ELECTRICAL POWER & ROOF PLAN

E2.0

System No. W-L-2059
F Ratings - 1 and 2 Hr (See Items 2 and 3)
T Ratings - 3/4, 1, 1-1/2 and 2 Hr (See Items 2 and 3)
L Rating At Ambient - 1 CFM/sq ft
L Rating At 400 F - Less Than 1 CFM/sq ft




Section A-A

1. Wall Assembly - The 1 or 2 h fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 and V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* - 5/8 in. (16 mm) thick, 4 ft (1219 mm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 5 in. (127 mm).
2. Through-Penetrants - One nonmetallic pipe or conduit to be centered within the firestop system. The annular space shall be max 1/4 in. (6 mm). Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. Polyvinyl Chloride (PVC) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 or 80 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. When Schedule 80 PVC pipe is used, the F and T Ratings are 1 hr. When Schedule 80 PVC pipe is used in closed (process or supply) piping systems, the F and T Ratings are equal to the assembly rating of the wall in which it is installed.
   B. Rigid Nonmetallic Conduit - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 or 80 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70). When Schedule 80 PVC conduit is used, the F and T Ratings are 1 hr.
   C. Chlorinated Polyvinyl Chloride (CPVC) Pipe - Nom 4 in. (102 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.
   D. Acrylonitrile Butadiene Styrene (ABS) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or foamed core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   E. Fire Retardant Polypropylene (FRPP) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   F. Polyvinylidene Fluoride (PVDF) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   G. Fiberglass Reinforced Pipe (FRP) Pipe - Nom 4 in. (102 mm) diam (or smaller) glass fiber reinforced thermosetting resin pipe for use in closed (process or control) or vented (drain, waste or vent) piping systems. When FRP pipe is used, T Rating is 3/4 hr.
   H. High Density Polyethylene (HDPE) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 HDPE pipe for use in closed (process or supply) piping systems.
3. Firestop System - The firestop system shall consist of the following:
   A. Fill, Void or Cavity Material* - Sealant - Fill material forced into annular space to max extent possible. Caulk shall be installed flush with both surfaces of wall assembly.
   SPECIFIED TECHNOLOGIES INC - SpecSeal 100, 101, 102, 105, 120 or 129 Sealant, SpecSeal LCI Sealant, Pensil 300 Sealant or SpecSeal Series SIL300 Sealant
   B. Fill, Void or Cavity Material - Wrap Strip - Nom 1/8 or 3/16 in. (3.2 or 4.8 mm) thick intumescent material faced on both sides with a plastic film, supplied in 2 in. (51 mm) wide strips or nom 1/4 in. (6 mm) thick intumescent material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) wide strips. The layers of wrap strips are individually wrapped around the through-penetrant with ends butted and held in place with masking tape. Butted ends in successive layers shall be aligned.

| Fire Rating of Wall Hr | Max Diam of Throught Penetrant In. (mm) | No. of Wrap Strip Layers | F Rating Hr | T Rating Hr |
|---|---|---|---|---|
| 1 | 1-1/2 (38) | 1 | 1 | 1 |
| 2 | 1-1/2 (38) | 1 | 2 | 1-1/2 |
| 1 | 2 (51) | 1 | 1 | 1 |
| 2 | 2 (51) | 1 | 2 | 1-1/2 |
| 1 | 3 (76) | 2 | 1 | 1 |
| 2 | 3 (76) | 2 | 2 | 2 |
| 1 | 4 (102) | 3 | 1 | 1 |
| 2 | 4 (102) | 3 | 2 | 2 |

   Except as noted in Item 2, the F and T Rating of the firestop system is dependent upon the fire rating of wall, diam of through penetrant and the number of wrap strips as tabulated below:
   SPECIFIED TECHNOLOGIES INC - SpecSeal BLU Wrap Strip, SpecSeal BLU2 Wrap Strip or SpecSeal RED Wrap Strip
   C. Steel Collar - Collar fabricated from coils of precut 0.016 in. (0.4 mm) thick (30 MSG) galv sheet steel available from wrap strip manufacturer. Collar shall be min 1-1/2 in. (38 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for securement to the concrete floor or wall. Retainer tabs, 3/4 in. (19 mm) wide tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs, are folded 90 degree toward pipe surface to maintain the annular space around the pipe and to retain the wrap strips. Steel collar wrapped around wrap strips and pipe with a 1 in. (25 mm) wide overlap along its perimeter joint and secured together by means of a min 1/2 in. (13 mm) wide by 0.028 in. (0.7 mm) thick stainless steel hose clamp installed at mid-depth of the steel collar. As an alternate to the steel hose clamp, the steel collar may be secured together by means of three No. 8 by 1/4 in. (6 mm) long steel sheet metal screws when more than one layer of wrap strip is used.
   Wrap strip/collar assembly is slid along the through-penetrant until abuts the surface of the wall. Collar secured to wall by 1/8 in. (3.2 mm) diam by 1-3/4 in. (44 mm) long steel molly bolts in conjunction with 1-1/4 in. (32 mm) diam steel fender washers. The number of molly bolts used is dependent upon the nom diam of the through penetrant. Two molly bolts, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. Three molly bolts, symmetrically located, are required for nom 2-1/2 in. (64 mm) and 3 in. (76 mm) diam through penetrants. Four molly bolts, symmetrically located, are required for nom 3-1/2 in. (89 mm) and 4 in. (102 mm) diam through penetrants. Steel collars are installed on each side of wall.
   D. Firestop Device* - (Optional, Not Shown) - As an alternate to Item 3B and 3C, galv steel collar lined with an intumescent material sized to fit the specific diam of the through-penetrant. Device shall be installed around through-penetrant in accordance with accompanying installation instructions. Device incorporates anchor tabs for securement to each surface of wall assembly by means of 1/8 in. (3 mm) diam by 1-3/4 in. (45 mm) long steel molly bolts in conjunction with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) diam steel fender washers.
   SPECIFIED TECHNOLOGIES INC - SpecSeal Firestop Collar, SpecSeal LCC Collar or SpecSeal SSC Collar . When SpecSeal LCC Collar or SpecSeal SSC Collar are used, the max annular space shall be 1/8 in. (3 mm) for max 2-1/2 in. (64 mm) diam pipe and shall be max 1/4 in. (6 mm) for pipe larger than 2-1/2 in. (64 mm) diam.
   *Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

STI — Specified Technologies Inc. 210 Evans Way Somerville, NJ 08876

Created or Revised: November 27, 2012
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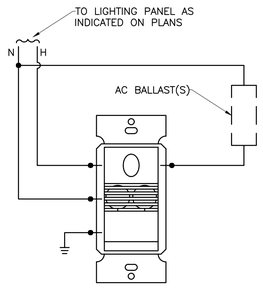
W-L-2059

6 / E4.0 FIRE STOP DETAIL
N.T.S



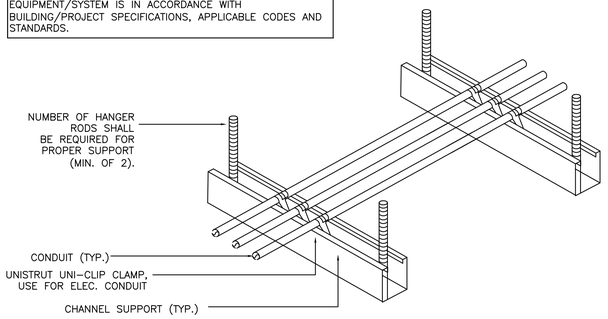

OCCUPANCY SENSOR SWITCH WIRING DIAGRAM
SCALE: N.T.S.

NOTES:

1. ALL LOW VOLTAGE WIRING AND TERMINATIONS TO BE BY ELECTRICAL CONTRACTOR.
2. OCCUPANCY/VACANCY SENSOR SHALL BE "SENSOR SWITCH" COOPER GREENGATE ONW-D-1001-MV OR APPROVED EQUAL. ALL EXPOSED CONTROL WIRING SHALL BE IN CONDUIT.

5 / E4.0 OCCUPANCY SENSOR SWITCH DETAIL
N.T.S

NOTE:
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.



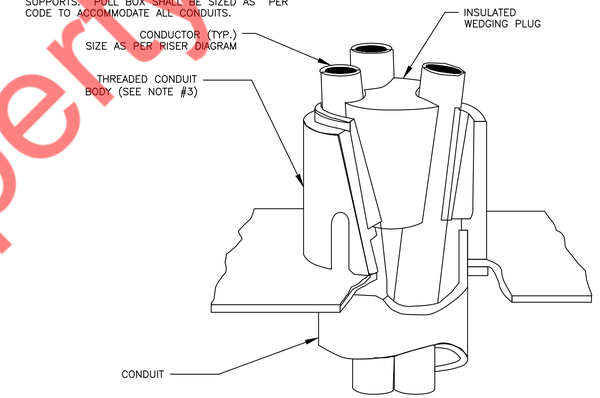

NOTES:

1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

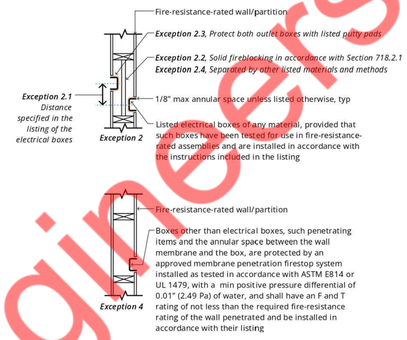
4 / E4.0 CONDUIT SUPPORT DETAIL
N.T.S

NOTES:

1. ALL CONDUCTORS IN VERTICAL RACEWAYS SHALL BE SUPPORTED IN ACCORDANCE WITH ARTICLE 300.19 OF NEC. CABLE SUPPORTS SHALL BE LOCATED AT THE INTERVALS REQUIRED BY THE NEC.
2. CABLE SUPPORT SYSTEM SHALL BE AS MANUFACTURED BY O-Z GEDNEY WITH pOZi-GRIP "S-STYLE" WEDGING PLUG OR APPROVED EQUAL.
3. FOR THREADLESS CONDUIT (RIGID, IMC OR EMT), ATTACH CONDUIT BODY TO MALE THREADS OF A SET SCREW OR COMPRESSION CONNECT, AS PERMITTED BY SPECIFICATIONS.
4. PROVIDE PULL BOX AT EACH LOCATION OF CABLE SUPPORTS. PULL BOX SHALL BE SIZED AS PER CODE TO ACCOMMODATE ALL CONDUITS.




3 / E4.0 VERTICAL CABLE SUPPORT DETAIL
N.T.S




2 / E4.0 DETAIL TYPICAL ROUGH-IN REQUIREMENTS
N.T.S

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.
2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.
3. SWITCHES CAN BE USED TO TURN LOAD OFF.

RECOMMENDED WIRE:

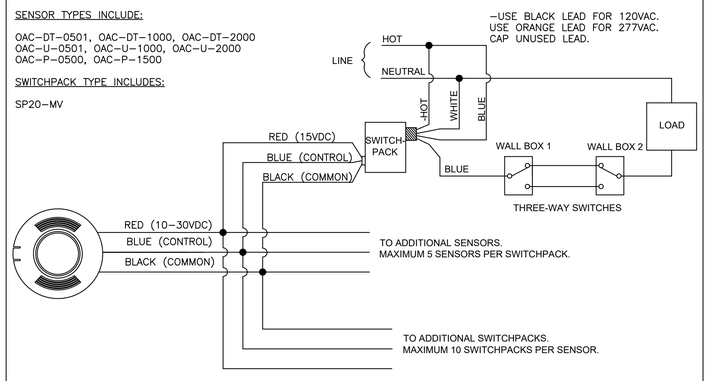
18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED

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




1 / E-4.0 WIRING DIAGRAM-LOW VOLTAGE CEILING SENSOR OCCUPANCY -AUTO ON/OFF WITH LINE VOLTAGE OVERRIDE TO OFF THREE-WAY SWITCHING.
N.T.S

NY ENGINEERS
382 NE 191st ST, SUITE 49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

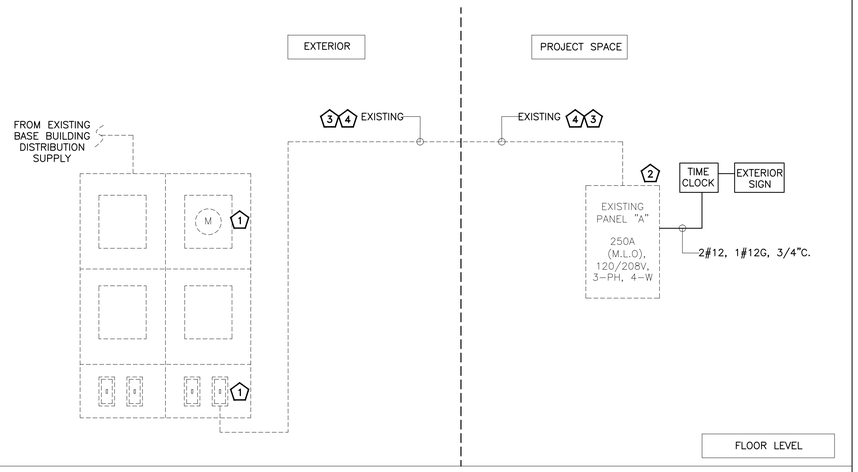
| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

ELECTRICAL DETAILS

E4.0

## ELECTRICAL RISER:–




### ELECTRICAL RISER DIAGRAM GENERAL NOTES:

A. ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSES ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD AND INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY.

B. E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.

C. ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (Isc) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.

D. E.C. TO VERIFY OPERABLE CONDITIONS OF EXISTING DEVICES IN FIELD. REPLACE/RECTIFY IF FOUND IN OPERABLE. BASE BID ACCORDINGLY.

E. EXISTING ELECTRICAL DISTRIBUTION TO BE MAINTAINED AND UTILIZED TO SERVE PROJECT SPACE. POWER RISER DIAGRAM INDICATED FOR REFERENCE PURPOSES ONLY.

### ELECTRICAL RISER DIAGRAM KEYED NOTES:

1. EXISTING 200A, 120/208V, 3–PHASE, 4 WIRE ELECTRICAL METER AND BREAKER SWITCH IN THE EXISTING METER CENTER FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH LANDLORD/BASE BUILDING FOR THE EXACT LOCATION OF THE EXISTING METER CENTER AND EXACT POWER DISTRIBUTION IN THE FIELD. BASE BID ACCORDINGLY.
2. EXISTING 250A(M.L.O), 120/208V, 3–PHASE, 4–WIRE ELECTRICAL PANEL "A"(NAME TO BE VERIFY ON FIELD) TO REMAIN. E.C. TO FIELD VERIFY THE EXACT SIZE, LOCATION & OPERABLE CONDITION OF THE PANEL, REPLACE IF INOPERABLE. BASE BID ACCORDINGLY.
3. EXISTING INCOMING FEEDERS TO REMAIN. E.C. TO VERIFY OPERABLE CONDITION OF FEEDER'S IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
4. E.C TO FIELD VERIFY THE EXACT LENGTH OF THE CABLE AND CHECK THE VOLTAGE DROP IS UNDER LIMIT PER NEC BEFORE INSTALLATION. INFORM ENGINEER ON RECORD IF ANY DISCREPANCIES/ISSUE PRIOR TO BID. BASE BID ACCORDINGLY.

### ELECTRICAL RISER SYMBOLS

- NEW
- EXISTING ITEM/FEEDER TO REMAIN
- EXISTING ITEM/FEEDER TO BE DISCONNECTED & REMOVED

## ELECTRICAL PANEL SCHEDULE:–

**PANEL:** A (E) — **MOUNTING:** REFER TO SHEET E2.0

**208Y/120** VOLTS, **3** PHASE, **4** WIRE — **PANEL LOCATION:** REFER TO SHEET E2.0

**MAIN CB:** NA — **MLO:** 250A — **BUS:** EXISITNG MIN, — **FED FROM:** REFER TO RISER SHEET ES.0

NOTE: L - LIGHTING, R - RECEPTACLE, H - HVAC, E - KITCHEN EQUIPMENTS, O - OTHER/MISCILLANEOUS

| CKT NO. | TRIP AMPS | DESCRIPTION OF LOAD | LOAD TYPE | LOAD (KVA) | MINIMUM BRANCH CIRCUIT | PER PHASE (KVA) A | B | C | MINIMUM BRANCH CIRCUIT | LOAD (KVA) | LOAD TYPE | DESCRIPTION OF LOAD | TRIP AMPS | CKT NO. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 20 | LTG-WAX ROOMS-1,2,3,4,5,6,7, WAX LAB, WAX LOUNGE, UNISEX RESTROOM, LOBBY, RECEPTION, HALLWAY | L | 1.44 | 2#12, #12G, 3/4"C | 2.16 | | | 2#12, #12G, 3/4"C | 0.72 | R | RECEPTACLE-LOBBY/HALLWAY | 20 | 2 |
| 3 | 20 | EXTERIOR SIGN/TIME CLOCK | L | 1.20 | 2#12, #12G, 3/4"C | | 1.38 | | 2#12, #12G, 3/4"C | 0.18 | R | RECEPTACLE-LOBBY(TV) | 20 | 4 |
| 5 | 20 | SHOW WINDOW RECEPTACLE BELOW | R | 1.50 | 2#12, #12G, 3/4"C | | | 1.86 | 2#12, #12G, 3/4"C | 0.36 | R | RECEPTACLE-LOBBY DESK | 20 | 6 |
| 7 | 20 | SHOW WINDOW RECEPTACLE ABOVE | R | 1.50 | 2#12, #12G, 3/4"C | 4.98 | | | EXISTING | 3.48 | H | RTU-1(E) 1 | 35-3P | 8 |
| 9 | 20 | RECEPTACLE- RESTROOM | R | 0.36 | 2#12, #12G, 3/4"C | | 3.84 | | | 3.48 | H | | | 10 |
| 11 | 20 | LED SIGN AT LOBBY | L | 1.20 | 2#12, #12G, 3/4"C | | | 4.68 | | 3.48 | H | | | 12 |
| 13 | 20 | SPARE | | | | 0.72 | | | 2#12, #12G, 3/4"C | 0.72 | R | RECEPTACLE-WAXROOM 1 | 20 | 14 |
| 15 | 20 | SPARE | | | | | 0.72 | | 2#12, #12G, 3/4"C | 0.72 | R | RECEPTACLE-WAXROOM 2 | 20 | 16 |
| 17 | 20 | RECEPTACLE-WAXLAB SOUTH WALL (DUPLEX) | R | 0.18 | 2#12, #12G, 3/4"C | | | 0.72 | 2#12, #12G, 3/4"C | 0.54 | R | RECEPTACLE-WAXROOM 3 | 20 | 18 |
| 19 | 20 | RECEPTACLE-WAXLAB EAST WALL (DUPLEX) | R | 0.36 | 2#12, #12G, 3/4"C | 1.26 | | | 2#12, #12G, 3/4"C | 0.90 | R | RECEPTACLE-WAXROOM 4 | 20 | 20 |
| 21 | 20 | RECEPTACLE-WAXLAB NORTH WALL (DUPLEX) | R | 0.18 | 2#12, #12G, 3/4"C | | 0.72 | | 2#12, #12G, 3/4"C | 0.54 | R | RECEPTACLE-WAXROOM 5 | 20 | 22 |
| 23 | 20 | EF-1(N), EF-2(N) | M | 0.10 | 2#12, #12G, 3/4"C | | | 0.64 | 2#12, #12G, 3/4"C | 0.54 | R | RECEPTACLE-WAXROOM 6 | 20 | 24 |
| 25 | 20 | EF-3(N) | M | 0.05 | 2#12, #12G, 3/4"C | 0.59 | | | 2#12, #12G, 3/4"C | 0.54 | R | RECEPTACLE-WAXROOM 7 | 20 | 26 |
| 27 | 20 | DISHWASHER | E | 1.50 | 2#12, #12G, 3/4"C | | 2.58 | | 2#12, #12G, 3/4"C | 1.08 | R | RECEPTACLE-WAXLAB SOUTH WALL (QUAD) 1 | 20 | 28 |
| 29 | 20 | RECEPTACLE- ROOF | R | 0.18 | 2#12, #12G, 3/4"C | | | 0.90 | 2#12, #12G, 3/4"C | 0.72 | R | RECEPTACLE-WAXLAB EAST WALL (QUAD) | 20 | 30 |
| 31 | 20 | RECEPTACLE- REFRIGERATOR | R | 0.75 | 2#12, #12G, 3/4"C | 1.11 | | | 2#12, #12G, 3/4"C | 0.36 | R | RECEPTACLE-1 | 20 | 32 |
| 33 | 30-2P | EX. WH-1 1 | O | 2.08 | EXISTING | | 2.44 | | 2#12, #12G, 3/4"C | 0.36 | R | RECEPTACLE-BREAKROOM | 20 | 34 |
| 35 | | | O | 2.08 | | | | 7.48 | EXISTING | 5.40 | O | EX. WH-2 1 | 60-2P | 36 |
| 37 | 20 | MOTORISED DAMPER | O | 0.10 | 2#12, #12G, 3/4"C | 5.50 | | | | 5.40 | O | | | 38 |
| 39 | 20 | DRINKING FOUNTAIN | E | 0.75 | 2#12, #12G, 3/4"C | | 2.41 | | 2#10, #10G, 3/4"C | 1.66 | H | HP-1(N) | 25-2P | 40 |
| 41 | 20 | RECEPTACLE-WAX LOUNGE | R | 0.18 | 2#12, #12G, 3/4"C | | | 1.84 | | 1.66 | H | | | 42 |
| | | | | | TOTAL CONNECTED LOAD (KVA) | 16.32 | 14.10 | 18.13 | | | | | | |

### PANEL SCHEDULE GENERAL NOTES:

1. ALL THE CIRCUITING SHOWN FOR THE EXISTING PANEL "A" IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD, RE–ARRANGE IF NEEDED AND INFORM ENGINEER FOR ANY DISCREPANCIES. ALL THE NEWLY ADDED CIRCUIT BREAKERS IN THE EXISTING ELECTRICAL PANEL "A" SHALL BE COMPATIBLE WITH THE PANEL.
2. ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
3. E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE
4. CHECK COMPATIBILITY OF NEWLY ADDED BREAKER WITH THE EXISTING PANEL BEFORE PURCHASING. BASE BID ACCORDINGLY.
5. CONTRACTOR TO VERIFY THAT ALL BREAKERS SHOWN AS EXISTING MATCHES THE DESCRIPTIONS AND SPECIFICATIONS SHOWN ON SCHEDULES. IF DIFFERENT, NOTIFY ARCHITECT/ ENGINEER BEFORE BIDDING, ORDERING, OR PROCEEDING WITH WORK.

### PANEL SCHEDULE KEYED NOTE:

1. E.C SHALL FIELD VERIFY THAT EXISTING BREAKER CIRCUIT FEEDING EXISTING FEEDER/EQUIPMENT IN FIELD REPLACE IF FOUND INOPERABLE. CHANGE NAME/CIRCUIT AS PER FIELD CONDITION. BASE BID ACCORDINGLY.
2. E.C SHALL PROVIDE (2) 20/1P BREAKER IN THE PLACE OF (1) 20/2P BREAKER. BASE BID ACCORDINGLY.
3. E.C SHALL PROVIDE (2) 20/1P BREAKER IN THE PLACE OF (1) 60/2P BREAKER. BASE BID ACCORDINGLY.
4. E.C SHALL PROVIDE (1) 25/2P BREAKER IN THE PLACE OF (1) 60/2P BREAKER. BASE BID ACCORDINGLY.



NY ENGINEERS
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MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS 1 | 09.22.2025 |

ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE

E5.0

COMcheck Software Version COMcheckWeb

# Interior Lighting Compliance Certificate

## Project Information

Energy Code:
Project Title:
Project Type:

Construction Site: Owner/Agent: Designer/Contractor:

## Allowed Interior Lighting Power

| A Area Category | B Floor Area (ft2) | C Allowed Watts / ft2 | D Allowed Watts |
|---|---|---|---|
| 1-Healthcare Facility:Physical Therapy | 462 | 0.91 | 420 |
| Allowance: Decorative Appearance (not lobbies) / Fix. ID: L2 | 462 (a) | 0.75 | 346 (b) |
| 2-Common Space Types:Restrooms | 56 | 0.63 | 35 |
| Allowance: Decorative Appearance (not lobbies) / Fix. ID: L3 | 56 (a) | 0.75 | 3 (b) |
| 3-Healthcare Facility:Exam/Treatment | 59 | 1.40 | 83 |
| 4-Healthcare Facility:Lounge/Breakroom | 164 | 0.42 | 69 |
| Allowance: Decorative Appearance (not lobbies) / Fix. ID: L4 | 164 (a) | 0.75 | 24 (b) |
| 5-Healthcare Facility:Corridor/Transition <8 ft wide | 194 | 0.71 | 138 |
| Allowance: Decorative Appearance in lobbbies / Fix. ID: L5 | 194 (a) | 0.90 | 84 (b) |
| 6-Common Space Types:Lobby - General | 211 | 0.84 | 177 |
| | | Total Allowed Watts = | 1380 |

(a) Area claimed must not exceed the illuminated area permitted for this allowance type.
(b) Allowance is (B x C) or the actual wattage of the fixtures given in Proposed Power section, whichever is less.

## Proposed Interior Lighting Power

| A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast | B Lamps/ Fixture | C # of Fixture | D Fixture Watt. | E (C X D) |
|---|---|---|---|---|
| Healthcare Facility: Physical Therapy (462 sq.ft.) | | | | |
| LED: L1: Troffer Light 2x2 Lamp: Other: | 1 | 7 | 40 | 280 |
| LED: L2: WALL SCONCE: Other: | 1 | 14 | 29 | 406 |
| Common Space Types: Restrooms (56 sq.ft.) | | | | |
| LED: (E): EXISTING LIGHT: Other: | 1 | 1 | 20 | 20 |
| LED: L3: WALL SCONCE: Other: | 1 | 1 | 3 | 3 |
| Healthcare Facility: Exam/Treatment (59 sq.ft.) | | | | |
| LED: L1: Troffer Light 2x2 Lamp: Other: | 1 | 2 | 40 | 80 |
| Healthcare Facility: Lounge/Breakroom (164 sq.ft.) | | | | |
| LED: L1: Troffer Light 2x2 Lamp: Other: | 1 | 3 | 40 | 120 |
| LED: L4: WALL SCONCE: Other: | 1 | 2 | 12 | 24 |
| Healthcare Facility: Corridor/Transition <8 ft wide (194 sq.ft.) | | | | |
| LED: L1: Troffer Light 2x2 Lamp: Other: | 1 | 5 | 40 | 200 |
| LED: L5: WALL SCONCE: Other: | 1 | 7 | 12 | 84 |
| Common Space Types: Lobby - General (211 sq.ft.) | | | | |
| LED: L1: Troffer Light 2x2 Lamp: Other: | 1 | 4 | 40 | 160 |
| | | | Total Proposed Watts = | 1377 |

**Interior Lighting PASSES**

## Interior Lighting Compliance Statement

*Compliance Statement:* The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

MICHAEL TOBIAS — Name - Title
Signature
08/26/25 — Date

COMcheck Software Version COMcheckWeb

# Inspection Checklist

Energy Code: 2021 IECC

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

| Section # & Req.ID | Plan Review | Complies? | Comments/Assumptions |
|---|---|---|---|
| C103.2 [PR4][1] | Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C405.2.3.1 [EL22][1] | Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.2.1, C405.2.1.1 [EL18][1] | Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, corridors, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.2.1.2 [EL19][1] | Occupancy sensors control function in warehouses: In warehouses, the lighting in aisleways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more within 20 minutes of when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor. Lights not turned off by occupant sensors is done so by time-switch. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.2.1.3 [EL20][1] | Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq.ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq.ft. within the space, 2) general lighting in each zone permitted to turn on upon occupancy in control zone, 3) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 4) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.2.2.1, C405.2.2.1 [EL21][2] | Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |

| Section # & Req.ID | Rough-In Electrical Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C405.2.4, C405.2.4.1, C405.2.4.2 [EL23][2] | Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight responsive control function and section C405.2.3.2 Sidelit zone. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.2.5 [EL27][1] | Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.7 [EL26][2] | Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.8 [EL27][2] | Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist). | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.9.1, C405.9.2 [EL28][2] | Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.10 [EL29][2] | Total voltage drop across the combination of feeders and branch circuits <= 5%. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C405.1.1 [EL30][2] | At least 90% of dwelling unit permanently installed lighting shall have lamp efficacy >= 65 lm/W or luminaires with efficacy >= 45 lm/W or comply with C405.2.4 or C405.3. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |
| C405.11, C405.11.1 [EL31][2] | 50% of 15/20 amp receptacles installed in enclosed offices, conference rooms, copy rooms, break rooms, classrooms and workstations and > 25% of branch circuit feeders for modular furniture will have automatic receptacle control in accordance with C405.11.1. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | **Exception:** Requirement does not apply. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

| Section # & Req.ID | Final Inspection | Complies? | Comments/Assumptions |
|---|---|---|---|
| C303.3, C408.2.5.2 [FI17][3] | Furnished O&M instructions for systems and equipment to the building owner or designated representative. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.1.1 [FI57][1] | Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.2.5 [FI16][3] | Furnished as-built drawings for electric power systems within 90 days of system acceptance. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |
| C408.3 [FI33][1] | Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation. | ☐Complies ☐Does Not ☐Not Observable ☐Not Applicable | Requirement will be met. |

**Additional Comments/Assumptions:**

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)





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49674
MIAMI, FL 33179

TENANT FINISH FOR
UNI K WAX
PARADISE VALLEY

| | |
|---|---|
| PROJECT NO | UNI2503 |
| START DATE | 08.25.2025 |
| DRAWN BY | NYE |
| CHECKED BY | NYE |

| NO. | DESCRIPTION | DATE |
|---|---|---|
| 1 | PERMIT | 08.26.2025 |
| 2 | BD COMMENTS | 09.22.2025 |

ENERGY ANALYSIS

E6.0