DUCT SYMBOLS

	DUCT SYMBOLS		
DOUBLE LINE SYMBOL	<u>DESCRIPTION</u>	SINGLE LINE SYMBOL	
20x16 Y	DUCT- FIRST NUMBER IS VISIBLE DIMENSION.	5—20×16	
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 DUCT & AIRFLOW DN(RIGHT) POSITIVE PRESSURE	$\otimes \longrightarrow$	
	DUCT & AIRFLOW UP(LEFT) NEGATIVE PRESSURE DUCT & AIRFLOW DN(RIGHT) NEGATIVE PRESSURE	$\otimes \setminus \setminus \otimes$	
	DUCT & AIRFLOW UP(LEFT) NEG./POS. PRESSURE DUCT & AIRFLOW DN(RIGHT) NEG./POS. PRESSURE		
<u> </u>	CHANGE OF ELEVATION=RISE (R), DROP (D)	5 % R ⊗ 5	
	CEILING EXHAUST FAN WITH LIGHT		
♥ FD	FD— FIRE DAMPER	FD	(
(TYPE)	MANUAL VOLUME DAMPER—SPECIFIC TYPE, NO LABEL—BUTTERFLY, OBD—OPPOSED BLADED DAMPER, PBD—PARALLEL BLADE DAMPER	(TYPE)	•
	BRANCH TAP-W/45 DEG. ENTRY	5	
	BRANCH TAP—CONICAL SPIN—IN	\(\frac{1}{2} \)	
8	BRANCH TAP-STRAIGHT SPIN-IN	\	
λ20x10]10x10 \	TRANSITION	20x10 10x10	
RTU-# FCU-# XXX-#	HVAC — EQUIP AS NOTED		
	AIR DEVICE, SUPPLY— CEILING. CLEAR		
A X"ø X CFM	AIR DEVICE TAG SPIN-IN DIMENSION AIRFLOW (CFM)		
	AIR DEVICE, SUPPLY— SIDEWALL.		
7-	AIR DEVICE, RETURN/EXHAUST— SIDEWALL.		

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	MECHANICAL DRAWING LIST
M001	MECHANICAL GENERAL NOTES AND LEGEND
M002	MECHANICAL SPECIFICATIONS
м003	MECHANICAL SPECIFICATIONS
M100	MECHANICAL FLOOR PLAN
M101	MECHANICAL ROOF PLAN
M200	MECHANICAL DETAILS (1 OF 2)
M201	MECHANICAL DETAILS (2 OF 2)
м300	MECHANICAL SCHEDULES
M400	ENERGY ANALYSIS (1 OF 3)
M401	ENERGY ANALYSIS (2 OF 3)
M402	ENERGY ANALYSIS (3 OF 3)

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:

- 2023 LACO BUILDING CODE
- 2023 LACO MECHANICAL CODE
- 2023 LACO PLUMBING CODE
- 2023 LACO ELECTRICAL CODE
- 2022 CALIFORNIA ENERGY CODE.

2022 CALIFORNIA FIRE CODE

MECHANICAL ABBREVIATIONS

BD	BACKDRAFT DAMPER				
CFM	CUBIC FEET OF AIR PER MINUTE				
CD	CONDENSATE DRAIN PIPE				
DN	DOWN				
EER	ENERGY EFFICIENCY RATIO				
IEED	INTEGRATED ENERGY				
IEER	EFFICIENCY RATIO				
	SEASONAL ENERGY				
SEER	EFFICIENCY RATIO				
VD	VOLUME DAMPER				
EF	EXHAUST FAN				
KEF	KITCHEN EXHAUST FAN				
RTU	ROOFTOP UNIT				
CDS	CEILING DIFFUSERS SUPPLY				
CDR	CEILING DIFFUSERS RETURN				
FD	FIRE DAMPER				
WMS	WIRE MESH SCREEN				
ACH	AIR CURTAIN 1				
LDS	LINEAR DIFFUSER SUPPLY				
LDR	LINEAR DIFFUSER RETURN				
	······································				

SOUTH PASADENA. CA BUILDING DEPT. NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE CALIFORNIA BUILDING CODE 2022, 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 TABLE 120.1 SUBCHAPTER 3 OF BUILDING ENERGY EFFICIENCY CODE-2022.
- 3. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
- 4. 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.
- 5. SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION 609 OF CALIFORNIA MECHANICAL CODE 2022 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
- 6. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
- 7. 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.
- 8. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE CALIFORNIA MECHANICAL CODE 2022:
- A. VENTILATION SYSTEM BALANCING CALIFORNIA MECHANICAL CODE 2022 402. B. SMOKE CONTROL SYSTEMS - CALIFORNIA MECHANICAL CODE 2022 - 609.
- 9. CONTRACTOR SHALL BALANCE THE AIR AS SHOWN IN THE VENTILATION TABLE AS PER THE APPROVED METHOD AND PROVIDE A COPY OF AIR BALANCE REPORT TO THE INSPECTOR OF THE RESPECTIVE DEPARTMENT PRIOR FINAL INSPECTION.
- 10. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
- A. STANDARDS OF HEATING CALIFORNIA BUILDING CODE 2022 1203.
- DUCT CONSTRUCTION AND INSTALLATION CALIFORNIA MECHANICAL CODE 2022 603. AIR INTAKES, EXHAUSTS AND RELIEF - CALIFORNIA MECHANICAL CODE 2022 -407.2.
- AIR FILTERS CALIFORNIA MECHANICAL CODE 2022 401. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS - CALIFORNIA MECHANICAL CODE 2022 - 609.
- 11. DUCT LEAKAGE TESTING IS REQUIRED FOR THE SYSTEMS AS PER CMC 603.9.2.
- 12. AIR DUCTS AND PLENUM SYSTEM SHOULD BE DESIGNED AS PER CEC 2022 SECTION 120.4(A)-(F).
- 13. APPROVAL IS REQUIRED FROM THE HEALTH DEPARTMENT PRIOR TO ISSUANCE OF THE BUILDING PERMIT PROOF OF APPROVAL IS REQUIRED AT THE TIME OF PERMIT ISSUANCE.

SCOPE OF WORK

1.TWO EXISTING 3.0 TON GAS HEAT ROOFTOP UNITS TO BE REUSED. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION OF THE UNIT PRIOR STARTING CONSTRUCTION/BASE BID.

2.EXHAUST FAN FOR THE KITCHEN AND RESTROOM AS WELL AS THE CEILING DIFFUSERS/GRILLES WILL BE MEWLY PROYIDED AS SHOWN HIN THE PLANS.

3.NEW DUCTWORK SHALL BE PROVIDED ALONG WITH ACCESSORIES AS SHOWN IN THE PLANS.

4.AIR CURTAIN FOR THE DINING SPACE WILL BE NEWLY PROVIDED.

5.REUSE EXISTING DUCTWORK AND DIFFUSER AS MUCH AS POSSIBLE.

GENERAL NOTES

- 1. CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE SPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE STALLATION OF THE WORK AS SHOWN ON DRAWINGS.
- ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO UBMITTING 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.
- 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.
- 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

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
- 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
- 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
- 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.

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No.	Description	Date
1	↑ HD COMMENTS	12/17/2
2	BD COMMENTS	01/06/2
3	HD COMMENTS	01/15/2
4	A PROJECT COORDINATION	05/06/2

MECHANICAL GENERAL NOTES AND LEGEND

9/6/2024

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Project number Drawn by

Checked by

M001

- 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
- 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.

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
- 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/SEL 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."

- A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL
- B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL
- FIBERGLASS PIPE HANGERS: -CLEVIS, CENTURY COMPOSITES, COOPER B-LINE
- . 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

AIR-MOUNTING SYSTEMS:

- AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED—AIR BELLOWS.
- 2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED-AIR BELLOWS.
- RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC SOLATION PADS, AND SNUBBER BUSHINGS.
 - 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.

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No.	Description	Date
1	HD COMMENTS	12/17/24
2	№ BD COMMENTS	01/06/25
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MECHANICAL SPECIFICATIONS

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Scale

- 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 SJECTION 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-8 WITHIN BUILDING ENVELOPE ASSEMBLY: OUTSIDE OF BUILDING:
- 1.4 ITEMS NOT INSULATED:
 - 1. FIBROUS-GLASS DUCTS.
 - 2. METAL DUCTS WITH DUCT LINER OR SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE ANDASHRAE/IESNA 90.1.
 - 3. FACTORY—INSULATED 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 STÁNDARD 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

POCKET LOCK

22 UP TO 12 S SLIP, DRIVE SLIP, ONE INCH ON 8 FOOT 22 13 TO 24 1"X1"X1/8" ANGLES ON 4

20 25 TO 35 1"X1"X1/8" ANGLES ON 2

FOOT CENTERS 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.
- E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.
- F. ALL DUCTWORK SHALL BE SEALED TO CLASS "A" AND LEAK TESTED TO MEAT SMACNA CLASS 6 FOR RECTANGULAR AND CLASS 3 FOR ROUND DUCTS.
- 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.
- 4. STAINLESS-STEEL SHEETS.

5. ALUMINUM SHEETS.

CARBON-STEEL 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 VANE
 - 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



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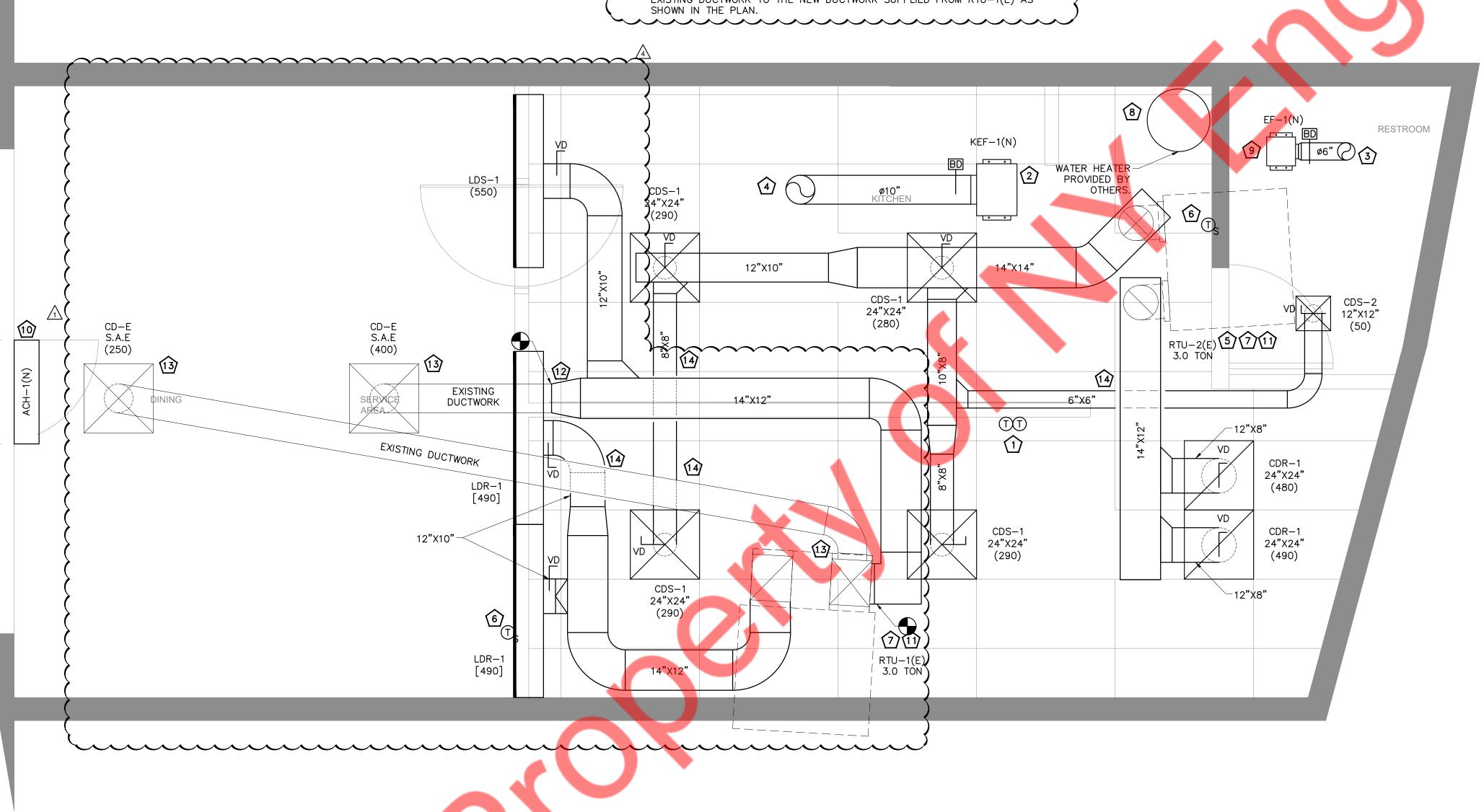
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- MECHANICAL GENERAL NOTES A. CONTRACTOR TO VISIT SITE TO VERIFY ON FIELD CONDITION ALONG WITH THE DRAWINGS & INFORM THE ENGINEER FOR ANY DISCREPANCIES FOUND BEFORE
- B. CONTRACTOR SHALL BALANCE EACH AIR DIFFUSER WITH THE CFM SHOWN PLAN. C. DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR DUCTWORK ROUTING. OFFSET AND RUN DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE
- INSTALLATION. D. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURE ENGINEERS.
- E. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- F. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS. G. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC
- BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION. H. ALL EXPOSED ROUND DUCTWORK SHALL BE INTERNALLY INSULATED. ALL INTERNAL
- DUCTWORK SHALL BE EXTERNALLY INSULATED. I. COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES. J. 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.
- K. COORDINATE FINAL LOCATION OF EQUIPMENT WITH STRUCTURAL DRAWINGS. L. 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. M. KEEP ALL ADJOINING AREAS ADJACENT TO THE WORK AREAS CLEAN AND FREE OF
- N. MECHANICAL CONTRACTOR TO COORDINATE ALL DUCT WORK, CROSSINGS, OVERLAPPING AND PENETRATIONS WITH SITE CONDITIONS AND AS PER EXISTING JOIST LAYOUT, SKYLIGHT AND BEAM IN FIELD. MODIFY DUCT WORK WHEREVER REQUIRED.
- O. CONTRACTOR TO VERIFY ON SITE ALL OUTSIDE AIR & EXHAUST AIR WALL PENETRATION/TERMINATION. INFORM ENGINEER IF ANY DISCREPANCY FOUND. P. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING
- FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS. Q. FACTORY-MADE FLEXIBLE AIR DUCTS AND CONNECTORS SHALL BE NOT MORE THAN 5 FEET IN LENGTH AND SHALL NOT BE USED IN LIEU OF RIGID ELBOWS OR

- MECHANICAL PLAN KEY NOTES:
- LOCATION OF DIGITAL THERMOSTAT CONTROL. INSTALL AND WIRE NEW 7-DAY PROGRAMMABLE THERMOSTAT. 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.
- CEILING MOUNTED EXHAUST FAN. INTERCONNECT EXHAUST FAN KEF-1(N) WITH RTU-2(E). FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
- Ø6" TOILET EXHAUST DUCT UP-TO THE ROOF AND TERMINATE WITH GOOSENECK AND BIRD SCREEN.
- Ø10" EXHAUST DUCT UP-TO THE ROOF AND TERMINATE WITH GOOSENECK AND BIRD SCREEN.
- EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM THE ROOFTOP UNITS TO THE SPACE. EXTEND AS SHOWN. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
- PROVIDE REMOTE TEMP SENSOR MOUNTED IN SPACE AND WIRE BACK TO T-STAT.
- 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.
- EXISTING VENT FROM WATER HEATER TO REMAIN AND REUSED FOR NEW WATER HEATER INSTALLED. IF DAMAGED/INOPERABLE REPLACE IT WITH NEW VENT COMPLYING LOCAL CODES.
- CEILING MOUNTED EXHAUST FAN. INTERCONNECT EXHAUST FAN EF-1(N) WITH $\frac{1}{2}$ ROOM LIGHTS, FAN SHALL BE SUSPENDED FROM STRUCTURE ABOVE. VÉRIFY EXACT LOCATION OF STRUCTURAL MEMBERS PRIOR TO INSTALLATION.
- PROVIDE AND INSTALL AIR CURTAIN ACH-1(N) AS PER MANUFACTURER'S RECOMMENDATION. PROVIDE LIMIT SWITCH FOR OPERATION. FAN SHALL TURN ON WHEN THE DOOR IS OPENED.
- CONNECT NEW SUPPLY AND RETURN DUCT TO THE EXISTING PLENUM IN THE SPACE FROM THE RESPECTIVE ROOFTOP UNITS AS SHOWN IN THE PLAN.
- DISCONNECT EXISTING DUCTWORK FROM RTU-2(E) AND RECONNECT THE EXISTING DUCTWORK TO THE NEW DUCTWORK SUPPLIED FROM RTU-1(E) AS

EXISTING DUCTWORK WITH DIFFUSERS TO REMAIN AND TO BE REUSED. CONTRACTOR TO REPAIR/REPLACE ANY INSULATION OR DUCTWORK DAMAGE 1 WITH NEW ONE OF SAME TYPE. INSULATION R-VALUE SHALL BE MINIMUM PER THE LOCAL CODE. CONTRACTOR TO REPORT THE DESIGN ENGINEER INCASE IF

CONTRACTOR SHALL ENSURE THE CEILING HAS ENOUGH SPACE TO RUN THE DUCTWORK AS SHOWN. IF NOT, RESIZE AS PER SMACNA STANDARDS AND PER THE SITE CONDITIONS. REPORT TO THE ENGINEER IN-CHARGE FOR ANY



NY ENGINEERS

382 NE 191ST ST, SUITE 49674, **MIAMI, FL 33179**

MICHAEL TOBIAS P: 646.878.9217

No.	Description	Date
1	↑ HD COMMENTS	12/17/2
2	BD COMMENTS	01/06/2
3	HD COMMENTS	01/15/2
4	A PROJECT COORDINATION	05/06/2

MECHANICAL FLOOR PLAN

Project number

Checked by

9/6/2024 Drawn by

M100

As indicated

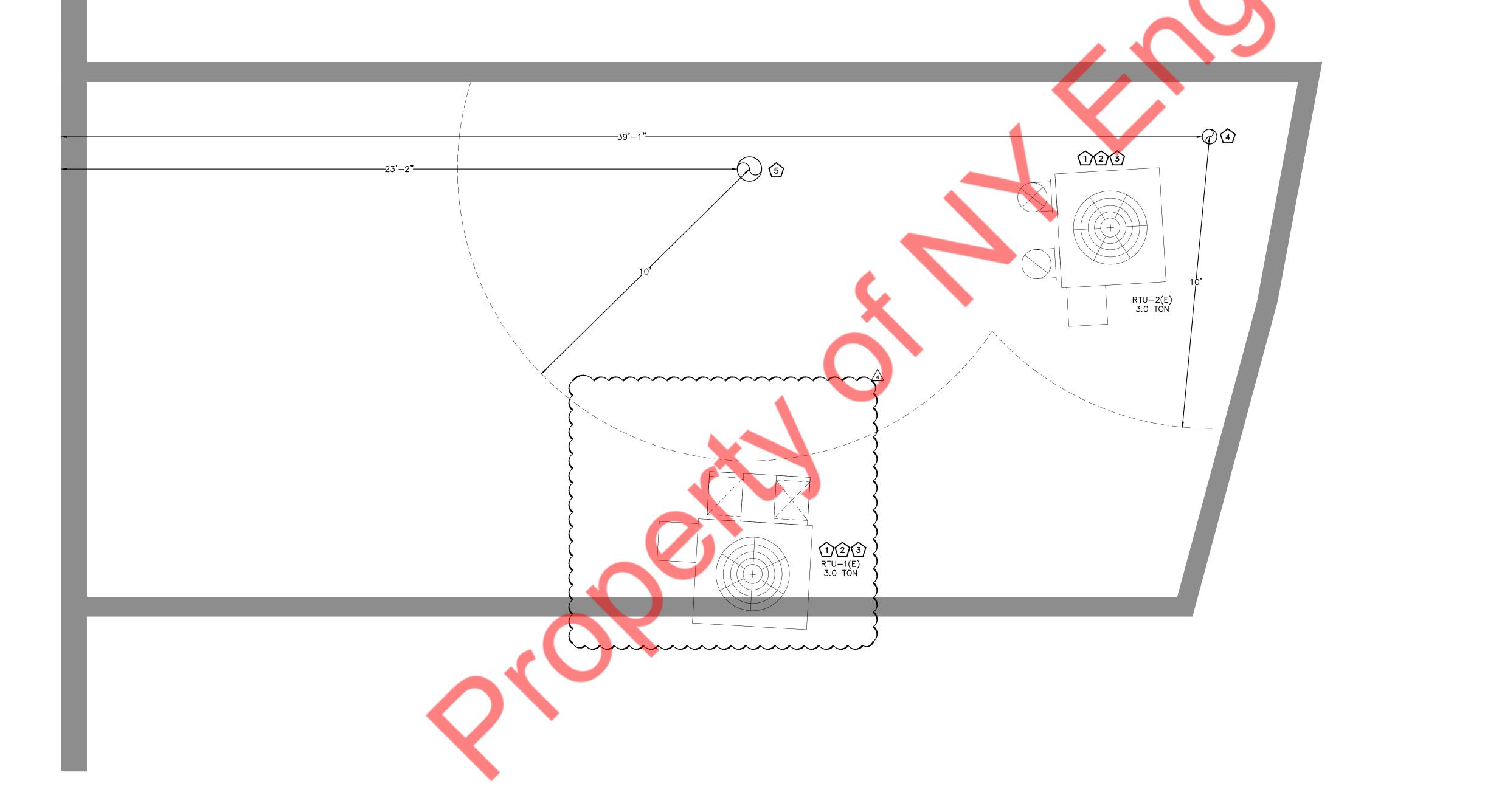
1) MECHANICAL FLOOR PLAN 1/2" = 1'-0"

- MECHANICAL 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. KEEP ALL ADJOINING AREAS ADJACENT TO THE WORK AREAS CLEAN
- AND FREE OF DEBRIS.
 E. CONTRACTOR TO VERIFY THE CAPACITY AND CONDITION OF THE EXISTING ROOF TOP UNIT BEFORE TO STARTING ANY NEW WORK.

MECHANICAL ROOF PLAN KEY NOTES:

- EXISTING ROOF TOP UNITS TO REMAIN AND TO BE REUSED. CONTRACTOR TO FIELD VERIFY EXACT LOCATION IN THE FIELD. PROVIDE DUCT MODIFICATIONS IF REQUIRED. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE.
- CONTRACTOR TO CLEAN AND FLUSH EXISTING DRAIN LINE. CONNECT DRAIN LINES TO THE NEAREST APPROVED PLACED OF DISPOSAL AS PER LOCAL CODE.
- IF REQUIRED CONTRACTOR TO REFURBISH EXISTING MECHANICAL EQUIPMENT TO REMAIN AND BRING TO "LIKE NEW" CONDITIONS CONTRACTOR REMAIN AND BRING TO "LIKE NEW" CONDITIONS. CONTRACTOR SHALL VERIFY SPECIFICATIONS OF THE EXISTING MECHANICAL EQUIPMENT TO BE REUSED AND NOTIFY THE ENGINEER IF ANY CONFLICT OR DISCREPANCY IS FOUND PRIOR TO
- Ø6" TOILET EXHAUST DUCT UP THROUGH ROOF WITH GOOSENECK, WEATHER SKIRT, AND BIRD SCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES OR 3'-0" ABOVE AIR INTAKE OPENINGS INTO SPACE.
- Ø10" EXHAUST DUCT UP THROUGH ROOF WITH GOOSENECK, WEATHER SKIRT, AND 910" EXHAUST DUCT UP THROUGH ROOF WITH GOOSENECK, WEATHER SKIRT, AND BIRD SCREEN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES OR 3'-0" ABOVE AIR INTAKE OPENINGS INTO SPACE.



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No.	Description	Date
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2	BD COMMENTS	01/06/25
3	HD COMMENTS	01/15/25
4	4 PROJECT COORDINATION	05/06/25

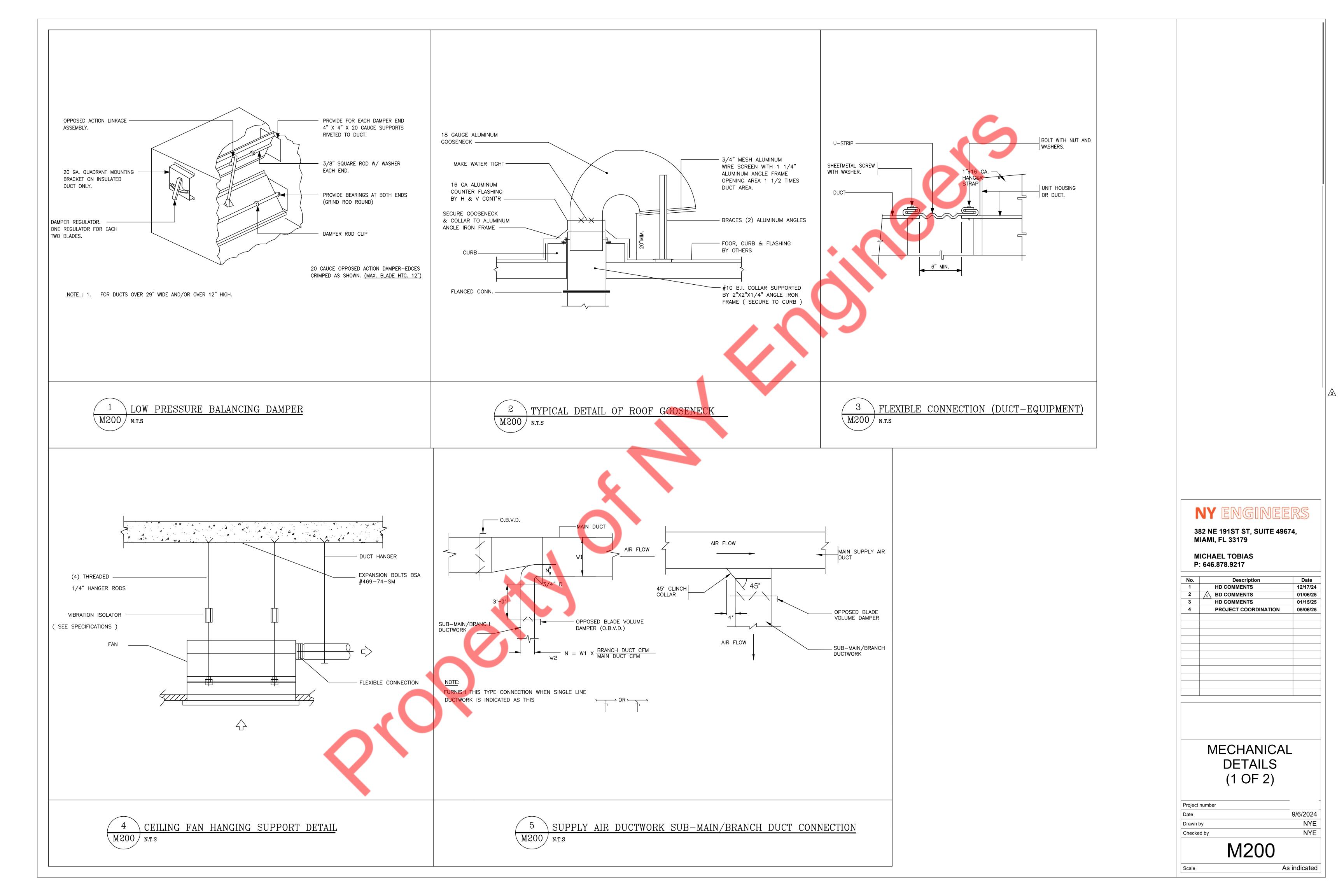
MECHANICAL ROOF PLAN

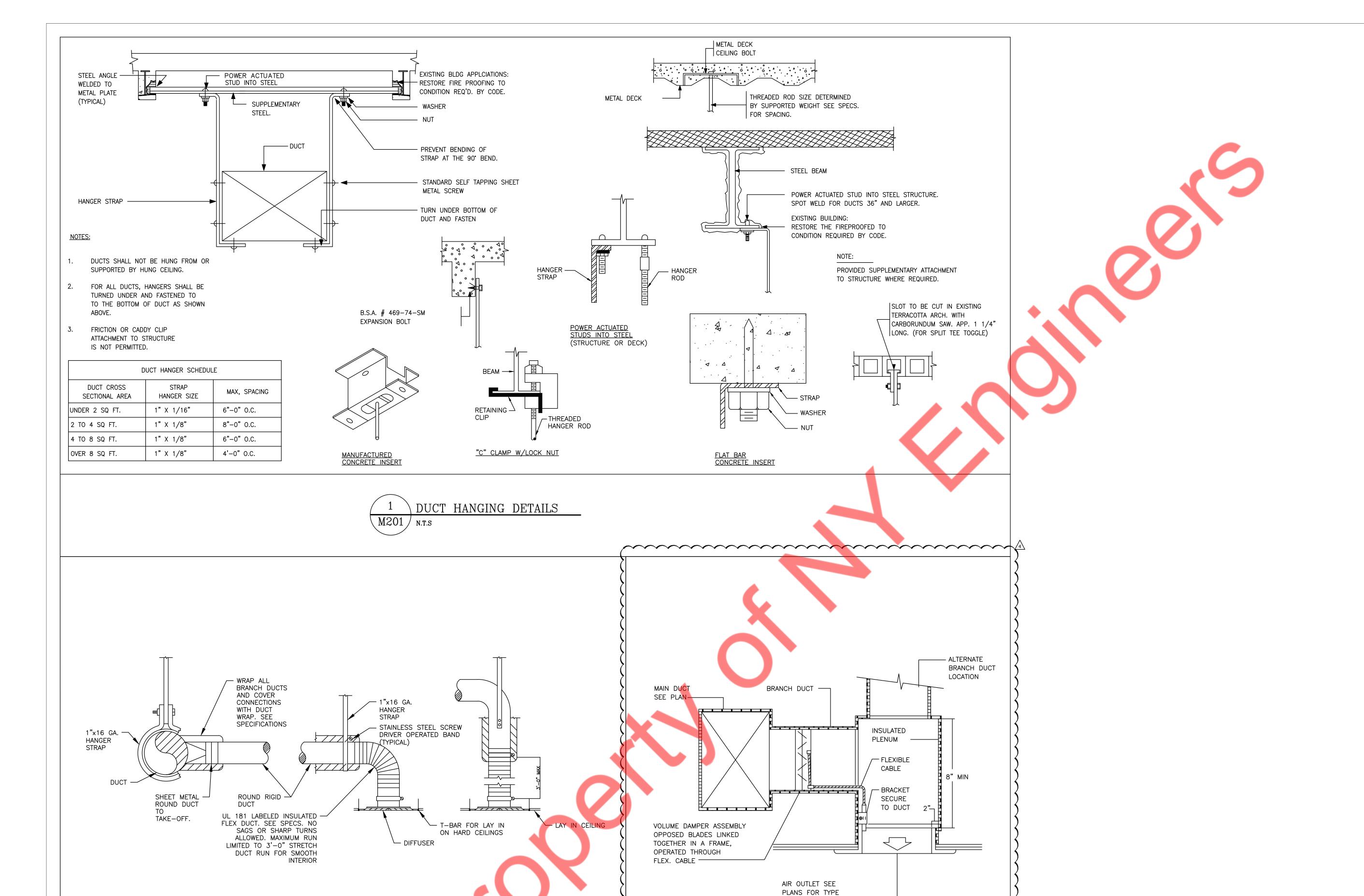
Project number

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M101

9/6/2024





MECHANICAL DETAILS (2 OF 2)

NY ENGINEERS

382 NE 191ST ST, SUITE 49674,

Description

PROJECT COORDINATION

12/17/24

01/06/25

01/15/25

05/06/25

HD COMMENTS

BD COMMENTS

HD COMMENTS

MIAMI, FL 33179

MICHAEL TOBIAS

P: 646.878.9217

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 Date
 9/6/2024

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 NYE

M201

Scale As indicated

TYPICAL DIFFUSER CONNECTION DETAIL
M201 N.T.S

TYPICAL LINEAR DIFFUSER
M201 N.T.S

AND SIZES —

	HEAT PUMP ROOF TOP UNIT SCHEDULE																	
			NOMINAL		SUPPLY FAN DATA		COOLING DATA HEATING DATA		ELECTRICAL DATA							OPERATING		
UNIT ID	MANUFACTURER	MODEL	MODEL TONS	TOTAL	OUTSIDE AIR	ESP	TOTAL	SENSIBLE	TOTAL	VOLTS	VOLTS PHASE MCA(A	VOLTS DUAGE A	NACA(A) NA	MOCP(A)	EER	SEER	HSPF	
				CFM	CFM	(IN. W.G.)	MBH	MBH	MBH	VOLIS		IVICA(A)	(A) WOCF(A)			<u> </u>	WEIGHT (LBS)	
RTU-1(E)	CARRIER (V.I.F)	50VT-C3650 (V.I.F)	3.0	1200	230	S.A.E.	S.A.E.	S.A.E.	S.A.E	208 (V.I.F)	3 (V.I.F)	18.2 (V.I.F)	25 (V.I.F)	S.A.E.	S.A.E.	S.A.E	S.A.E.	
RTU-2(E)	CARRIER (V.I.F)	50VT-C3650 (V.I.F)	3.0	1200	230	S.A.E.	S.A.E.	S.A.E.	S.A.E	208 (V.I.F)	3 (V.I.F)	18.2 (V.I.F)	25 (V.I.F)	S.A.E.	S.A.E.	S.A.E	S.A.E.	

- 1. S.A.E: SAME AS EXISTING. VIF: VERIFY IN FIELD.
- 2. CONTRACTOR TO FIELD VERIFY EXACT LOCATION, TAGS AND CONFIGUARTION OF UNITS ON SITE.
- 3. IF REQUIRED, PROVIDE NEW THERMOSTAT & TEMPERATURE SENSOR COMPATIBLE WITH THE RTU. CO-ORDINATE FINAL LOCATION / REQUIREMENT OF T-SENSOR WITH ARCHITECT/OWNER.
- 4. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPER ON RTUS TO MATCH VALUES MENTIONED IN ABOVE TABLE.
- 5. CONTRACTOR TO VERIFY IN FIELD THE CAPACITIES OF THE UNIT SERVING THE SPACE IS AS PER THE SCHEDULE. IF NOT REPORT BACK TO ENGINEER PRIOR STARTING THE CONSTRUCTION.

FAN SCHEDULE											
UNITID	MANUFACTURER	CFM	ESP(IN W.G.)	RPM	VOLTS/PH	FLA(A)	WEIGHT (LBS)	MODEL	NOTES		
EF-1(N)	GREENHECK	70	0.3	773	115/1	0.29	20	SP-LP0511-1	1, 2, 3, 5		
KEF-1(N)	GREENHECK	340	0.5	1080	115/1	4.90	45	SP-A710	1, 2, 3, 4		
NOTES:											

- 1. PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.
- 2. PROVIDE BACKDRAFT DAMPER.
- 3. PROVIDE DISCONNECT SWITCH.
- 4. INTERLOCK WITH RTU-2(E).
- 5. INTERLOCK WITH ROOM LIGHT.

_								
		VE	NTILATION CALCULATION	AS PER CALIFORNIA ENE	RGY CODE 2022 - TABLE 120).1-A & B		
		AREA	OUTDOOR AIR	REQUIRED OA	PROVIDED OA	EXHAUST AIRFLOW	REQUIRED	PROVIDED
	ROOM NAME	(SQ.FT.)	FLOW RATE	(CFM)	(CFM)	RATE (CFM/SQ.FT. OR	EXHAUST AIR	EXHAUST
			CFM/SQ.FT		(CFIVI)	CFM/FIXTURE)	(CFM)	AIR (CFM)
	DINING	120	0.50	60		0	0	0
	SERVICE AREA	150	0.25	40	460	0	0	0
	KITCHEN	380	0.15	60	460	0.7	266	340
	RESTROOM	52	0.00	0		70	70	70
							·	

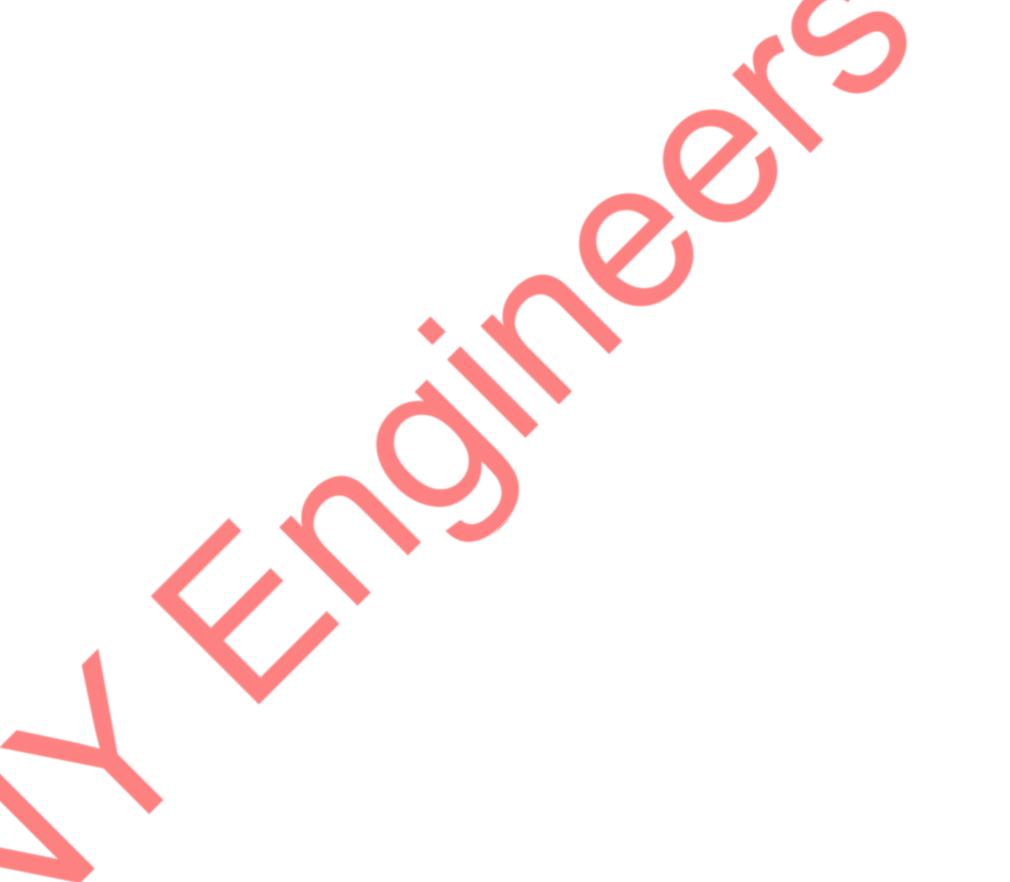
	AIR BALANCE									
UNIT	AREA SERVED	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR(CFM)					
RTU-1(E)	SEE PLAN	1200	230	970	0					
RTU-2(E)	SEE PLAN	1200	230	970	0					
EF-1(N)	SEE PLAN	0	0	0	70					
KEF-1(N)	SEE PLAN	0	0	0	340					
TOTAL		2400	460	1940	410					
BUILDING PRESSURE:			50	POS	SITIVE					
NOTES:										

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

	SCHEDULE OF GRILLES/DIFFUSER		MA	KE: TITUS									
TAG	DESCRIPTION	SIZE	MODEL NO.	ACCESSORIES									
CDS-1	LOUVERED FACE SUPPLY AIR DIFFUSER	24X24	TDC-AA	VOLUME DAMPER									
CDS-2	LOUVERED FACE SUPPLY AIR DIFFUSER	12X12	TDC-AA	VOLUME DAMPER									
CDR-1	STEEL PERFORATED RETURN AIR PANEL	24X24	РХР	VOLUME DAMPER									
CD-E	EXISTING SUPPLY DIFFUSERS	S.A.E	S.A.E	S.A.E									
LDS-1	1.5" SLOT LINEAR DIFFUSER WITH JETTHROW PATTERN CONTROLLER, 1-SLOT	4' 12" INLET	FL-15	PLENUM - FBPI-15 VOLUME DAMPER									
LDR-1	1.5" SLOT LINEAR DIFFUSER WITH JETTHROW PATTERN CONTROLLER, 1-SLOT	4' 12" INLET	FL-15	PLENUM - FBPI-15 VOLUME DAMPER									
NOTES FOR DIFFUSERS:													
1. ALL GRILLES : CONTRACTOR SHALL COORDINATE WITH LATEST ARCHITECTURAL REFLECTED CEILING PLANS													
PLANS TO	O ENSURE PROPER AIR DEVICE BORDER SELECTI	ION.											
2. COORI	DINATE COLOR/FINISH WITH ARCHITECT.												
3. MAX N	NC LEVEL 30 OR LESS.												
4. S.A.E: SAME AS EXISTING													
5. CONTE	RACTOR TO FIELD VERIFY AND CONFIRM THE CO	ONDITION OF T	HE EXISTING DIFFU	SER.									
	DE VOLUME DAMPER IF NOT FOUND OR DAMA	•											
	IDE LINEAR DIFFUSERS WITH INSULATED PLENU	M - FBPI-15											
-	YES FOR ROUND DIFFUSERS:												
6"-100 CI													
8"-101-20													
10"-201-4													
12"-401-													
	1000 CFM												
TO - TOOT	-1400 CFM												

AIR CURTAIN SCHEDULE											
UNITID	MANUFACTURER MODEL		LENGTH (IN.)	CFM	QUANTITY	MOTOR HP	V/PH/HZ	AMPS (A)			
ACH-1(N)	MARS (OR LPV236-1UD-OB		36	900	1	1/6	115/1/60	2.4			
ACH-1(N)	EQUIVALENT)	(OR EQUIVALENT)	30	900		1/6	113/1/00	2.4			
NOTES / ACCESSORIES:											

- 1. CO-ORDINATE WITH ARCHITECT/OWNER FOR FINAL MOUNTING, FRAME TYPE, PAINT AND FINISH.
- 2. PROVIDE MANUFACTURER RECOMMENDED ACCESSORIES.
- 3. COORDINATE WITH ELECTRICAL CONTRACTOR FOR POWER REQUIREMENT.
- 4. PROVIDE LIMIT SWITCH FOR OPERATION. AIR CURTAIN FAN SHALL TURN ON WHEN DOOR IS OPENED.



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MECHANICAL SCHEDULES

Project number 9/6/2024 Drawn by Checked by

M300

		l	POWER AND TELECOMMUNICATION		Λ DDDT\/\ Λ TI Λ \IC		
	LIGHTING				ABBREVIATIONS	1	T =
ı —	LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY		MOTORS AND CONTROLS	A	AMPERES	EA	EACH EMPTY CONDUIT/
	SERVICE, U.O.N.		DISCONNECT (SAFETY) SWITCH "200/3/150" DENOTES AMPERES/POLE/FUSE, "NF" DENOTES NON-FUSED, "N3R" DENOTES NEMA 3R	AC	ABOVE COUNTER	EC	ELECTRICAL CONTRACTOR
	LUMINAIRE TYPE : INDICATE BY LIPPERCASE LETTER SEE LIGHTING EXTURE SCHEDULE.		30A/240V NON FUSED DISCONNECT SWITCH	AF	AMPERE FRAME/AMP FUSE ABOVE FINISHED FLOOR	EF	EXHAUST FAN
	- CIRCUIT NUMBER : INDICATED BY NUMBER		60A/240V NON FUSED DISCONNECT SWITCH	AFF AG		EM	EMERGENCY
	SWITCHING INDICATED BY LOWER CASE LETTERS.		100A/240V NON FUSED DISCONNECT SWITCH	AS	AMP SWITCH AMPS INTERRUPTING CAPACITY	EMT EQUIP	ELECTRICAL METALLIC TUE EQUIPMENT
$_{M} {\longrightarrow}$	DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.			AT	AMP TRIP	ER	EXISTING TO BE RELOCATI
<u>"</u>	DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS		RECEPTACLES AND OUTLETS	ATS	AUTOMATIC TRANSFER SWITCH	ETR	EXISTING TO BE RELOCAT
	UNSWITCHED CIRCUIT.	Ψ	DUPLEX CONVENIENCE RECEPTACLE	AUTO	AUTOMATIC TRANSFER SWITCH	EWF	ELECTRIFIED WORKSTATION
<u> </u>	CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED. SHADED AREA DENOTES FACE(S).		CENTER SHADING IN RECEPTACLE DENOTES ISOLATED GROUNDING	AWG	AMERICAN WIRE GAUGE	EWH	FURNITURE ELECTRIC WATER HEATER
	ISOLITE ELITE SERIES LED EXIT SIGN	Ψ 💮	DUPLEX GFI RECEPTACLE SPECIAL PURPOSE RECEPTACLE	C	CONDUIT	FA	FIRE ALARM
	WIRING SYSTEMS	CL	CEILING MOUNTED DUPLEX OUTLET	C/B,CB	CIRCUIT BREAKER	FBO	FURNISHED BY OTHERS, I
3	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION,	— <u></u> □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	QUAD OUTLET	C/B,CB CKT	CIRCUIT	FDR	& WIRED BY EC FEEDER
	NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF $1\#12\ \text{M}$, $1\#12\ \text{N}$. & $1\#12\ \text{G}$. IN $3/4\text{"C}$, UNLESS OTHERWISE NOTED.	"		CLG	CEILING	FIBO	FURNISHED & INSTALLED
5	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION,		JUNCTION BOX	COMM	COMMUNICATION	FIXT	OTHERS, WIRED BY EC
	NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 2#12 N. & 2#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.	CL	CURRENT LIMITER	СТ	CURRENT TRANSFORMER	FL	FLOOR
5 7	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF	\$	20A WALL SWITCH U.O.N.	CU	COPPER COPPER	FLUOR	FLUORESCENT
	3#12 ø, 3#12 N. & 3#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.	\$ _{os}	WALL OCCUPANCY SENSOR	·c	DEGREE CELSIUS	G	GROUND
_	UNDERGROUND		MOTOR SWITCH	·F	DEGREE CELSIOS DEGREE FAHRENHEIT	GFI GFI	GROUND FAULT INTERRUP
	EXISTING	S _M		DIA	DIAMETER	GP GP	GENERAL PURPOSE
		_	POWER DISTRIBUTION	DISC	DISCONNECT	HC	HUNG CEILING
	NEW		DISTRIBUTION PANELBOARD, SURFACE OR FLUSH	DN	DOWN	HP	HORSEPOWER
	ELECTRICAL DRAWING LIST		MOUNTED.	DP	DISTRIBUTION PANEL	HWH	HOW WATER HEATER
	ELECTRICAL SYMBOLS & ABBREVIATIONS		COMMUNICATIONS	DWH	DOMESTIC WATER HEATER	HZ	HERTZ
	ELECTRICAL SPECIFICATIONS-1		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	DWG	DRAWING	IC	INTERRUPTING CAPACITY
	ELECTRICAL SPECIFICATIONS—2		TERMINATE WITH 90° ELBOW, BUSHING AND DRAG WIRE.	JB	JUNCTION BOX	PP	POWER PANEL
	ELECTRICAL LIGHTING PLAN ELECTRICAL FLOOR POWER PLAN	\dashv	DATA OUTLET, ELECTRICAL CONTRACTOR TO PROVIDE MUD RING AND PULL STRING TO ABOVE CEILING	KCMIL	ONE THOUSAND CIRCULAR MILS	PVC	POLYVINYL CHLORIDE
	ELECTRICAL ROOF POWER PLAN			KV	KILOVOLT	PWR	POWER
	ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE		ANNOTATION	KVA	KILOVOLT-AMPERES	R	REMOVE
0	INDOOR LIGHTING ENERGY ANALYSIS SHEET 1 OF 1	+24"	INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.	KW	KILOWATTS	RE	RELOCATED EXISTING
1	ELECTRICAL POWER DISTRIBUTION ENERGY ANALYSIS SHEET 1 OF 1	\bigcirc	KEYED NOTE REFERENCE	LP	LIGHTING PANEL	REC	RECEPTACLE
	$\triangle 2$		SOUTH PASADENA, CA BUILDING DEPT. NOTES	LTG	LIGHTING	RGS	RIGID GALVANIZED STEEL
		1 ADD		MAX	MAXIMUM	RR	REMOVE & RELOCATE
			ROVAL IS REQUIRED FROM THE HEALTH DEPARTMENT PRIOR TO ISSUANCE OF THE DING PERMIT. PROOF OF APPROVAL IS REQUIRED AT THE TIME OF PERMIT ISSUANCE.	MC MC	MOTOR CONTROLLER	SECT	SECTION
				МСВ	MAIN CIRCUIT BREAKER	SPDT	SINGLE POLE DOUBLE TH
			CODE COMPLIANCE	MER	MECHANICAL EQUIPMENT ROOM	SPST	SINGLE POLE SINGLE THE
		ALL WOD	K AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE	MIN	MINIMUM	SPEC	SPECIFICATION
		FOLLOWING THESE DI	G CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN RAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE	MLO	MAIN LUGS ONLY	SW	SWITCH
		CODES OF	R OTHERS APPLICABLE TO THESE PROJECT:	MTD	MOUNTED	SWBD	SWITCHBOARD
			ACO BUILDING CODE	MTS	MANUAL TRANSFER SWITCH	SYM	SYMMETRICAL
			ACO MECHANICAL CODE	N	NEUTRAL	SYS	SYSTEMS
		C. 2023 L	ACO PLUMBING CODE	NE	NEW DEVICE TO REPLACE EXISTING	TELE	TELEPHONE
		D. 2022 (CALIFORNIA FIRE CODE	NIC	NOT IN CONTRACT	TEMP	TEMPERATURE
		E. 2023 L	ACO ELECTRICAL CODE	NL	NIGHT LIGHT	TXF	TOILET EXHAUST FAN
		F. 2022 (CALIFORNIA ENERGY CODE.	NTS	NOT TO SCALE	TYP	TYPICAL
				ОС	ON CENTER	UON	UNLESS OTHERWISE NOTE
			SCOPE OF WORK	Р	POLES	V	VOLT/VOLTAGE
		1. REUSE E	XISTING 100A, 120/208V, 3-PHASE, 4-WIRE, ELECTRICAL SERVICE.	РВ	PULLBOX	VA	VOLT AMPERE
		2. REUSE I	EXISTING (1) 100A, 120/208V, 3—PHASE, 4—WIRE ELECTRICAL METER FOR THE SPACE.	PC	PERSONAL COMPUTER	VAV	VARIABLE AIR VOLUME
		3. PROVIDE	NEW 80A,120/208V, 3-POLE BREAKER SWITCH FOR THE PROJECT SPACE.	ø	PHASE	VFD	VARIABLE FREQUENCY DR
		THE PRO	XISTING (1) 100A (M.L.O), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "E" FOR JECT SPACE.	PNL	PANEL	VP	VAPORPROOF
		5. PROVIDE THE PRO	NEW (1) 50A (M.L.O), 120/208V, 3—PHASE, 4—WIRE ELECTRICAL PANEL "A" FOR JECT SPACE.	W	WATT	WP	WEATHER PROOF
		PROVIDE AL	L NECESSARY EQUIPMENT, WIRING AND LIGHTING FOR THE NEKTER SPACE INCLUDING VENTILATION EQUIPMENT. COORDINATE WITH G.C FOR LOW VOLTAGE WIRING.	W	WIRE	XFMR	TRANSFORMER
		ELECTRICAL	CONTRACTOR TO COORDINATE WITH G.C FOR LOW VOLTAGE WIRING. CONTRACTOR TO COORDINATE WITH THE MECHANICAL AND PLUMBING CONTRACTOR OWER REQUIREMENTS OF THE RESPECTIVE DEVICES/EQUIPMENT.	WH	WALL HEATER	ZRT	ZONE REGISTER TERMINAL
			r				4

GENERAL NOTES (APPLY TO ALL "E" DRAWINGS)

- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NEC 2020, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
- 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.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
- . 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.
- SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND 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 SERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.

- 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.
- CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
- ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
- D. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.
- . MINIMUM SIZE OF CONDUIT SHALL BE $rac{3}{4}$ ", 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.
- 3. 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 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.
- 5. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
- 6. 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.
- 7. 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.
- 9. 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.
- 2. COORDINATE ALL ROOF PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH 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 LOCATIONS 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.
- 7. 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.

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No.	Description	Date
1	HD COMMENTS	12/17/2
2	2 BD COMMENTS	01/06/2
3	PROJECT COORDINATION	05/06/2

ELECTRICAL SYMBOLS & **ABBREVIATION**

Project number 9/6/2024 NYE Drawn by NYE Checked by

E001

Scale As indicated

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.

6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION,

INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR

- 5) "WIRING": RACEWAY. FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
- HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

 7) "EXPOSED". NOT INSTALLED LINDERGROUND OR "CONCEALED".
- 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
 - 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.

. 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.
- . 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.
- THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR
- THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS
- E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE FLORIDA 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.

. 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
- 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.
- 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.
- 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.
- 3. 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.
- S. 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. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 7810F. KNIFE-BLADE TYPE SWITCHES SHALL BE LOAD BREAK, QUICK-MAKE- QUICK-BREAK, UL CLASS R UP TO 600 AMP. MAXIMUM RATING EXCEPT AS NOTED SHALL BE 800 AMP. ARC QUENCHERS SHALL BE PROVIDED. SWITCHES SHALL BE SIMILAR TO GENERAL ELECTRIC QMR. ALL SWITCH ENCLOSURES SHALL BE DEAD FRONT, NEMA TYPE 1, EXCEPT AS NOTED.

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:
- A. THREE PHASE, 3 OR 4 WIRE WITH COPPER BUS BARS. ALL THROUGH BUS SHALL BE INSULATED.
- B. NEMA CLASS 1 CONSTRUCTION TO ACCOMMODATE FUSIBLE, INDIVIDUALLY ENCLOSED SWITCHES, FRONT REMOVABLE, SWITCH AND DOOR INTERLOCKS. COVERS TO BE PAD-LOCKABLE.
- C. 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.
- D. ALL BRANCH SWITCHES SHALL HAVE INDIVIDUAL ENGRAVED LAMICOID NAMEPLATES (BLACK WITH WHITE CORE).
- E. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

F. 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 MECHANCIALLY 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 1/4" 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,
- 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:

INSULATED THROAT.

- 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
- d. BUSHINGS: METALLIC INSULATED TYPE.

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No.	Description	Date
1	HD COMMENTS	12/17/24
2	2 BD COMMENTS	01/06/2
3	PROJECT COORDINATION	05/06/25

ELECTRICAL SPECIFICATIONS-1

Project number

Date 9/6/2024

Drawn by NYE

Checked by NYE

E002

Scale

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.
- 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 ELECTRI 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.

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.
- 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).
- ARMORED CABLE (BX) SHALL BE UTILIZED FOR BRANCH CIRCUITS IN DRY HOLLOW LOCATIONS, HUNG CEILINGS, AND BLOCK WALLS. WHEN USED IN LIEU OF WIRING IN CONDUIT, STATE IN PROPOSAL THAT PRICE IS BASED UPON THE USE OF HOSPITAL GRADE 'BX'.
- F. COLOR CODING SHALL BE AS FOLLOWS:

120/208 VOLT SYSTEM: 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.
- 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 YPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE JGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG NNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON
- T 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.

10. 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
- 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
 - 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
- 2) USB CHARGER/ DUPLEX TAMPER-RESISTANT RECEPTACLE: TAMPER RESISTANT,
- 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.

11. 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.
- 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. ALLASTS SHALL BE ADVANCE MAGNETEK, UNIVERSAL OR EQUAL
- 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.
- 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.
- 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.

12. GROUNDING AND BONDING:

- A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH (2017) NATIONAL ELECTRICAL CODE), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM. WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN. EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.
- B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.
- C. EXTEND EXISTING SYSTEM GROUND TO INCLUDE ALL THE ELECTRICAL EQUIPMENT IN THE SCOPE OF WORK.
- D. WHERE FLEXIBLE METALLIC CONDUIT IS USED AN INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.
- E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS: 1) CIRCUITS SERVING ANY WALL BOX DIMMER.
- 2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE, OR AS OTHER WISE NOTED ON DRAWINGS.

3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES

4) ANY CIRCUIT SERVED VIA AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

13. PANEL BOARDS:

- A. PANEL BOARDS 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.
- 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 LOCKING TABS SHALL BE FURNISHED TO THE OWNER.
- 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 IEEE STANDARD RULES. MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.
- 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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No.	Description	Date
1	HD COMMENTS	12/17/
2	2 BD COMMENTS	01/06/
3	PROJECT COORDINATION	05/06/

ELECTRICAL SPECIFICATIONS-2

Project number 9/6/2024 NYE Drawn by NYE Checked by

E003

ELECTRICAL LIGHTING PLAN GENERAL NOTES:

- . SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT FIXTURE LOCATIONS AND ORIENTATIONS.
- 2. REFER TO ARCHITECTURAL ELEVATIONS AND SECTIONS FOR ADDITIONAL LIGHTING FIXTURE MOUNTING DETAILS AND
- 3. THIS LIGHTING PLAN IS FOR TENANT ONLY.

DESCRIPTION

2' X 4' Lay-In Troffer

2' X 4' Lay-In Troffer

90 Min Battery Backup)

6" Recessed Lensed

LED Downlight 3500L

(Matt White Trim)

6" TRIM SERIES ADJUSTABLES -

REGRESSED EYEBALL

TRIM - WHITE

LTF2 (Emergency Light with

TYPE

LTF1

LRC1

LEB1

- 4. VERIFY ALL MOUNTING HEIGHTS AND LED LENGTHS WITH
- ARCHITECT AND ENGINEER PRIOR TO ORDERING FIXTURES. 5. E.C. SHALL COORDINATE WITH OWNER/ARCHITECT FOR EXACT CONTROLLING. INFORM ENGINEER ON RECORD IF DIFFERENT

THAT WHAT IS SHOWN ON THE DRAWINGS TO CHECK THE

COMPATIBILITY WITH 2021-ENERGY CONSERVATION CODE CODES.

- 6. PROVIDE EMERGENCY LIGHTS WITH BATTERY BACKUP AS SHOWN ||| ON THE DRAWING.
- 7. LIGHTS SHALL BE SHIELDED, COATED, OR OTHERWISE SHATTER-RESISTANT IN AREAS WHERE THERE IS EXPOSED FOOD; CLEAN EQUIPMENT, UTENSILS, AND LINENS; OR UNWRAPPED SINGLE-SERVICE.
- 8. CONTRACTOR ADVISED TO UPDATE THE EMERGENCY LIGHT FIXTURES LOCATIONS/QUANTITY PER SITE REQUIREMENT UP ON FINAL INSPECTION OR PER LOCAL AHJ REQUIREMENT.

MANUFACTURER

LITHONIA

LITHONIA

JUNO

LIGHTING FIXTURE SCHEDULE

MODEL#

CPX 2X4 AL08

CPX 2X4 AL08

SWW7 M2

RB56S

SWW5MW M6

W/ CAN

QC6 W G J6

6RLA-G2-06-LM

-30K-90CRI

SWW7 M2

ELECTRICAL LIGHTING PLAN KEYED WORK NOTES:

- . CONNECT ALL EMERGENCY EGRESS FIXTURES TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.
- . E.C SHALL COORDINATE WITH THE OWNER/ARCHITECT FOR EXACT LOCATION OF THE INTERMATIC ET70415CR ELECTRONIC TIMER IN THE FIELD.
- ELECTRICAL CONTRACTOR TO PROVIDE OVERRIDE SWITCH. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- NOT USED

WATTAGE

37

10.5

VOLTAGE

120

120

120

MOUNTING

RECESSED

RECESSED

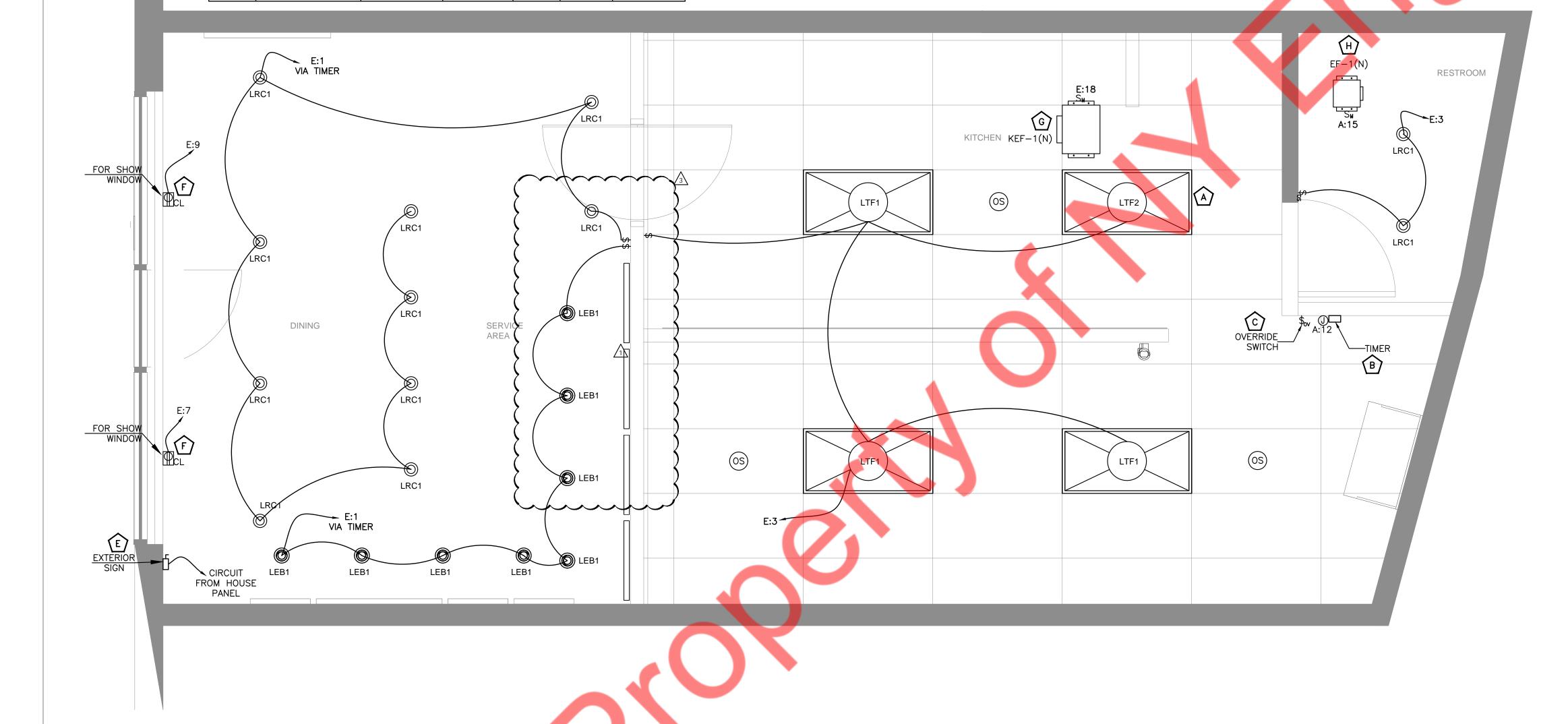
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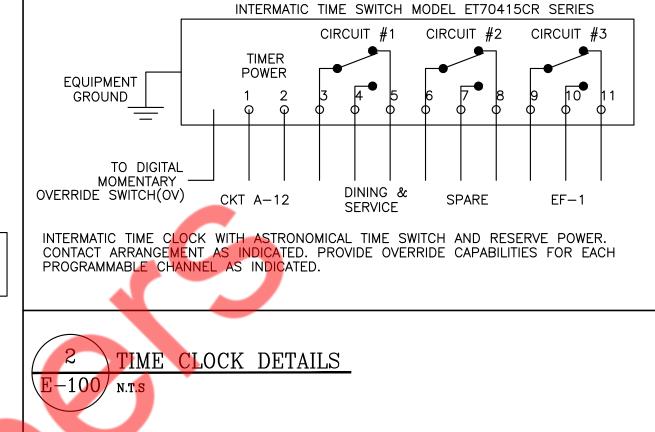
RECESSED

- PROVIDE 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.
- PROVIDE SHOW WINDOW RECEPTACLE AS PER NEC 210.62. VERIFY EXACT LOCATION WITH ARCHITECT.
- EXHAUST FAN KEF-1(N) SHALL BE INTERLOCKED WITH RTU-2(E). E.C. TO COORDINATE WITH MECHANICAL CONTRACTOR IN FIELD. PRIOR TO ROUGH IN.
- EXHAUST FAN EF-1(N) SHALL BE INTERLOCKED WITH LIGHTS IN SAME ROOM. E.C TO COORDINATE WITH MECHANICAL CONTRACTOR IN FIELD. PRIOR TO

	AUTOMATIC MODE OPERATION:		
	1. WHEN SENSOR ACTIVATES, LOAD TUR	RNS ON.	
	2. LOAD TURNS OFF, WHEN SENSOR T	TIMES OUT.	
	3. SWITCHES CAN BE USED TO TURN	LOAD OFF.	
F	RECOMMENDED WIRE:		-USE BLACK LEAD FOR 120VAC.
	18-3 AWG STRANDED WIRE SHIELDED OF NON-SHIELDED	PR <u>HOT</u>	USE ORANGE LEAD FOR 277VAC. CAP UNUSED LEAD.
	SENSOR TYPES INCLUDE:	LINE { NEUTR	RAL
·	OAC-DT-0501, OAC-DT-1000, OAC-DT- OAC-U-0501, OAC-U-1000, OAC-U-20 OAC-P-0500, OAC-P-1500		BLUE HAITE
	SWITCHPACK TYPE INCLUDES:	RED (15VDC) SWITCH-	LOAD
	SP20-MV	BLUE (CONTROL) PACK	WALL BOX 1 WALL BOX 2
		BLACK (COMMON)	BLUE
			THREE-WAY SWITCHES
	RED (10-30VDC) BLUE (CONTROL)		TO ADDITIONAL SENSORS.
	BLACK (COMMON) [MAXIMUM 5 SENSORS PER SWITCHPACK.
			TO ADDITIONAL SWITCHPACKS. MAXIMUM 10 SWITCHPACKS PER SENSOR.

WIRING DIAGRAM-LOW VOLTAGE CEILING SENSOR OCCUPANCY -AUTO ON/OFF WITH LINE VOLTAGE OVERRIDE TO OFF THREE-WAY SWITCHING. $\langle E-100 \rangle$ N.T.S





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No.	Description	Date
1	↑ HD COMMENTS	12/17/2
2	BD COMMENTS	01/06/2
3	73 PROJECT COORDINATION	05/06/2

ELECTRICAL LIGHTING PLAN

Project number 9/6/2024 Drawn by Checked by

E100

As indicated

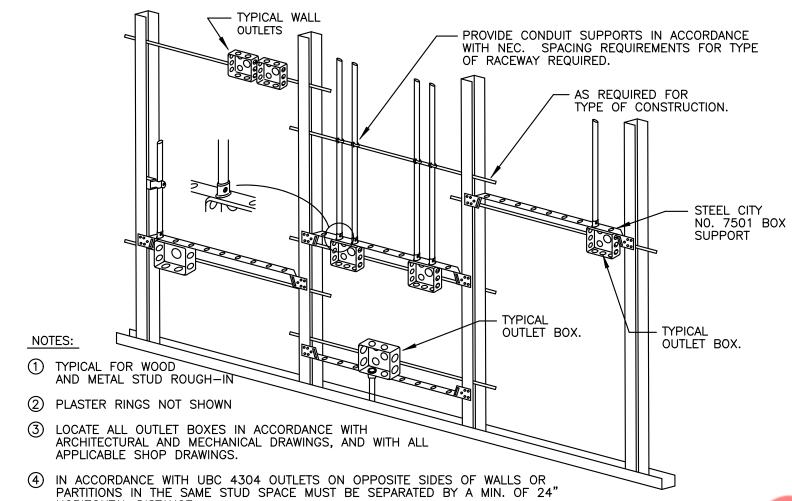
1) ELECTRICAL LIGHTING PLAN 1/2" = 1'-0"



- 1. PROVIDE GFCI PROTECTION FOR PERSONNEL FOR ALL SINGLE PHASE RECEPTACLES RATED 50AMP OR LESS & THREE PHASE RECEPTACLES RATED 100AMP OR LESS INSTALLED IN KITCHEN AREA PER NEC 210.8(B)2. GFI PROTECTION SHALL BE PROVIDED AT BREAKER WHERE RECEPTACLES ARE NOT READILY ACCESSIBLE PER NEC 210.8 DUE TO STATIONARY KITCHEN EQUIPMENT.
- 2. REFER TO "KITCHEN EQUIPMENT SCHEDULE" FOR DESCRIPTION AND POWER REQUIREMENTS OF EACH DEVICE IN KITCHEN. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT OF ALL JUNCTION BOXES, RECEPTACLES, ETC. WITH KITCHEN EQUIPMENT VENDOR PRIOR TO ROUGH—IN.
- 3. E.C. SHALL MAKE ALL FINAL CONNECTIONS TO KITCHEN EQUIPMENT, FURNISH AND INSTALL ALL JUNCTION BOXES, RECEPTACLES, COVER PLATES, PULL BOXES, CONDUIT AND WIRING AS REQUIRED. COORDINATE WITH FOOD SERVICE DRAWINGS AND MANUFACTURER'S INSTRUCTIONS FOR LOCATION OF ALL EQUIPMENT CONNECTION LOCATIONS AND REQUIREMENTS.
- 4. E.C. SHALL PULL ALL LOW VOLTAGE WIRING FOR POS SYSTEM, AND TICKET PRINTER. COORDINATE WITH OWNER'S VENDOR.
- 5. FLEXIBLE CONDUIT INSTALLED IN KITCHEN FOR FINAL EQUIPMENT CONNECTION SHALL BE LIQUID TIGHT CONDUIT WITH NEOPRENE JACKET.
- 6. ENCLOSURES FOR ALL ELECTRICAL PANELS, CIRCUIT BREAKER ENCLOSURES, DISCONNECT SWITCHES, WALL SWITCHES, CONTRACTOR ENCLOSURES, PUSHBUTTONS, ETC WITHIN KITCHEN AREA SHALL BE FOOD GRADE, RECESSED MOUNTED, UNLESS OTHERWISE NOTED.
- 7. E.C. SHALL COORDINATE WITH THE OWNER/KITCHEN EQUIPMENT VENDOR FOR THE EXACT MOUNTING HEIGHT/LOCATIONS OF THE RECEPTACLES FOR THE KITCHEN EQUIPMENT PRIOR TO ROUGH—IN.
- 8. COORDINATE POWER REQUIREMENTS FOR SECURITY SYSTEM WITH OWNER/SECURITY VENDOR.
- COORDINATE POWER REQUIREMENTS FOR MUSIC SYSTEM WITH OWNER/L.V. VENDOR.
- 10. REFER TO THE EQUIPMENT LIST FOR MOUNTING HEIGHT OF ALL EQUIPMENT RECEPTACLES AND EQUIPMENT OUTLETS ON SHEET A500

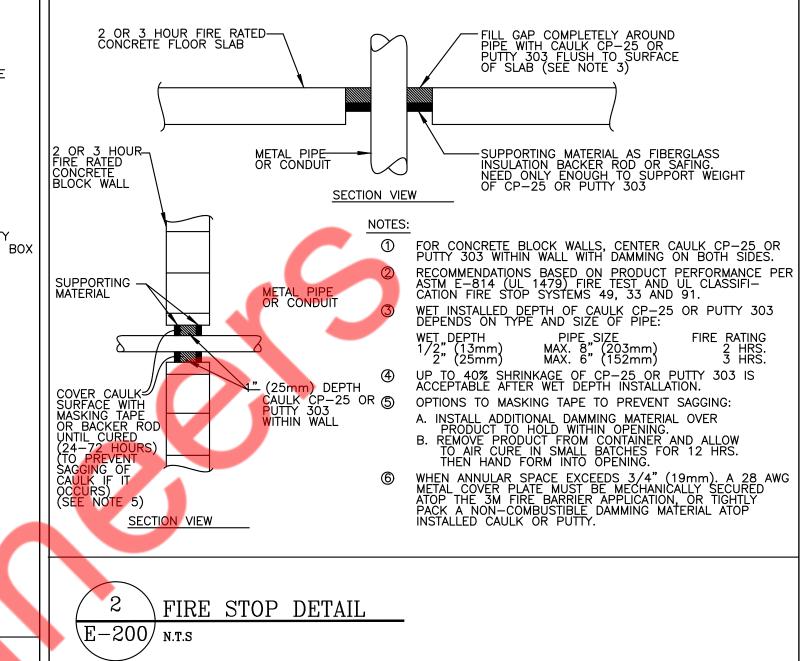
ELECTRICAL POWER PLAN KEYED WORK NOTES:

- A. PROVIDE (2) CAT 6 HOME RUN TO EACH POS STATION AND ONE (1) QUAD 20 AMPS RECEPTACLE FOR POS. COORDINATE WITH OWNER PRIOR TO ROUGH—IN FOR EXACT HEIGHT.
- B. PROVIDE (1) CAT6 DATA CABLE AND CONNECTION FOR EACH CAMERA. COORDINATE WITH OWNER/ARCHITECT IN FIELD FOR FINAL LOCATION, MOUNTING HEIGHT AND ANY ELECTRICAL REQUIREMENT BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.
- C. NOT IN USE
- D. E.C TO COORDINATE WITH KITCHEN EQUIPMENT VENDOR/
 MANUFACTURER FOR EXACT POWER REQUIREMENTS, EXACT
 MOUNTING HEIGHT, LOCATION BEFORE COMMENCING ANY
 WORK, BASE BID ACCORDINGLY.
- E. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR EXACT LOCATION AND POWER REQUIREMENT OF THE PLUMBING EQUIPMENT IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.
- F. EXISTING 100A(M.L.O), 120/208V, 3—PHASE, 4—WIRE ELECTRICAL PANEL "E"(NAME TO BE VERIFIED IN FIELD). E.C SHALL VERIFY EXACT SIZE, LOCATION AND OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- G. NEW 50A(M.L.O), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". E.C SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER
- H. ELECTRICAL CONTRACTOR SHALL VERIFY THE INSTALLATION OF ELECTRICAL PANELS IN COMPLIANCE WITH N.E.C. 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
- I. E.C SHALL COORDINATE WITH THE ARCHITECT/ OWNER FOR THE EXACT LOCATION AND ANY POWER REQUIREMENT FOR SPEAKER BEFORE COMMENCING ANY WORK. BASE BID
- J. E.C SHALL COORDINATE WITH MECHANICAL DRAWINGS AND EQUIPMENT VENDOR/ MANUFACTURER FOR EXACT CONTROLS, MOUNTING HEIGHT, LOCATION AND POWER REQUIREMENT. REPORT TO ENGINEER FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK. BASE BID ACCORDINGLY.



PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

1 DETAIL TYPICAL ROUGH-IN REQUIREMENTS
E-200 N.T.S



NY ENGINEERS

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MIAMI, FL 33179

No.	Description	Dat
1	↑ HD COMMENTS	12/17
2	2 BD COMMENTS	01/06
3	PROJECT COORDINATION	05/06

ELECTRICAL FLOOR POWER PLAN

Project number

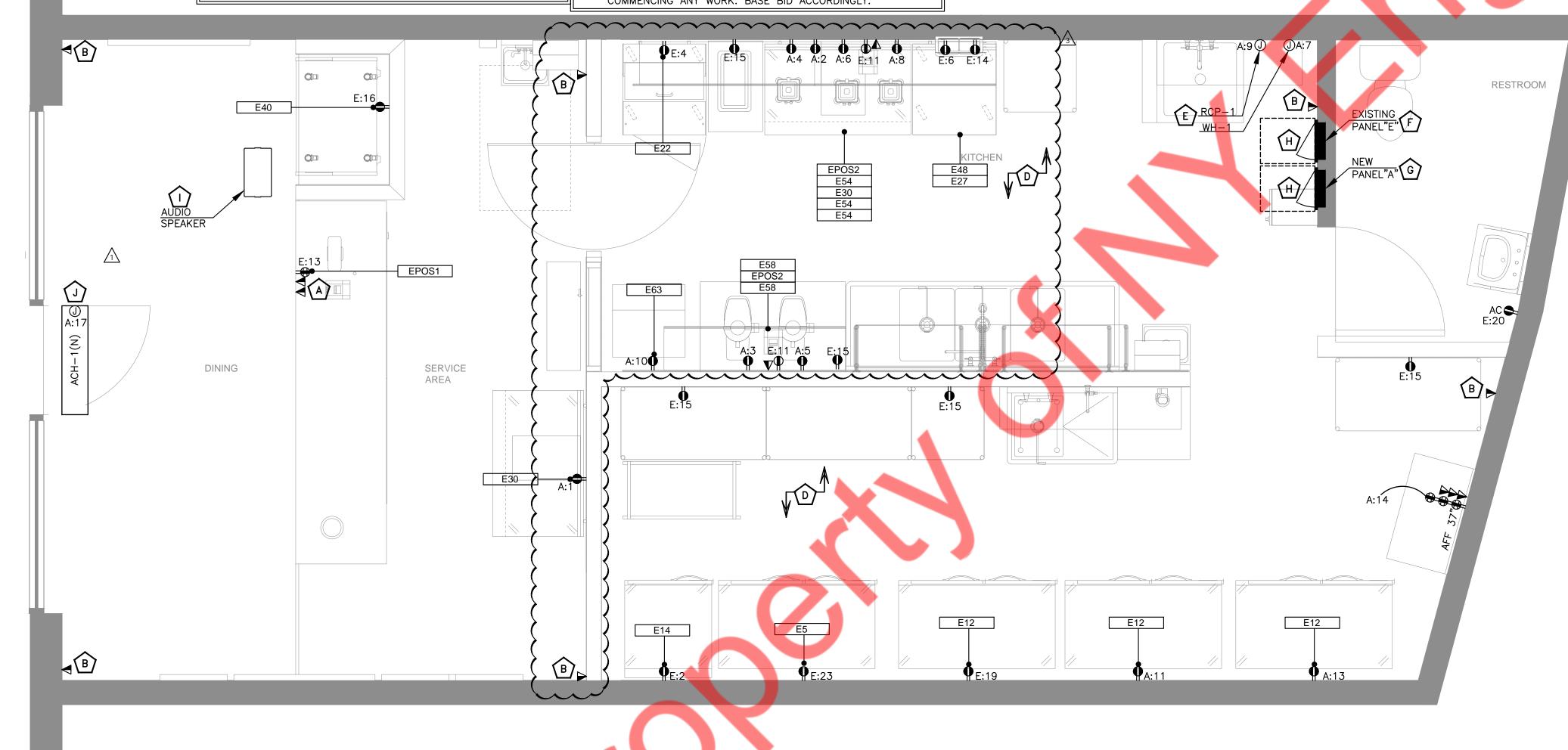
Date 9/6/2024

Drawn by NYE

Checked by NYE

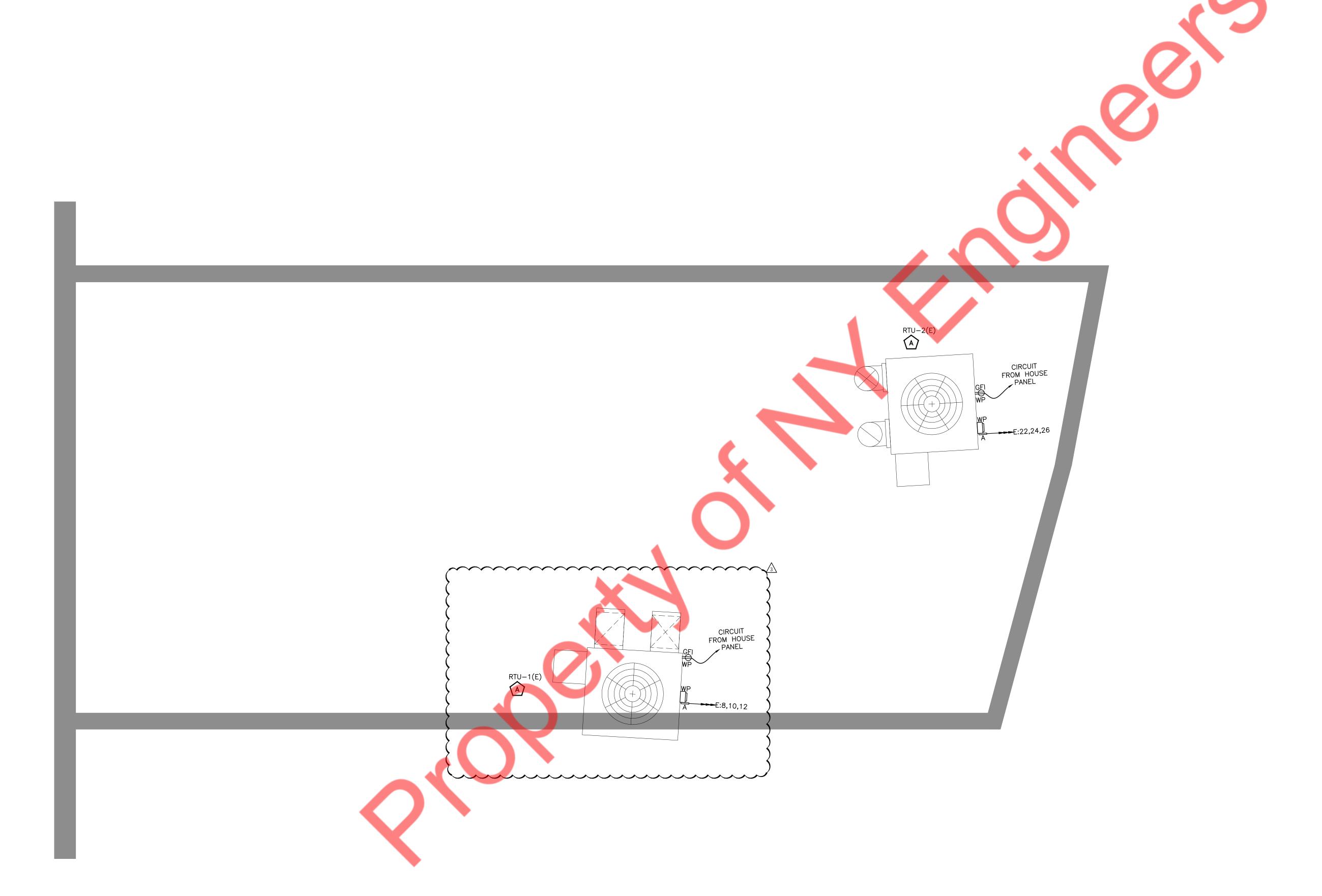
E200

Scale As indicated





A. EXISTING MECHANICAL EQUIPMENTS ALONG WITH ITS ELECTRICAL FIXTURE SHALL REMAIN. E.C SHALL VERIFY THE OPERABLE CONDITION OF ELECTRICAL FIXTURE IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE.BASE BID ACCORDINGLY.



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No.	Description	Date
1	HD COMMENTS	12/17/2
2	2 BD COMMENTS	01/06/2
3	PROJECT COORDINATION	05/06/2

ELECTRICAL ROOF POWER PLAN

Project number

Date 9/6/2024

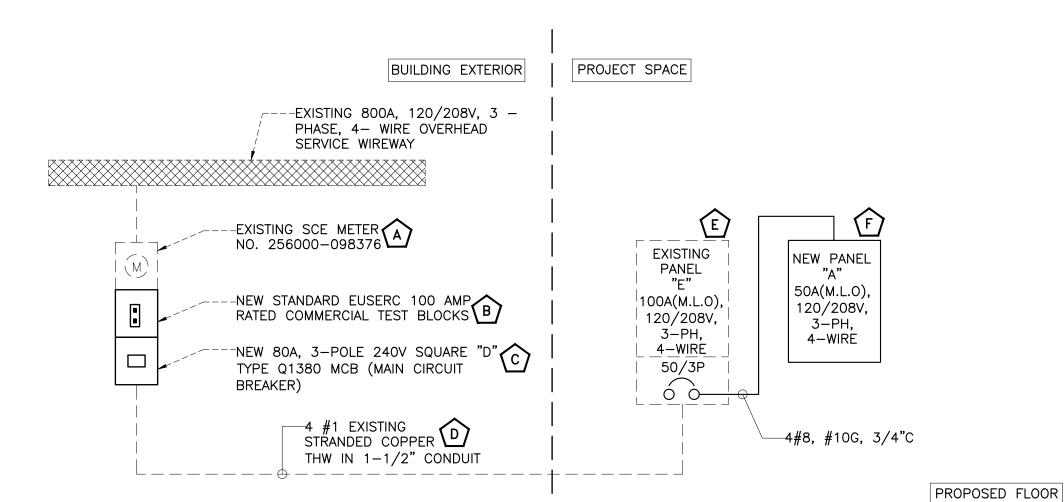
Drawn by NYE

Checked by NYE

E201

ale As indicated

1) ELECTRICAL ROOF POWER PLAN
1/2" = 1'-0"

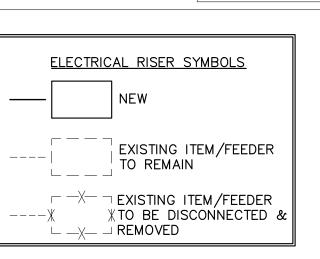


ELECTRICAL RISER KEYED NOTES:

- EXISTING 120/208V, 3-PHASE, 4-WIRE ELECTRICAL METER TO REMAIN. E.C. SHALL COORDINATE WITH BASE BUILDING/LANDLORD/OWNER FOR EXACT LOCATION. E.C. TO VERIFY OPERABLE CONDITION OF EXISTING ELECTRICAL METER IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- B NEW 100 AMP RATED COMMERCIAL TEST BLOCK FOR THE PROJECT SPACE. E.C SHALL COORDINATE EXACT LOCATION WITH LANDLORD/BASE BUILDING/OWNER. BASE BID
- NEW 80A, 3-POLE 240V SQUARE "D" TYPE Q1380 MCB (MAIN CIRCUIT BREAKER) FOR THE PROJECT SPACE. E.C SHALL COORDINATE EXACT LOCATION WITH LANDLORD/BASE BUILDING/OWNER. BASE BID ACCORDINGLY.
- EXISTING FEEDERS TO REMAIN. E.C. TO VERIFY OPERABLE CONDITION OF FEEDER IN FIELD AND PROVIDE NEW IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- EXISTING 100A(M.L.O), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "E". E.C SHALL VERIFY EXACT SIZE, LOCATION AND OPERABLE CONDITION OF PANEL. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- NEW 50A(M.L.O), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". E.C SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.

ELECTRICAL GENERAL NOTE:

- 1. 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.
- 2. E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND
- 3. ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (Isc) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
- 4. E.C. TO VERIFY OPERABLE CONDITIONS OF EXISTING DEVICES IN FIELD. REPLACE/RECTIFY IF FOUND IN OPERABLE. BASE BID ACCORDINGLY.
- 5. EXISTING ELECTRICAL DISTRIBUTION TO BE MAINTAINED AND UTILIZED TO SERVE PROJECT SPACE. POWER RISER DIAGRAM INDICATED FOR REFERENCE



	PANEL:	E(E)	<u> </u>												MOUNTING: REC	ESSED		
	208Y/120	VOLTS,		3	PHASE,			4	WIRE						LOCATION: KITC	CHEN		
	MAIN CB	ļ	BECEDTACIES E. KIT	M.L.O.	100A	AD M · MOTOR	BUS:	EXISTING OTHER/MISC. (TYPICAL)	MIN,						FED FROM: NEV	V DISCONNECT	SWITCH	
	CKT NO.	TRIP AMPS		ESCRIPTION OF LOA		LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PE	R PHASE (K	VA)	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD		TRIP AMPS	CKT NO.
_	1	20	LIGHTING BACK OF H	HOUSE		L	0.50	2#12, #12G, 3/4"C	1.09	В	Ü	2#12, #12G, 3/4"C	0.59	E	#E14_REACH-IN 1 DOOR FREEZER		20	2
	3	20	LIGHTING FRONT OF			L	0.10	2#12, #12G, 3/4"C		0.61		2#12, #12G, 3/4"C	0.51	Е	#E22_FOOD PREP TABLE REFRIGERATOR	- 27" WIDE	20	4
\downarrow	5	20	SPARE								0.17	2#12, #12G, 3/4"C	0.17	E	#E27_WORKTOP REFRIGERATOR - 27" W DOOR)	IDE (SINGLE	20	6
	7	20	SHOW WINDOW			R	0.25	2#12, #12G, 3/4"C	2.41				2.16	H				8
	9	20	SHOW WINDOW			R	0.25	2#12, #12G, 3/4"C		2.41		3#10, #10G, 3/4"C	2.16	Н	RTU-1 (E))	25-3P	10
	11	20	PRINTER RECEPTACLI	E		R	0.36	2#12, #12G, 3/4"C			2.52	1	2.16	Н	_	_		12
	13	20	POS SYSTEM			R	0.22	2#12, #12G, 3/4"C	0.62			2#12, #12G, 3/4"C	0.40	E	#E48_ELECTRIC / HEATED - CONSERVEWI SPADEWELL	ELL SQUARE	20	14
	15	20	GENERAL PURPOSE			R	0.72	2#12, #12G, 3/4"C		1.63		2#12, #12G, 3/4"C	0.91	E	#E40_MERCHANDISE CASE (DELI CASE)		20	16
	17	20	SPARE								0.56	2#12, #12G, 3/4"C	0.56	M	KEF-1(N)		20	18
	19	20	#E12_REACH-IN 2 DO	OOR REFRIGERATOR	R	E	0.24	2#12, #12G, 3/4"C	0.42			2#12, #12G, 3/4"C	0.18	R	REST ROOM RECEPTACLE		20	20
	21	20	SPARE							2.16			2.16	Н				22
	23	20	#E5_REACH-IN 2 DO	OR FREEZZER		E	0.56	2#12, #12G, 3/4"C			2.73	EXISTING	2.16	Н	RTU-2 (E)		25-3P	24
	25					0	2.20	1	4.36				2.16	Н				26
<u> </u>	27	50-3P	PANEL-A D			0	2.20	4#8, #10G, 3/4"C		2.20					SPARE		20	28
	29	29		0	2.20				2.20				SPACE			30		
				TOTAL CONNEC	CTED LOAD (KV.	A)	001115075	D O D (() A)	8.90	9.02	8.18	111111111111111111111111111111111111111	1					
			LOAD CLASSIFI	CATION	.			D LOAD (KVA)	+	O FACTOR	DEI	MAND LOAD (KVA)			PANEL TOTAL LOAD			
			FOTAL LIGHTING		L			0.60		25%		0.75				1		ı
		TC	OTAL RECEPTACLE		R			1.98	_	00%		1.98			TOTAL CONNECTED LOAD		26.10	KVA
_			TOTAL HVAC		H			2.97		00%	·	12.97			TOTAL DEMAND LOAD		25.07	KVA
			TOTAL MOTOR	TC .	M			0.56		00%		0.56			TOTAL CONNECTED CURRENT		72.54	AMP
L			KITCHEN/EQUIPMENT		t c			3.38		5%		2.20			TOTAL DEMAND CURRENT		69.67	AMP
		TOTAL	OTHER/MISCILLANEOU	JS	0		(5.61	10	00%		6.61			SYSTEM VOLTAGE		120/2	208 Wye

	PANEL:	A(N)													MOUNTING:	RECESSED		
					.													
	208Y/120	VOLTS,		3	PHASE,			4	WIRE						LOCATION: K	KITCHEN		
	MAIN CB			M.L.O.	50A	4	BUS:		MIN,						FED FROM:	PANEL-E		
N	IOTE: L : LIG	GHTING, R :	RECEPTACLES, E: KIT	TCHEN/EQUIPMEI	NTS, H : HVAC LOAD, N	1 : MOTOR L	LOAD, O : O	THER/MISC. (TYPICAL)										
	CKT NO.	T NO. TRIP DESCRIPTION OF LOAD TYPE (KVA)			MINIMUM BRANCH CIRCUIT	PEF A	r Phase (K) B	/A) C	MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	D	TRIP AMPS	CKT NO.			
	1	20	#E30_WORKTOP FRI	EEZER - 48" WIDE		E	0.35	2#12, #12G, 3/4"C	0.70			2#12, #12G, 3/4"C	0.35	E	#E30_WORKTOP FREEZER - 48" WIDE		20	2
	3	20	#58_JUICER			E	0.80	2#12, #12G, 3/4"C		2.12		2#12, #12G, 3/4"C	1.32	E	#E54_BLENDER		20	4
	5	20	SPARE								1.32	2#12, #12G, 3/4"C	1.32	E	#E54_BLENDER		20	6
	7	20	WH- 1			0	0.72	2#12, #12G, 3/4"C	1.24			2#12, #12G, 3/4"C	0.52	E	#E54_BLENDER		20	8
	9	20	RCP- 1			М	0.10	2#12, #12G, 3/4"C		1.47		2#12, #12G, 3/4"C	1.37	E	#E63_ICE MAKER		20	10
	11	20	#E12_REACH-IN 2 D	OOR REFRIGERAT	OR	Е	0.24	2#12, #12G, 3/4"C			0.34	2#12, #12G, 3/4"C	0.10	0	TIMER		20	12
	13	20	#E12_REACH-IN 2 D	OOR REFRIGERAT	OR	E	0.24	2#12, #12G, 3/4"C	1.32			2#12, #12G, 3/4"C	1.08	R	MANAGER DESK RECEPTACLE		20	14
7	15	20	EF-1			М	0.10	2#12, #12G, 3/4"C		0.10					SPARE		20	16
	17	20	ACH-1(N)			М	0.28	2#12, #12G, 3/4"C			0.28				SPARE		20	18
	TOTAL CONNECTED LOAD (KVA)								3.26	3.69	1.94							
		LOAD CLASSIFICATION					CONNECTE	D LOAD (KVA)	DEMAND	FACTOR	DEM	IAND LOAD (KVA)	PANEL TOTAL LOAD)		
L	TOTAL RECEPTACLE R 1 TOTAL HVAC H C		.00	12			0.00				-							
			.08	10			1.08			TOTAL CONNECTED LOAD		8.89	KVA					
			.00	10			0.00			TOTAL DEMAND LOAD		6.61	KVA					
			TOTAL M <mark>OT</mark> OR		M			.48	10			0.48			TOTAL CONNECTED CURRENT		24.69	AMP
L			KITCHEN/EQUIPMEN		E			.51	65			4.23			TOTAL DEMAND CURRENT		18.36	AMP
		TOTAL C	THER/MI <mark>SCILL</mark> ANEO	US	0		C	.82	10	0%		0.82			SYSTEM VOLTAGE		120/2	08 Wye

PANEL SCHEDULE GENERAL NOTES:

- ALL THE CIRCUITING SHOWN FOR THE EXISTING PANEL "E", IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD, REARRANGE IF NEEDED AND INFORM ENGINEER FOR ANY DISCREPANCIES. ALL THE NEWLY ADDED CIRCUIT BREAKERS IN THE EXISTING ELECTRICAL PANEL "E" 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.
- 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 KEY NOTES:

- A. PROVIDE GFCI PROTECTION FOR PERSONNEL FOR ALL SINGLE PHASE RECEPTACLES RATED 50AMP OR LESS & THREE PHASE RECEPTACLES RATED 100AMP OR LESS INSTALLED IN KITCHEN AREA PER NEC 210.8(B)2. GFI PROTECTION SHALL BE PROVIDED AT BREAKER WHERE RECEPTACLES ARE NOT READILY ACCESSIBLE PER NEC 210.8 DUE TO STATIONARY KITCHEN EQUIPMENT.
- B. PROVIDE (7) 20A/1P BREAKER IN PLACE OF (7) SPACE.
- C. PROVIDE (1) 25A/3P BREAKER IN PLACE OF 20A/3P BREAKER. E.C TO COORDINATÉ WITH MECHANICAL CONTRACTOR FOR ELECTRICAL REQUIREMENT OF EXISTING MECHANICAL UNIT AND PROVIDE ACCORDINGLY.
- D. PROVIDE (1) 50A/3P BREAKER IN PLACE OF (3) SPACE

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No.	Description	Da
1	↑ HD COMMENTS	12/1
2	BD COMMENTS	01/0
3	PROJECT COORDINATION	05/0

ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE

Project number 9/6/2024 Drawn by NYE Checked by

E400

PLUMBIN	G LEGEND
SYMBOL	DESCRIPTION
v	VENT PIPING
— — SAN — —	UNGD. SANITARY PIPING
— — GSAN — —	UNGD. GREASE WASTE PIPING
— - — CW — - —	COLD WATER PIPING
—— HW ———	HOT WATER PIPING
— HWR —	HOT WATER RETURN PIPING
— — FW — —	FILTER WATER
G	GAS PIPING
	EXISTING COLD WATER PIPING
	EXISTING HOT WATER PIPING
	P-TRAP
o	PIPE UP
———э	PIPE DROP
	ISOLATION VALVE
─ ───	BACKFLOW PREVENTER
	FLOOR SINK
	FLOOR DRAIN
	POINT OF CONNECTION
\odot	CLEANOUT
	BALANCING VALVE
	EXPANSION TANK
	RECIRCULATION PUMP
	GAS SHUTOFF VALVE

	PLUMBING ABBREVIATIONS					
CO-1	CLEANOUT					
CW	COLD WATER					
HW	HOT WATER					
HWR	HOT WATER RETURN					
G	GAS					
SAN	SANITARY					
S	SOIL					
W	WASTE					
EX.LAV	EXISTING LAVATORY					
WC	WATER CLOSET					
TYP.	TYPICAL					
DN	DOWN					
FD-1	FLOOR DRAIN					
WH-1	HOT WATER HEATER					
RCP-1	RE-CIRCULATION PUMP					
ET-1	EXPANSION TANK					
BFP	BACK FLOW PREVENTER					
GI	GREASE INTERCEPTOR					
FS-1	FLOOR SINK					
GSAN	GREASE SANITARY					
EX.CW	EXISTING COLD WATER					
EX.HW	EXISTING HOT WATER					

P001 PLUMBING SYMBOLS, ABBREVIATIONS AND SPECIFICATIONS

PLUMBING DRAWING LIST

P002 PLUMBING SPECIFICATIONS

P003 PLUMBING DETAILS

P100 PLUMBING WATER AND GAS PIPING PLAN

P101 PLUMBING SANITARY AND VENT PIPING PLAN

P200 PLUMBING RISERS AND SCHEDULES

P300 ENERGY ANALYSIS (1 OF 2)

P301 ENERGY ANALYSIS (2 OF 2)

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:

CODE COMPLIANCE

2023 LACO BUILDING CODE

2023 LACO MECHANICAL CODE

2023 LACO PLUMBING CODE

2022 CALIFORNIA FIRE CODE

2023 LACO ELECTRICAL CODE

2022 CALIFORNIA ENERGY CODE.

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 DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.

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

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

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

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

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

1.02 SUBMITTALS

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

1. PIPE AND FITTINGS

2. VALVES 3. HANGERS AND SUPPORTS 4. PLUMBING PIPING LAYOUT

5. TESTS

6. PLUMBING FIXTURES 7. WATER HEATERS & ACCESSORIES

8. FLOOR DRAINS 9. MIXING VALVES

10.GREASE INTERCEPTOR 11.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.

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.

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.

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 CALIFORNIA STATE PLUMBING CODE, 2022 EDITION FOR ADDITIONAL DEFINITIONS.

1.04 DRAWINGS

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

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.

INSTALLED CONCEALED IN FINISHED SPACES. UNLESS NOTED OTHERWISE.

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.

1.05 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 OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 3" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO

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

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

. DOMESTIC WATER PIPING:

ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE-RETARDENT, FACTORY APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY— APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH CALIFORNIA STATE ENERGY CODE 2022, SECTION 120.3.

SERVICE WATER HEATING SYSTEM AND EQUIPMENTS INSIDE THE SPACE SHOULD BE AS PER THE CALIFORNIA STATE ENERGY CODE 2022. SECTION 110.3.

AS PER CALIFORNIA STATE ENERGY CODE 2022, SYSTEMS DESIGNED TO MAINTAIN USAGE TEMPERATURES IN HOT WATER PIPES, SUCH AS RECIRCULATING HOT WATER SYSTEM SHALL BE EQUIPPED WITH AUTOMATIC TIME SWITCHES OR OTHER CONTROLS THAT CAN BE SET TO SWITCH OF THE USAGE TEMPERATURE MAINTENANCE SYSTEM DURING EXTENDED PERIOD WHEN HOT WATER IS NOT REQUIRED.

AS PER CALIFORNIA STATE ENERGY CODE 2022, TEMPERATURE CONTROL VALVE SHALL BE PROVIDED TO AUTOMATICALLY REGULATE THE TEMPERATURE OF HOT WATER DELIVERED TO PLUMBING FIXTURE TO A RANGE OF 105°F (41°C) MINIMUM TO 120°F (49°C) MAXIMUM.

5. INSULATION REQUIREMENT SHOULD COMPLY WITH CALIFORNIA STATE ENERGY CODE 2022. REFER BELOW TABLE FOR MINIMUM PIPE INSULATION THICKNESS ACC. TO CALIFORNIA PLUMBING CODE 2022 TABLE 120.3-A.

MINIMUM PIPE INSULATION THICKNESS									
FLUID OPERATING	INSULATION CO	ONDUCTIVITY	NOMINAL PIPE OR TUE SIZE (INCHES)						
TEMPERATURE RANGE AND USAGE (°F)	CONDUCTIVITY BTU·IN./ (H·FT2·*F)	MEAN RATING TEMPERATURE, F	<1	1 TO <1½					
141-200	0.25-0.29	125	1.5	1.5					
105-140	0.22-0.28	100	1.0	1.5					

C. GAS WATER HEATER

TANKS SHALL 50 GALLON CAPACITY AND SHALL HAVE 150 PSI WORKING PRESSURE AND BE EQUIPPED WITH GLASS LINING PERMANENTLY BONDED TO TANK INTERIOR SURFACE.

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

3. INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH NFPA 54, NFPA 211, AND THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.

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

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

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.

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. GAS PIPING:

1. ALL GAS PIPING WORK SHALL COMPLY WITH CALIFORNIA STATE PLUMBING CODE 2022, CHAPTER 12.

2. FURNISH AND INSTALL ALL NECESSARY GAS PIPING TO ALL EQUIPMENT REQUIRING GAS SUPPLY INCLUDING RECONNECTION TO EXISTING ACTIVE GAS BURNING EQUIPMENT

3. PROVIDE A LUBRICATED GAS VALVE AT ALL CONNECTIONS TO EQUIPMENT.

4. ALL GAS PIPING AND INSTALLATION SHALL BE IN ACCORDANCE WITH RULES AND REGULATIONS OF LOCAL UTILITY GAS COMPANY AND OTHER AUTHORITIES HAVING JURISDICTION.

5. PROVIDE ADEQUATE SUPPORT FOR ALL PIPING.

6. GAS PIPING SHALL BE STEEL SCHEDULE 40 THREADED PIPE CONFORMING TO ANSI B36.10, 10M, OR ASTM A 106.

7. FITTINGS SHALL BE MALLEABLE IRON.

8. PIPING UNDERGROUND BENEATH BUILDING SHALL COMPLY WITH CALIFORNIA STATE PLUMBING CODE 2022, CHAPTER 12.

G. 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

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

H. VALVES:

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

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

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

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NI.	Barrella (Co.)	D.1.
No.	Description	Date
1	HD COMMENTS	12/17/24
2	2 BD COMMENTS	01/06/25
3	HD COMMENTS	01/15/25
4	PROJECT COORDINATION	05/06/25

PLUMBING SYMBOLS ABBREVIATIONS AND **SPECIFICATIONS**

Project number 9/6/2024 NYE Drawn by NYE Checked by

P001

Scale

- 4. ALL BRANCH LINES TO HAVE SHUT-OFF VALVES.
- 5. ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
- 6. PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

I. SLEEVES AND ESCUTCHEONS:

- 1. SLEEVES THROUGH STRUCTURAL CONCRETE MEMBERS AND SLEEVES FOR WALLS BELOW GRADE AND FLOORS ON GRADE SHALL BE STANDARD WEIGHT GALVANIZED SCHEDULE 40 STEEL PIPE. SLEEVES THROUGH OTHER THAN STRUCTURAL COMPONENTS OF THE BUILDING SHALL BE 20 GAGE GALVANIZED SHEET METAL WITH LOCK SEAM JOINTS. USG THERMAFIBER SAFING INSULATION SHALL BE INSTALLED BETWEEN PIPE AND SLEEVE.
- 2. PIPE ESCUTCHEON PLATES SHALL BE INSTALLED WHERE EXPOSED PIPING PASSES THROUGH WALLS, CEILINGS, AND FLOORS AND SHALL BE MINIMUM 20 GAGE STEEL. PROVIDE CHROME PLATED ESCUTCHEON PLATES IN FINISHED AREAS.

J. DRAINAGE ACCESSORIES

1. GENERAL:

- a. INSTALL THE WORK OF THIS SECTION IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS, UNLESS OTHERWISE SPECIFIED.
- b. SECURE EXTERNAL COMPONENTS IN PLACE WITH VANDAL RESISTANT FASTENERS OR DEVICES WHICH CANNOT BE REMOVED WITHOUT SPECIAL TOOLS.

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.
- K. 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.
- L. VERIFY EXACT LOCATIONS OF ALL EXISTING UTILITIES.
- M. 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.
- N. IN ALL AREAS WITH FINISHED SURFACES, SYSTEM PIPING AND COMPONENTS SHALL BE CONCEALED ABOVE OR WITHIN FINISHED SURFACES.
- O. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL. REMOVE PROTECTIVE COATINGS PRIOR TO INSTALLATION.
- P. REDUCTIONS IN PIPE SIZES SHALL BE MADE WITH ONE-PIECE REDUCING FITTINGS. BUSHINGS ARE NOT ACCEPTABLE. USE FLANGED FITTINGS AT THE BASE OF RISERS.
- Q. IF WATER PRESSURE EXCEEDS 80 PSI, A WATER PRESSURE REDUCING VALVE SHALL BE INSTALLED IN WATER PIPING AT CONNECTION TO MAIN.
- R. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.
- S. 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.
- T. ALL FIXTURES REQUIRING VACUUM BREAKERS SHALL BE EQUIPPED WITH INTEGRAL VACUUM BREAKERS.

- W. 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.
- X. 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.
- Y. AT ALL INDIRECT WASTE DRAINS, MAINTAIN AIR GAP AS REQUIRED BY
- Z. CONNECT GAS PIPING TO ALL GAS—FIRED EQUIPMENT WITH GAS COCK, DIRT LEG AND UNION.
- AA. 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.
- AB. 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.
- AC. 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.
- AD. PROVIDE WATER HAMMER ARRESTERS ON SUPPLY PIPING TO ALL FLUSHOMETER VALVES AND QUICK-CLOSING VALVES.
- AE. UNLESS OTHERWISE INDICATED, TRAPS SEALS AT ALL FLOOR DRAINS SHALL BE MAINTAINED BY AN APPROVED TRAP PRIMING DEVICE.
- AF. MAINTAIN ALL REQUIRED AND RECOMMENDED CLEARANCES FOR ALL PLUMBING SYSTEM COMPONENTS AND EQUIPMENT.
- AG. 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
- 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 DOMESTIC 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

HOT WATER PIPE INSULATION SHALL HAVE A MINIMUM WALL THICKNESS OF NOT LESS THAN THE DIAMETER OF THE PIPE FOR A PIPE UP TO 2" IN DIAMETER. INSULATION WALL THICKNESS SHALL NOT LESS THAN 2" FOR A PIPE OF 2" OR MORE IN DIAMETER, AS PER SECTION 609.12.3 OF CALIFORNIA STATE PLUMBING CODE, 2022.

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.
- L. REPORT IN WRITING TO AUTHORITIES HAVING JURISDICTION, THE ARCHITECT AND THE OWNER THE RESULTS OF ALL TESTING.
- M. 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.
- N. 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.
- O. THOROUGHLY FLUSH PIPING SYSTEM WITH FRESH WATER IMMEDIATELY PRIOR TO FINAL ACCEPTANCE.

4. WARRANTY

A. 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.



NY ENGINEERS

382 NE 191ST ST, SUITE 49674,

MICHAEL TOBIAS

P: 646.878.9217

MIAMI, FL 33179

 No.
 Description
 Date

 1
 HD COMMENTS
 12/17/24

 2
 2
 BD COMMENTS
 01/06/25

 3
 HD COMMENTS
 01/15/25

 4
 PROJECT COORDINATION
 05/06/25

PLUMBING SPECIFICATIONS

Project number

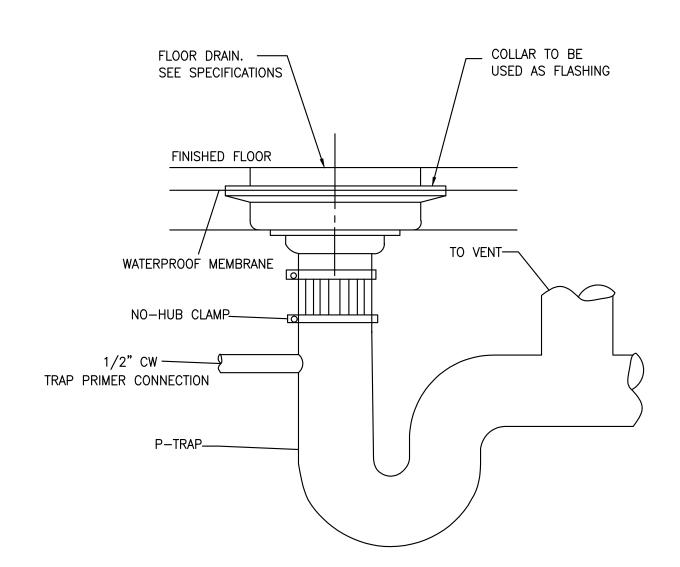
Date 9/6/2024

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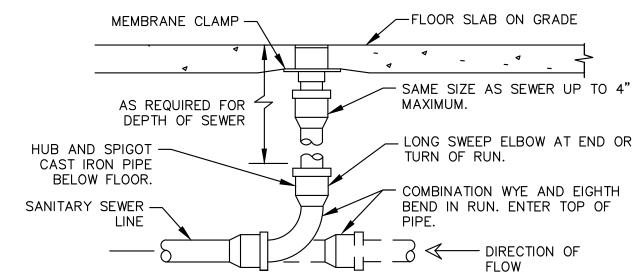
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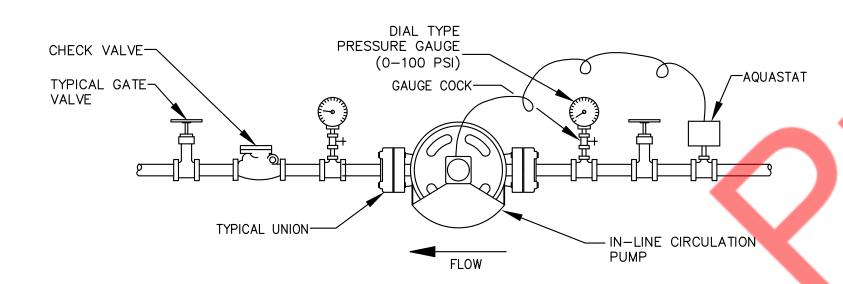


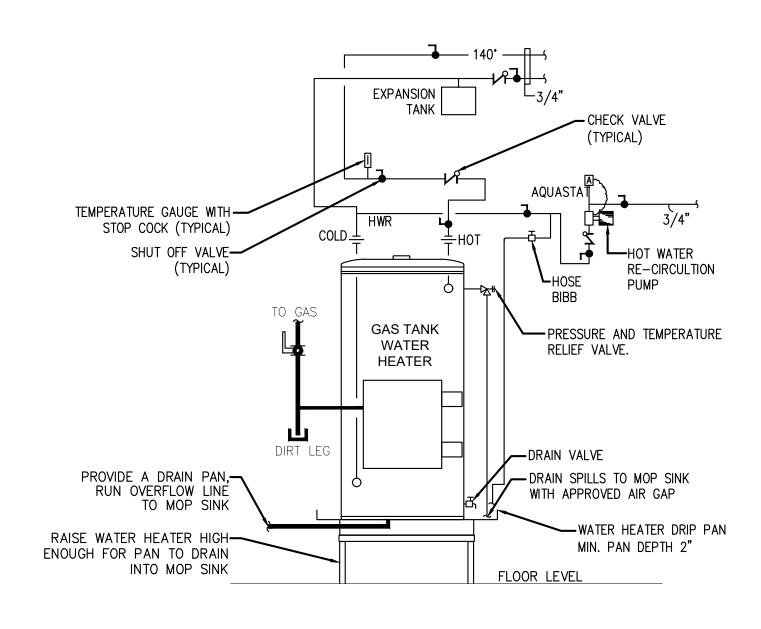




- 1. LOCATE AT BUILDING EXIT, AT ENDS OF RUNS, AT TURNS OF PIPE GREATER THAN 45 DEGREES, AT 50' INTERVALS ON STRAIGHT RUNS, AND/OR WHERE SHOWN ON PLANS. PROVIDE BACKFILL PER ARCHITECTURAL SPECIFICATIONS. LOCATE CLEANOUTS WHERE THERE IS 18" CLEAR AROUND. CONSULT LOCAL CODES FOR OTHER FCO REQUIREMENTS.
- 2. ROUND SECURED GASKETED NICKEL BRONZE ADJUSTABLE TOP WITH "CO" CAST IN COVER. PROVIDE CLEANOUT TOP WITH VARIATIONS SUITABLE FOR FLOOR COVERING (CARPET MARKER, RECESSED FOR TILE, SCORIATED FOR UNFINISHED FLOORS). PROVIDE GASKETED PLASTIC PLUG IN CAST IRON BODY. USE TEFLON JOINT COMPOUND ON PLUG THREADS. CLEAN THE TOP OF EXPOSED FCO AFTER INSTALLATION.

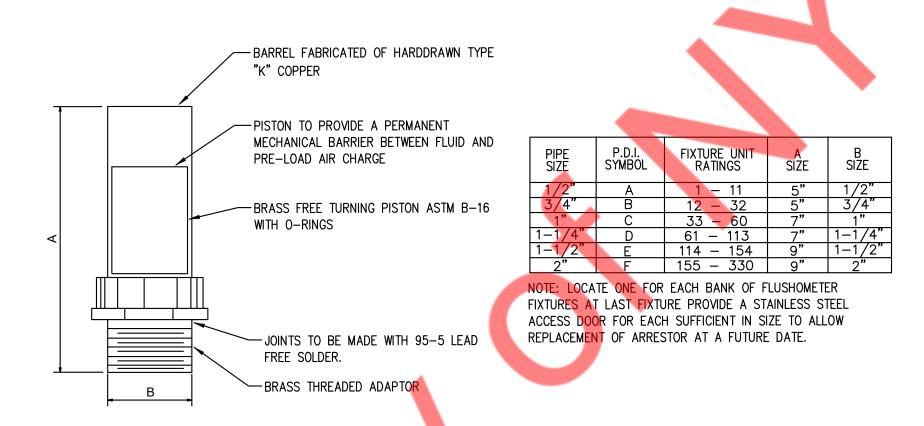




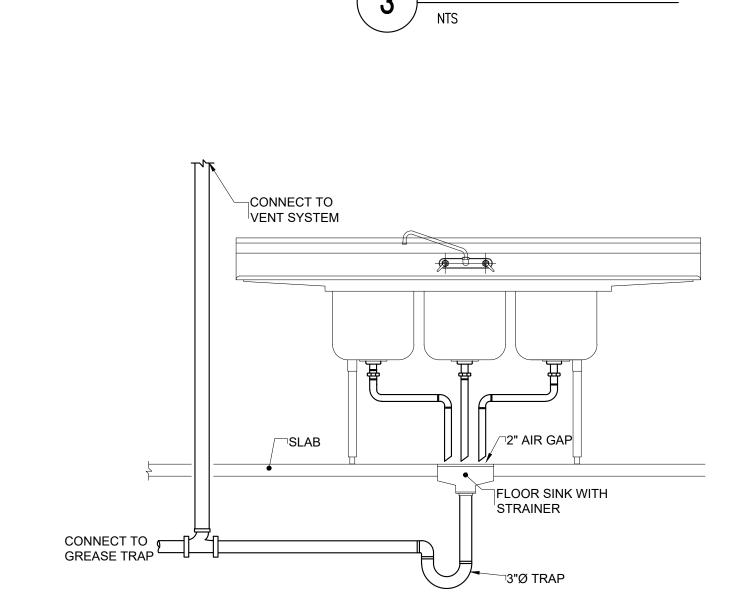


2

GAS WATER HEATER DETAILS (WH-1)



WATER HAMMER ARRESTER DETAILS



16 GAUGE GALV. STEEL SHIELD. TYP FOR PIPE

HANGERS. —

3-COMPARTMENT SINK DETAILS

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382 NE 191ST ST, SUITE 49674,

MIAMI, FL 33179

MICHAEL TOBIAS P: 646.878.9217

ADJUSTABLE CLEVIS HANGER

ROD SCHEDULE

PIPE SIZE | ROD SIZE

3/4" 3/8"

1 1/4" 3/8"

SHEET METAL

SADDLE WELD TO HANGER

-FIBERGLASS INSULATION TYPICAL FOR ALL INSULATED PIPING.

No.	Description	Date
1	HD COMMENTS	12/17/2
2	2 BD COMMENTS	01/06/2
3	HD COMMENTS	01/15/2
4	PROJECT COORDINATION	05/06/2

PLUMBING DETAILS

Project number 9/6/2024 NYE Drawn by NYE Checked by

P003

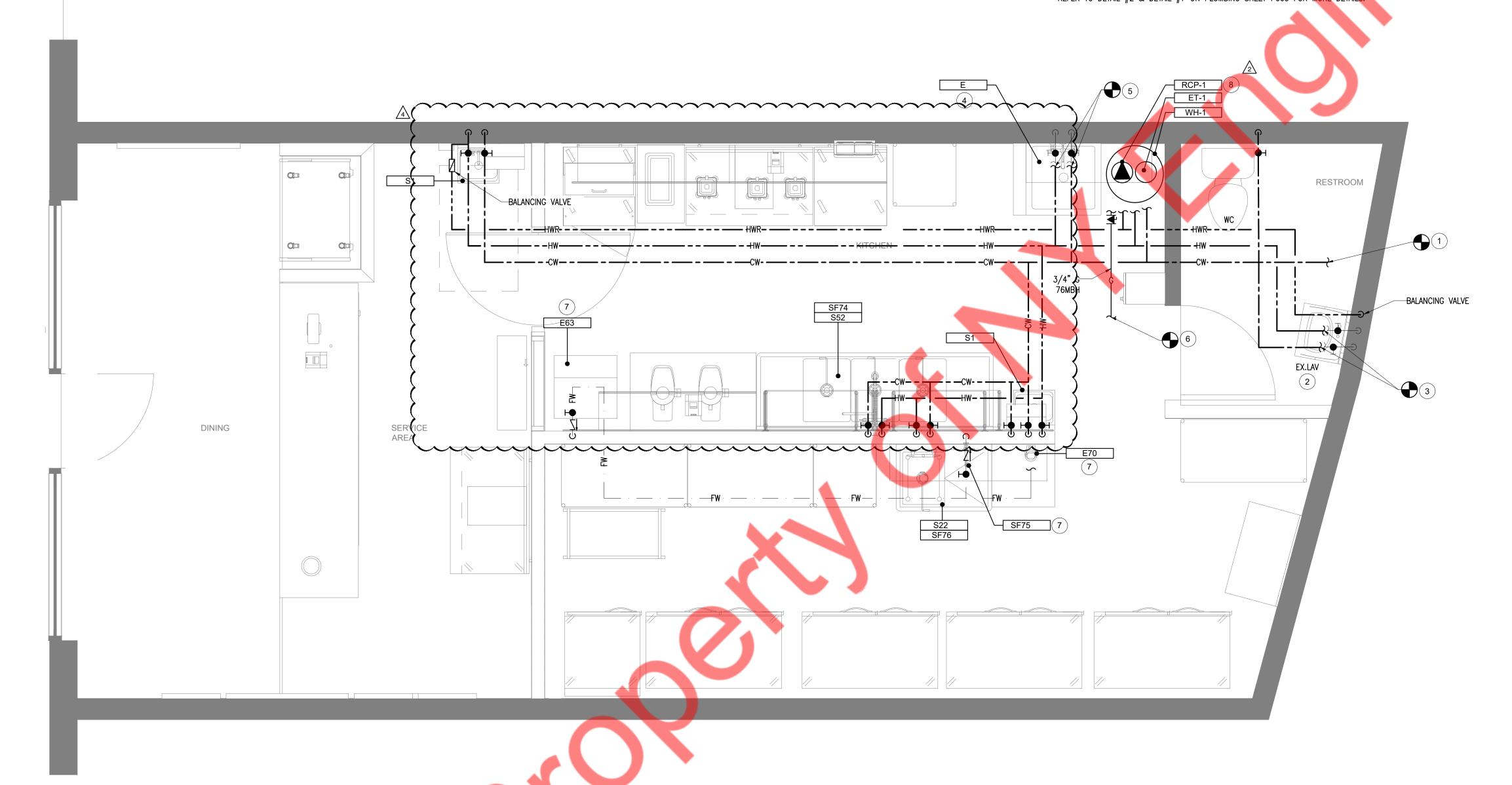
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As indicated

INLINE RECIRCULATING PUMP DETAIL

DOMESTIC WATER & GAS PIPING PLAN NOTES:

- CONNECT NEW 3/4" CW PIPING TO THE EXISTING CW LINE OF ADEQUATE SIZE IN SPACE WITH EXISTING WATER METER. CONTRACTOR TO FIELD VERIFY IF EXISTING BFP IS AVAILABLE ON SITE AND IN WORKING CONDITION. IF NOT PROVIDE NEW AS REQUIRED BY LOCAL CODE REQUIREMENT.
- 2 EXISTING LAVATORY TO REMAIN WITH EXISTING CW/HW CONNECTION, ASSOCIATED ACCESSORIES & FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING & REPLACE IF REQUIRED.
- 3 EXTEND AND CONNECT NEW 1/2" CW/HW PIPING TO THE EXISTING LAVATORY PIPING AND CONNECT NEW HW RETURN PIPING TO THE EXISTING HW PIPING AS SHOWN.
- EXISTING MOP SINK TO REMAIN WITH EXISTING CW/HW CONNECTION, ASSOCIATED ACCESSORIES & FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING & REPLACE IF REQUIRED.
- 5 EXTEND AND CONNECT NEW 1/2" CW/HW PIPING TO THE EXISTING MOP SINK PIPING.
- CONNECT NEW 3/4" GAS LINE TO EXISTING GAS MAIN LINE WITH EXISTING GAS METER. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND MAKE NECESSARY CHANGES IF REQUIRED. CONTRACTOR TO MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE TO GAS FIRED WATER HEATER.
- 7 CONTRACTOR TO ROUTE NEW FILTERED WATER LINE TO WALL FAUCET AND ICE MACHINE AS SHOWN IN THE PLAN.
- CONTRACTOR TO INSTALL A CHECK VALVE BETWEEN THE RECIRCULATION PUMP AND WATER HEATER, INSTALL A HOSE BIB BETWEEN THE PUMP AND WATER HEATER, INSTALL ISOLATION VALVE BETWEEN HOSE BIB AND WATER HEATER AND INSTALL ISOLATION VALVES ON BOTH SIDES OF THE RECIRCULATION PUMP. REFER TO DETAIL #2 & DETAIL #7 ON PLUMBING SHEET POO3 FOR MORE DETAILS.



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3	HD COMMENTS	01/15/25
4	A PROJECT COORDINATION	05/06/25

PLUMBING WATER AND GAS PIPING PLAN

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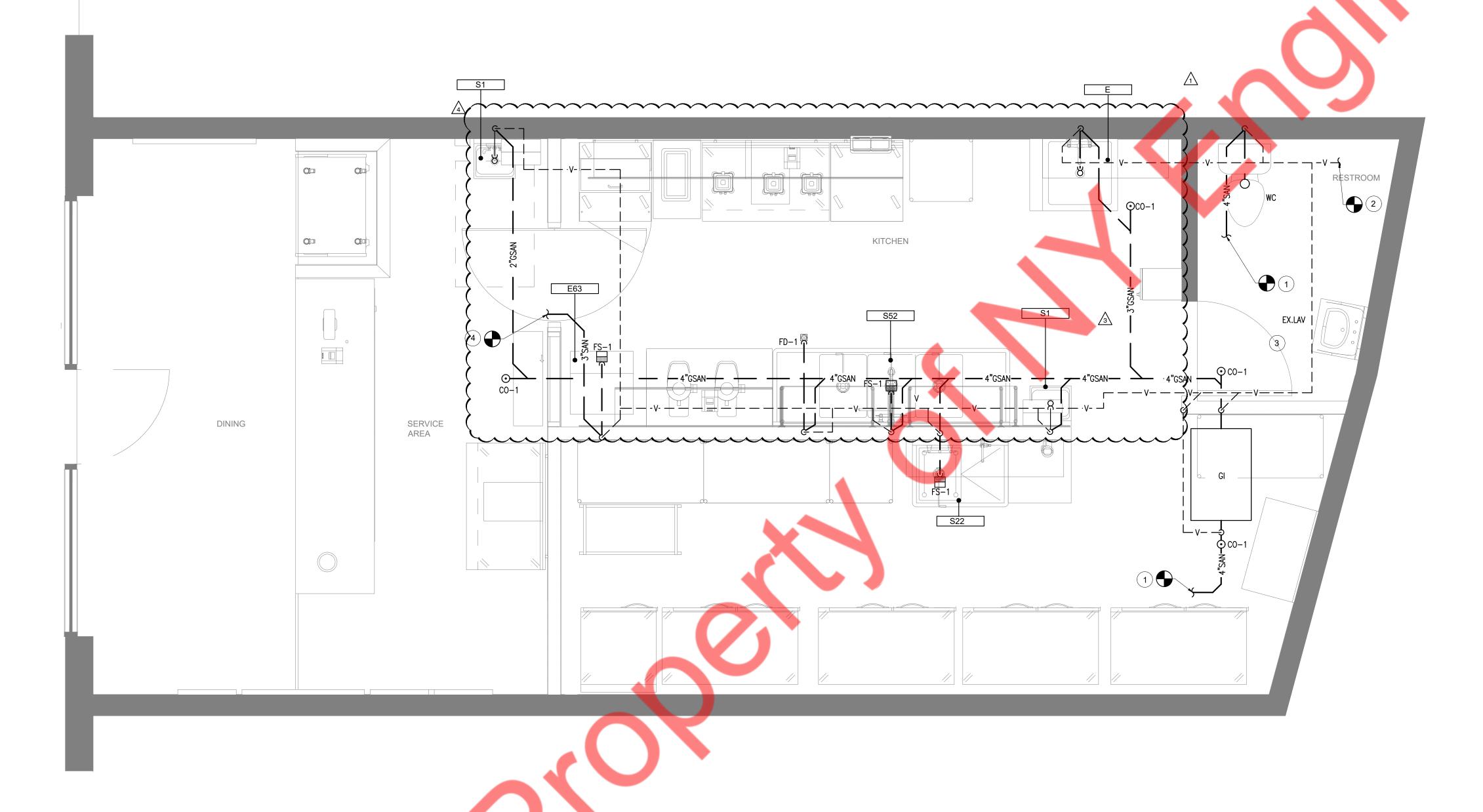
As indicated

9/6/2024

1) PLUMBING WATER & GAS PIPING PLAN

SANITARY PIPING PLAN NOTES:

- CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING SANITARY MAIN LINE IN SPACE OF ADEQUATE SIZE. CONTRACTOR TO FIELD VERIFY SIZE, LOCATION, ROUTING AND INVERT OF EXISTING SANITARY LINE IN SPACE AND MAKE NECESSARY CHANGES IF REQUIRED.
- CONNECT NEW 3" VENT PIPE TO EXISTING VENT PIPE IN SPACE OF ADEQUATE SIZE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION AND SIZE OF EXISTING VENT PIPE AND MAKE NECESSARY CHANGES
- 3 EXISTING LAVATORY TO REMAIN WITH EXISTING SANITARY AND VENT CONNECTION, ASSOCIATED ACCESSORIES AND FITTINGS. CONTRACTOR TO FIELD VERIFY THE CONDITION OF EXISTING PIPING AND REPLACE IF REQUIRED.
- CONNECT NEW 3" SANITARY WASTE PIPING TO EXISTING SANITARY MAIN LINE IN SPACE OF ADEQUATE SIZE. CONTRACTOR TO FIELD VERIFY SIZE, LOCATION, ROUTING AND INVERT OF EXISTING SANITARY LINE IN SPACE AND MAKE NECESSARY CHANGES IF REQUIRED.



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3	3 HD COMMENTS	01/15/25
4	PROJECT COORDINATION	05/06/25

PLUMBING SANITARY AND VENT PIPING PLAN

 Project number

 Date
 9/6/2024

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NOTE: CONTRACTOR TO COORDINATE WITH	I ARCHITECTURAL DI	DRAWINGS FOR ALL	PLUMBING FIXTURES	SPECIFICATIONS AND	MOUNTING HEIGHT IN	STALLATION.

	NEW GAS STORAGE WATER HEATER										
TAG	EIVTUDES SEDVINO	STORAGE	RECOVERY CAP.	TVDE	GAS		ELEC	CTRICAL		MANUFACTURER	REMARKS
No.	FIXTURES SERVING	GALLONS	(GPH @ RISE)	TYPE	BTU	VOLTS	PHASE	HERTZ	AMP.	& MODEL NO.	
<u>WH-1</u>	ALL PLUMBING FIXTURES	50	172 GPH @ 50°F	GAS TANK WATER HEATER	76000	120	1	60	<5 AMPS	AO SMITH BTX-80	-DIMENSIONS 22"DIA X 71.125"H -225 LBS -HEATERS SHALL HAVE 150PSI WORKING PRESSURE.

NOTE:
1. VACUUM RELIEF VALVE SHALL CONFIRM WITH ANSI Z21.22.

2. PROVIDE EXPANSION TANK (ET-1) AMTROL ST-5C-DD OR SIMILAR.

RECIRCULATING PUMP SCHEDULE

MARK	SERVICE	GPM	TOTAL HEAD FT.	MOTOR HP	MANUFACTURER & REMARKS
<u>RCP-1</u>	HW RECIRCULATION PUMP	2	10	0.115	GRUNDFOS UP 15-18 B5 W/AQUASTAT + TIMER

	THERMOSTATIC MIXING VALVE							
ITEM	CAPACITY (GPM)	PRESSURE DROP (PSI)	MINIMUM FLOW (GPM)	MAKE	CW INLET	HIGH TEMP. INLET	LOW TEMP. OUTLET	REMARKS
<u>TMV-1</u>	15	5	1	ACORN MV17-2	3/4"	3/4"(140°F)	1"(120°F)	-BRONZE BODY AND LEAD FREE CONSTRUCTION -ASSE CERTIFIED

GREASE INTERCEPTOR SCHEDULE							
ITEM	SERVICE	FLOW RATE (GPM)	GREASE CAPACITY (LBS)	MANUFACTURER AND MODEL			
GREASE INTERCEPTOR (GI)	KITCHEN WASTE	50	127	SCHIER MODEL GB-2			
NATE CONTRACTOR	TO DDO: #DE 411	DE0111DED 400E0	000150 500 045105	OTODY WORKING			

NOTE— CONTRACTOR TO PROVIDE ALL REQUIRED ACCESSORIES FOR SATISFACTORY WORKING OF GREASE TRAP AS PER SITE CONDITIONS.

TAG	DESCRIPTION	QTY	DIMENSIONS			VOLUME		%USAGE	GPM
IAG	DESCRIPTION		LENGTH	WIDTH	DEPTH	CU.IN	GALLONS	76USAGE	2 MIN
S22	ONE COMPARTMENT SINK	01	18	18	12	3888	16.83	0.75	6.31
S52	3-COMPARTMENT SINK	01	24	18	14	18144	78.54	0.75	29.45
Е	EXISTING MOP SINK	01	24	24	10	5760	24.93	0.75	9.35
S1	HAND SINK	02	10	12	6	1440	6.23	0.75	2.34
FD	FLOOR DRAIN	01					3		1.5
TOTAL GPM 48.								48.9	
SCHIER MODEL GB-2									

GENERAL NOTES: PLUMBING RISER

WHEN NOT SHOWN ON PLANS, INDIVIDUAL FIXTURE CONNECTIONS SHALL BE SIZE AS SHOWN ON PLUMBING FIXTURE SCHEDULE.

ISOMETRIC DIAGRAMS ARE FOR SIZING PURPOSES ONLY AND SHALL NOT BE USED FOR MATERIAL TAKE—OFFS, OR BE CONSTRUED TO INDICATE ACTUAL SITE INSTALLATION. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF PIPING, DEVICES AND EQUIPMENT WITH BUILDING ELEMENTS AND THE WORK OF OTHER TRADES.

PROVIDE WATER HAMMER ARRESTORS FOR EACH GROUP OF FIXTURES WHETHER INDICATED OR NOT ON PLAN. PROVIDE ACCESS PANEL WHERE LOCATED IN INACCESSIBLE CEILING OR WALL.

NATURAL GAS PIPING SYSTEM:

PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL. PROVIDE ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY NFPA-54, 2022 CALIFORNIA PLUMBING CODE AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION. PROVIDE ALL TESTS, METERS, INSPECTIONS, PRESSURE REGULATORS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

NOTES:

GAS PIPE SIZING AS PER

TABLE 1215.2(1) 2022 CALIFORNIA

PLUMBÍNG CODE.

EQUIVALENT LENGTH OF PIPE =

10+56+12 = 78+ FITTINGS (+40%) = 109.2 FEET

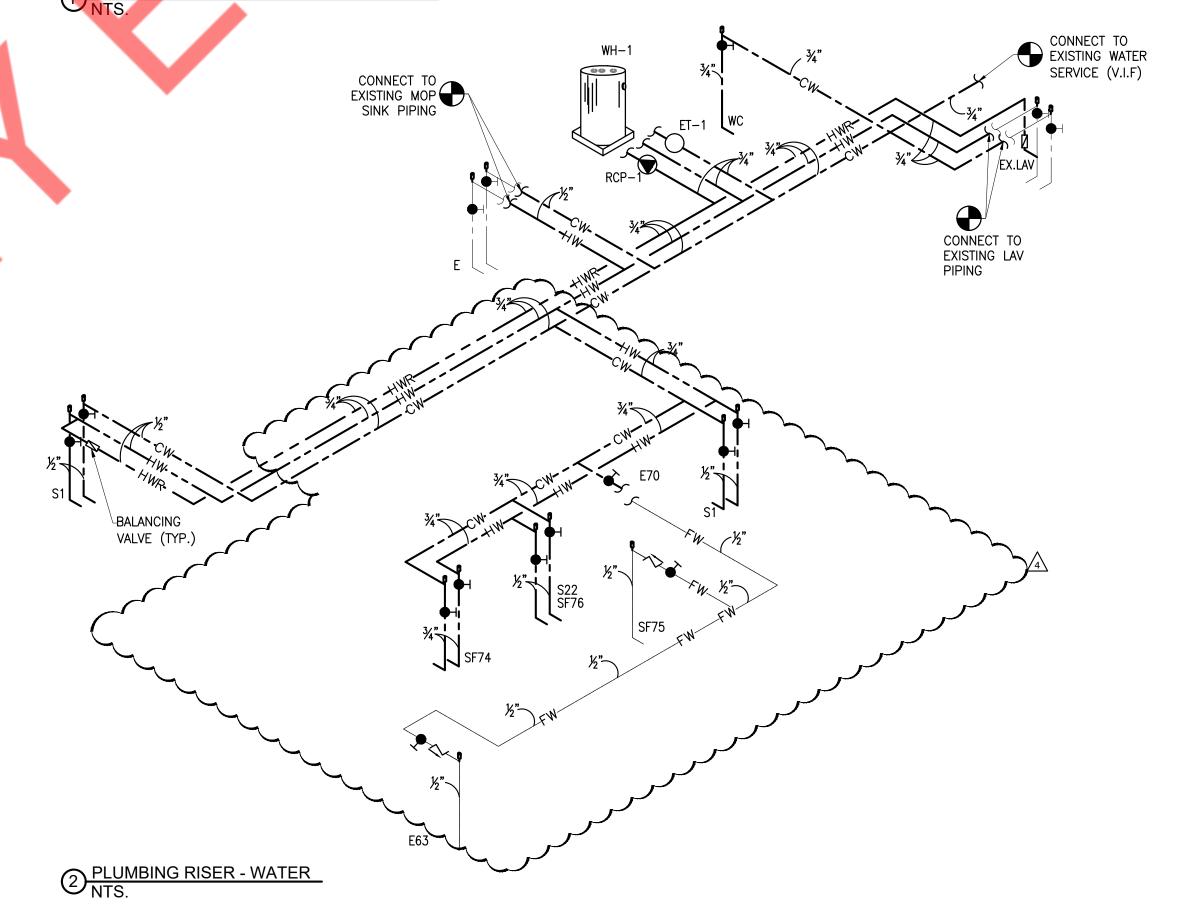
- GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWED FITTINGS.
 GAS SYSTEM TO BE INSTALLED BY QUALIFIED
- 3. VERIFY ALL EQUIPMENT BTU'S PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING TABLE 1215.2(1) 2022 CALIFORNIA PLUMBING CODE.

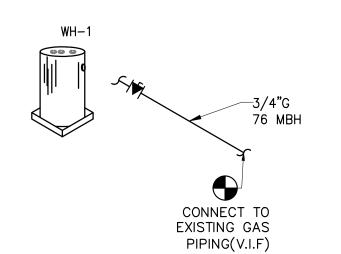
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GAS SCHEDULE							
ITEM NO.	QTY.	DESCRIPTION	MANUFACTURER	MODEL	SIZE	BTU/HR	
WH-1	1	WATER HEATER	AO SMITH	BTX-80	3/4"	76,000	
				Т	OTAL LOAD	76,000	

CONNECT TO EXERNING SANTARY OF MANI LINE (V.I.F.) SOUND CONNECT TO EXERCISE SANTARY OF MANI LINE (V.I.F.)

PLUMBING RISER - WASTE AND VENT





3 PLUMBING RISER - GAS NTS.

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PLUMBING RISERS AND SCHEDULES

Project number

Date 9/6/2024

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