

# THE MELTING POT

## MECHANICAL SYMBOLS LIST & GENERAL NOTES

Sheet Number

**M0.1**

MECHANICAL SYMBOLS LIST	
AC-1	TXF-1
EQUIPMENT SYMBOL	
AIR DEVICES	
	CEILING DIFFUSER SUPPLY
	CEILING DIFFUSER RETURN
DUCT ACCESSORIES	
	BACKDRAFT DAMPER
	VOLUME DAMPER W/ ACCESS DOOR
CONTROLS AND SENSORS	
	THERMOSTAT
	DUCT SMOKE DETECTOR
DUCTWORK	
	AIR DUCT W/ 1.5" ACOUSTICAL LINING
	FLEXIBLE DUCT
	FLEXIBLE CONNECTION
	RECTANGULAR DUCT (WIDTH X DEPTH)
	SUPPLY AIR RECTANGULAR DUCT CROSS SECTION
	RETURN AIR RECTANGULAR DUCT CROSS SECTION
	ROUND DUCT (DIAMETER)
	ROUND DUCT CROSS SECTION
ABBREVIATIONS	
AL	ACOUSTIC LINING
BD	BACKDRAFT DAMPER
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
CFM	CUBIC FEET OF AIR PER MINUTE
FC	FLEXIBLE CONNECTION
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
EER	ENERGY EFFICIENCY RATIO
RTU	ROOF TOP UNIT
KEF	KITCHEN EXHAUST FAN
TEF	TOILET EXHAUST FAN
VD	VOLUME DAMPER
OA	OUTSIDE AIR
SAE	SAME AS EXISTING
VIF	VERIFY IN FIELD
MECHANICAL DRAWING LIST	
M0.1	MECHANICAL SYMBOLS LIST, ABBREVIATIONS & GENERAL NOTES
M0.2	MECHANICAL SPECIFICATIONS
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M6.1	MECHANICAL SCHEDULES
APPLICABLE CODES	
IBC	2021 INTERNATIONAL BUILDING CODE
IFC	2021 INTERNATIONAL FIRE CODE
IMC	2021 INTERNATIONAL MECHANICAL CODE
IPC	2021 INTERNATIONAL PLUMBING CODE
IECC	2021 INTERNATIONAL ENERGY CONSERVATION CODE
IFGC	2021 INTERNATIONAL FUEL GAS CODE

VIRGINIA BUILDING DEPARTMENT NOTES	
ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF 2021- VIRGINIA BUILDING CODE AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.	
1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS.	
2. TESTS WILL BE CONDUCTED UNDER DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS. THE TESTS WILL SHOW COMPLIANCE WITH 2018 INTERNATIONAL BUILDING CODE REQUIREMENTS AS OUTLINES IN SECTION [BC 1704].	
3. THE LICENSED PROFESSIONAL ENGINEER, ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN FIVE (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF SUCH MECHANICAL SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE DOCUMENTATION AND REPORTS OF TESTS THAT THE SYSTEM COMPLIES WITH THE CONSTRUCTION DOCUMENTS AND APPLICABLE LAWS.	
4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:	
A. STANDARDS OF HEATING - 2021 IMC SECTION 309	
B. DUCT CONSTRUCTION AND INSTALLATION- 2021 IMC SECTION 603	
C. AIR INTAKES, EXHAUSTS AND RELIEF - 2021 IMC SECTION 403.	
D. AIR FILTERS - 2021 IMC SECTION 605	
E. GAS FIRED EQUIPMENT - 2021 IMC SECTION 901	
5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.	
6. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2021 IMC SECTION 401.	
7. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY 2021 IMC SECTION 403.	
8. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.	
9. 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.	
10. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.	
11. SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION 606 VIRGINIA BUILDING CODE; BASE CODE ICC IMC 2021, TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.	
THERMOSTATIC CONTROLS:	
C403.4.1 THERMOSTATIC CONTROLS	
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE, WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.	
EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:	
1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN $\pm 45$ DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).	
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.	
C403.4.1.1 HEAT PUMP SUPPLEMENTAL HEAT	
HEAT PUMPS HAVING SUPPLEMENTARY ELECTRIC RESISTANCE HEAT SHALL HAVE CONTROLS THAT LIMIT SUPPLEMENTAL HEAT OPERATION TO ONLY THOSE TIMES WHEN ONE OF THE FOLLOWING APPLIES:	
1. THE VAPOR COMPRESSION CYCLE CANNOT PROVIDE THE NECESSARY HEATING ENERGY TO SATISFY THE THERMOSTAT SETTING.	
2. THE HEAT PUMP IS OPERATING IN DEFROST MODE.	
3. THE VAPOR COMPRESSION CYCLE MALFUNCTIONS.	
4. THE THERMOSTAT MALFUNCTIONS	
C403.4.1.2 DEADBAND	
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.	
EXCEPTIONS:	
1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.	
2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.	
C403.4.1.3 SETPOINT OVERLAP RESTRICTION	
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.4.1.2.	
C403.4.2 OFF-HOUR CONTROLS	
EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.	
EXCEPTIONS:	
1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.	
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.	
C403.4.2.1 THERMOSTATIC SETBACK	
THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).	
C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN	
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.	
C403.4.2.3 AUTOMATIC START & STOP	
AUTOMATIC START AND STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE AUTOMATIC START CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY. AUTOMATIC STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM WITH DIRECT DIGITAL CONTROL OF INDIVIDUAL ZONES. THE AUTOMATIC STOP CONTROLS SHALL BE CONFIGURED TO REDUCE THE HVAC SYSTEM'S HEATING TEMPERATURE SETPOINT AND INCREASE THE COOLING TEMPERATURE SETPOINT BY NOT LESS THAN 2°F (-16.6°C) BEFORE SCHEDULED UNOCCUPIED PERIODS BASED ON THE THERMAL LAG AND ACCEPTABLE DRIFT IN SPACE TEMPERATURE THAT IS WITHIN COMFORT LIMITS.	

## GENERAL NOTES

1. CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE WORK AS SHOWN ON DRAWINGS.
2. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
3. BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
4. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
5. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
6. CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
7. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
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. 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.
14. 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.
15. 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.
16. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
17. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF THE SAME WHICH MAY BE DAMAGED, LOST, OR STOLEN WITHOUT ADDITIONAL COST TO THE OWNER.
19. 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.
20. SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.

## GENERAL HVAC NOTES

GENERAL:

1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT.
3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
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. LOCATE ALL TEMPERATURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
12. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
13. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR DUCT

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

#### PART-1 PRODUCTS

- 1.1 PERFORMANCE REQUIREMENTS
  - A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.
  - B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.
  - 1. DESIGN SUPPORTS FOR MULTIPLE PIPES CAPABLE OF SUPPORTING COMBINED WEIGHT OF SUPPORTED SYSTEMS, SYSTEM CONTENTS, AND TEST WATER.
  - 2. DESIGN EQUIPMENTS SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS.
  - 3. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

#### 1.2 SUBMITTALS

- A. SHOP DRAWINGS: SIGNED AND SEALED BY A PROFESSIONAL ENGINEER
- 1.3 QUALITY ASSURANCE
  - A. AWS D1.1/D1.1M, "STRUCTURAL WELDING CODE – STEEL."
- 1.4 COMPONENTS
  - A. METAL PIPE HANGERS AND SUPPORTS: CARBON OR STAINLESS STEEL
  - B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL
  - C. FIBERGLASS PIPE HANGERS: –CLEVIS, CENTURY COMPOSITES, COOPER B-LINE
  - D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER
  - E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE
  - F. THERMAL-HANGER SHIELD INSERTS:
  - G. FASTENER SYSTEMS: POWDER-ACTUATED FASTENERS OR MECHANICAL-EXPANSION ANCHORS
  - H. PIPE STANDS: COMPACT, LOW TYPE, SINGLE PIPE, HIGH TYPE, SINGLE PIPE, HIGH TYPE, MULTIPLE PIPES, CURB-MOUNTED TYPE
  - I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

### SECTION 230548 – VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

#### PART 1 – GENERAL

##### 1.1 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.

END OF SECTION 230593

### SECTION 230713 – DUCT INSULATION

#### 1.1 QUALITY ASSURANCE

- C. RESTRAINED VIBRATION ISOLATION ROOF-CURB RAILS: FACTORY-ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR- AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.
- D. VIBRATION ISOLATION EQUIPMENT BASES:
  - 1. STEEL BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS.
  - 2. INERTIA BASE: FACTORY-FABRICATED, WELDED, STRUCTURAL-STEEL BASES AND RAILS READY FOR FIELD-APPLIED, CAST-IN-PLACE CONCRETE

#### 1.2 FIELD QUALITY CONTROL

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

#### PART-2 PRODUCTS

##### 1.1 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. HILTI, INC.
- 5. ISOLATION TECHNOLOGY, INC.
- 6. KINETICS NOISE CONTROL.
- 7. LOOS & CO.; CABLEWARE DIVISION.
- 8. MASON INDUSTRIES.
- 9. TOLCO INCORPORATED; A BRAND OF NIBCO INC.
- 10. UNISTRUT; TYCO INTERNATIONAL, LTD.

END OF SECTION 230548

#### 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 DUCTIMATE, 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

#### 1.2 MATERIALS

- A. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS.
- B. SINGLE-WALL ROUND AND FLAT-oval DUCTS AND FITTINGS.
- C. SHEET METAL MATERIALS:
  - 1. GALVANIZED SHEET STEEL.
  - 2. STAINLESS-STEEL SHEETS.
  - 3. ALUMINUM SHEETS.
  - 4. FACTORY-APPLIED ANTI-MICROBIAL COATING.
- D. DUCT LINER:

- 1. FIBROUS GLASS, TYPE I, FLEXIBLE
  - a. WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.
- 2. FLEXIBLE ELASTOMERIC.
- 3. NATURAL FIBER.

#### E. 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 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 UNIT.
- 4. COILS AND RELATED COMPONENTS.
- 5. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
- 6. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
- 7. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.

#### 1.4 DUCT SCHEDULE

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

END OF SECTION 233113

### 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 ASTM A653 STANDARD SPECIFICATION FOR STEEL SHEET, METAL, ZINC COATED (GALVANIZED) OR ZINC IRON ALLOY-COATED (GALVANIZED) BY HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENT FOR SHEET METALLIC-COATED BY HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES ALL 90° ELBOWS.

#### 1.2 MANUFACTURERS: TITUS

- 1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
- a. CARNES.
- b. HART & COOLEY INC.
- c. KRUEGER.
- d. METALAIR, INC.
- e. NAILOR INDUSTRIES INC.

#### C. ALL DIFFUSERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

#### D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

END OF SECTION 233713

### SECTION 233713 – DIFFUSERS AND GRILLES

#### 1.1 PRODUCTS

- A. DIFFUSERS AND GRILLES SHALL BE FURNISHED AND INSTALLED FOR CAPACITIES AND IN LOCATIONS INDICATED ON DRAWINGS. ALL REGISTERS AND DIFFUSERS SHALL BE PRIME COATED STEEL OR EXTRUDED ALUMINUM FINISHED UNLESS OTHERWISE NOTED IN BAKED WHITE ENAMEL.

#### B. MANUFACTURERS: TITUS

- 1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:
- a. CARNES.
- b. HART & COOLEY INC.
- c. KRUEGER.
- d. METALAIR, INC.
- e. NAILOR INDUSTRIES INC.

#### C. ALL DIFFUSERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

#### D. ALL DUCTED RETURN REGISTERS SHALL HAVE AN OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

# THE MELTING POT

## MECHANICAL FLOOR PLAN

Sheet Number

**M1.1**



### GENERAL NOTES

- A. PROVIDE ALL NEW DUCTWORK AS SHOWN. DUCT WORK ABOVE CEILING TO BE INSULATED ACCORDING TO 2021 IECC.
- B. FLEXIBLE AIR CONNECTORS SHALL BE TESTED IN ACCORDANCE WITH UL 181. SUCH DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE AIR CONNECTORS. FLEXIBLE AIR CONNECTORS SHALL BE LIMITED IN LENGTH TO 4 FEET.
- C. TEST & BALANCE SYSTEM PRIOR TO CLOSEOUT OF PROJECT. PROVIDE DETAILED REPORT TO OWNER, ARCHITECT, & ENGINEER.
- D. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
- E. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
- F. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
- G. 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.
- H. DUCT TO EXHAUST FAN CONNECTIONS SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET OF THE FAN FOR SIDE-INLET UTILITY FANS APPROVED FLEXIBLE CONNECTIONS MAY BE PROVIDED.
- I. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
- J. THE CONTRACTOR SHALL UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST & BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN  $\pm 10\%$  OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
- K. PROVIDE CORD OPERATED DAMPERS FOR AIR TERMINALS MOUNTED IN INACCESSIBLE CEILINGS.
- L. PROVIDE DUCT INSULATION AS SPECIFIED WITH MINIMUM VALUES AS FOLLOWS:
  1. R-6 SUPPLY & RETURN DUCT INSULATION IN UNCONDITIONED SPACES WITHIN BUILDING.
  2. R-8 SUPPLY & RETURN DUCT INSULATION WITHIN BUILDING ENVELOPE ASSEMBLY.
  3. R-8 SUPPLY & RETURN DUCT INSULATION OUTSIDE OF BUILDING.

### KEY NOTES

- ① PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT WITH LOCKING COVER. PROVIDE REMOTE TEMPERATURE SENSORS LOCATED AT 48" A.F.F. COORDINATE LOCATION ON SITE WITH OWNER. AVOID LOCATING NEAR OR ABOVE SOURCES OF HEAT. INTERLOCK WITH ASSOCIATED RTU. CONFIRM FINAL LOCATION WITH ARCHITECT/OWNER.
- ② EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM NEW & EXISTING ROOF TOP UNITS TO SPACE. EXTEND AS SHOWN. TRANSITION DUCT AS NECESSARY TO MAKE CONNECTION. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY & RETURN MAIN DUCTS.
- ③ CONTRACTOR TO PROVIDE TEMPERATURE SENSOR IN THE SPACE & WIRE BACK TO RTU-4(N).
- ④ DENOTES DUCT DROP THRU ROOF FROM EXISTING ROOF TOP UNIT. CONTRACTOR TO VERIFY EXACT LOCATION OF ROOF PENETRATION IN FIELD.
- ⑤ TERMINATE  $\phi 8"$  TOILET EXHAUST DUCT UP THROUGH ROOF.
- ⑥ PROVIDE 8"x8" DOOR GRILLES (WITH V-TYPE BLADES) FOR AIR TRANSFER.
- ⑦ PROVIDE NEW CEILING MOUNTED TYPE TOILET EXHAUST FAN. CONTRACTOR TO INSTALL FAN AS PER MANUFACTURER'S RECOMMENDATION.
- ⑧ 12"x12" KITCHEN EXHAUST DUCT UP THRU ROOF TO KEF-1(N).
- ⑨ CONTRACTOR TO COORDINATE THE FINAL LOCATION OF DIFFUSERS/GRILLES WITH EXISTING LIGHTING FIXTURES IN THE EXISTING CEILING THAT IS TO REMAIN SAME. CONTRACTOR TO VERIFY CONDITION OF EXISTING CEILING BEFORE INSTALLING THE DIFFUSERS/GRILLES. BRING INTO NOTICE OF OWNER/ARCHITECT FOR ANY DISCREPANCIES.
- ⑩ REUSE & RELOCATE EXISTING THERMOSTATS IF THOSE ARE IN GOOD CONDITION. IF NOT OPERABLE, PROVIDE 7-DAY PROGRAMMABLE THERMOSTATS AND RELATED WIRING TO CONTROL RTUS. MOUNT 48" A.F.F. PROVIDE LOCKABLE COVER. RELOCATE AS/IF REQUIRED. CONFIRM & COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER.
- ⑪ REUSE EXISTING REMOTE TEMP. SENSORS MOUNTED IN RETURN AIR DUCT. PROVIDE NEW IF EXISTING TEMP. SENSORS ARE DAMAGED OR NOT WORKING PROPERLY.
- ⑫ EXISTING SUPPLY/RETURN AIR DUCTWORK TO REMAIN. CONTRACTOR SHALL CLEAN AND REFURBISH TO "LIKE NEW" CONDITION. VERIFY EXACT LOCATION AND SIZE IN FIELD, BALANCE CFM'S. PATCH AND SEAL DUCTWORK AIRTIGHT. INSPECT, PATCH, REPAIR AND/OR REPLACE INSULATION AS REQUIRED. CONTRACTOR TO VERIFY IN FIELD PRIOR TO BID.
- ⑬ EXISTING SUPPLY/RETURN DIFFUSERS TO REMAIN. CONTRACTOR TO VERIFY SIZE, LOCATION, TYPE OF DIFFUSER AND COORDINATE WITH ARCHITECTURAL SHEETS (INCLUDING REFLECTED CEILING PLAN). CLEAN AND REFURBISH TO "LIKE NEW" CONDITION. EXTEND/MODIFY DUCTWORK AS REQUIRED. PROVIDE A NEW VOLUME DAMPER OR COLLAR DAMPER IF THE EXISTING ONE IS DAMAGED, AT ALL DUCT BRANCH TAKE-OFFS.

#### NOTE:

1. CONTRACTOR TO VERIFY CONDITION OF EXISTING ROOF TOP UNITS BEFORE COMMENCING THE BID. BRING INTO NOTICE OF OWNER/ARCHITECT FOR ANY DISCREPANCIES.

#### NOTE:

1. AS PER HEAT LOAD CALCULATIONS, THE TOTAL REQUIRED COOLING CAPACITY OF THE HVAC UNITS IS 27.5-TONS. EXISTING UNITS TO HAVE A TOTAL CAPACITY OF 22.5-TONS ONLY. BRING INTO NOTICE OF OWNER/ARCHITECT FOR ANY DISCREPANCIES.

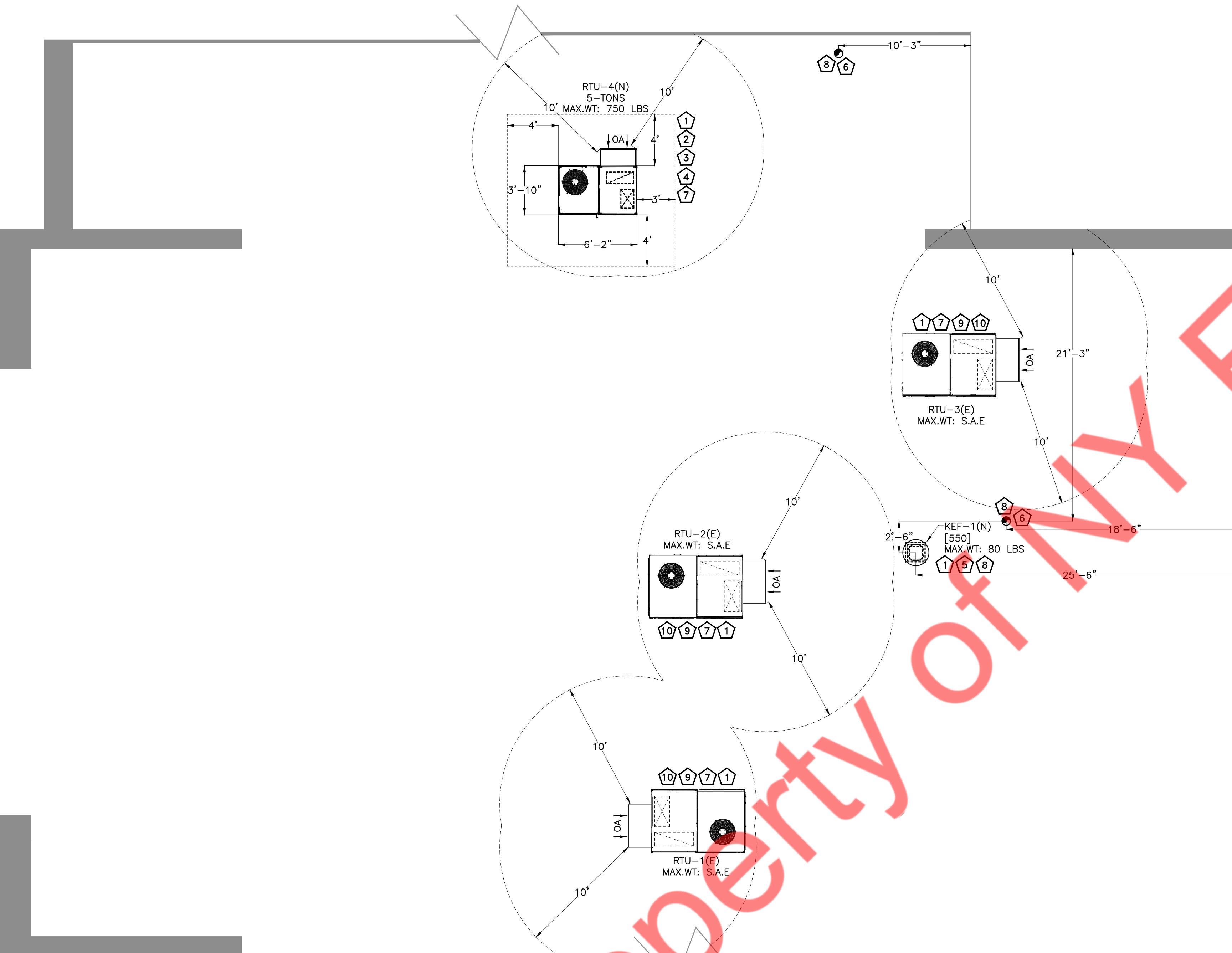
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# THE MELTING POT

## MECHANICAL ROOF PLAN

Sheet Number

**M1.2**

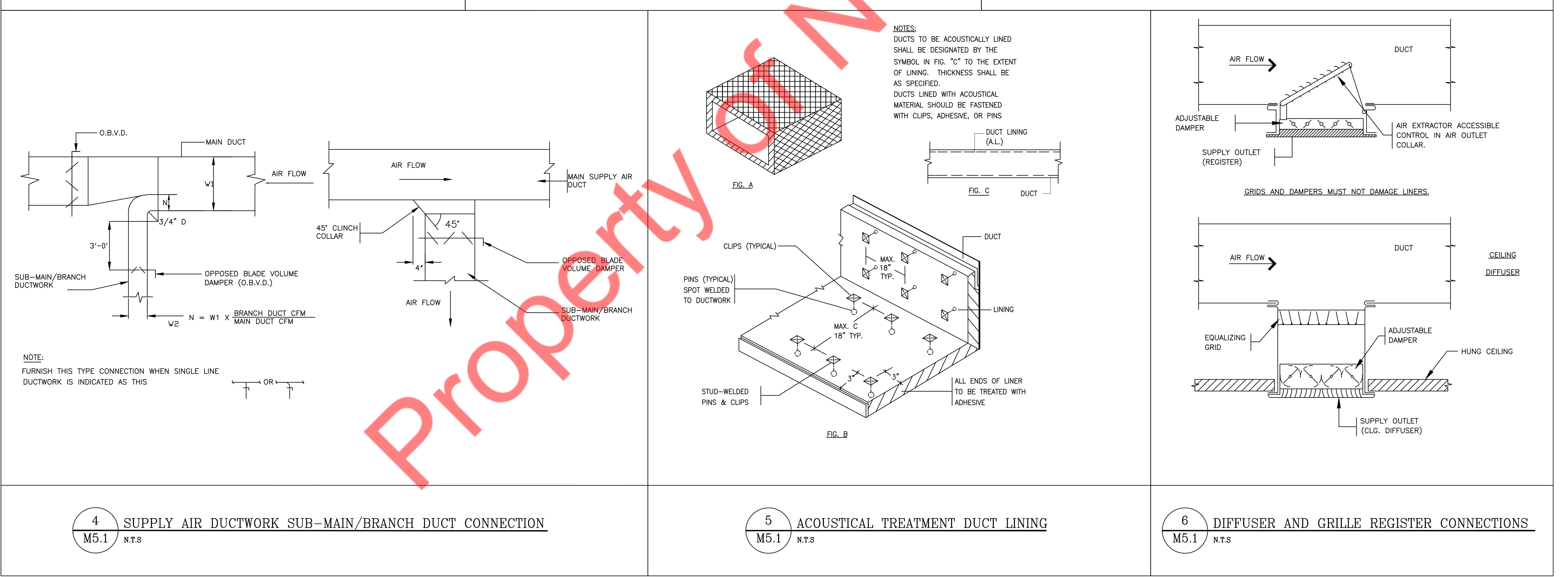
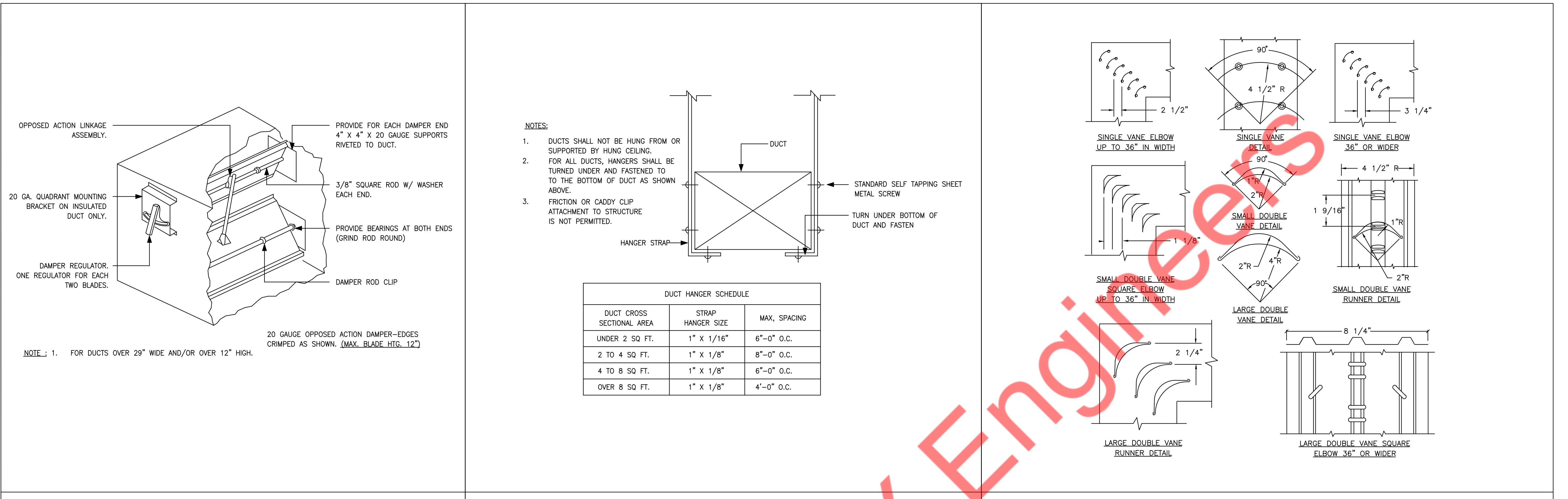


1 MECHANICAL ROOF PLAN  
3/16" = 1'-0"

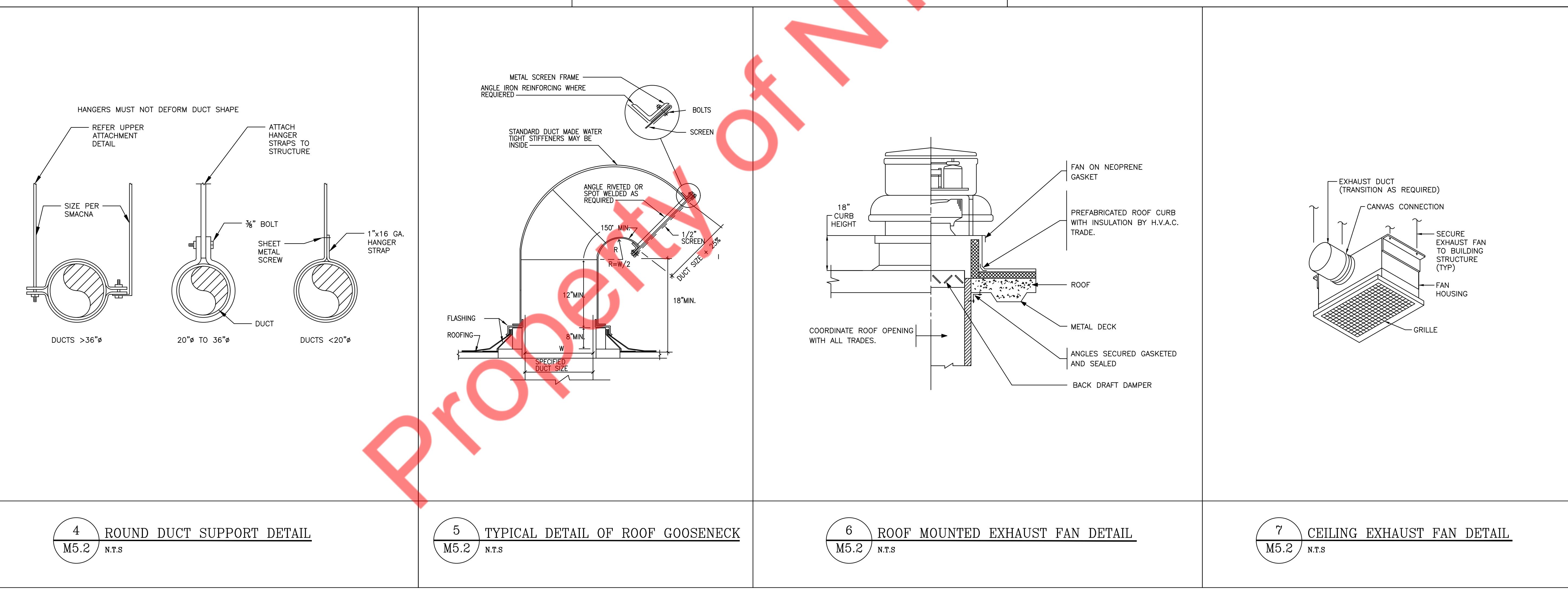
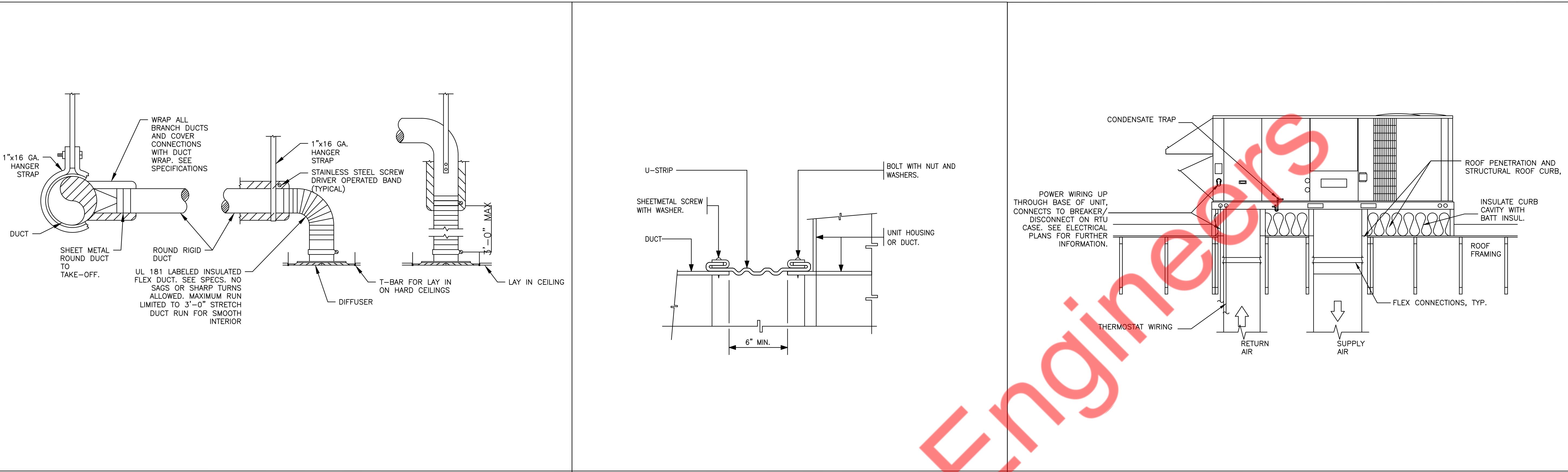
GENERAL NOTES	
A. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.	<i>S</i>
B. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE PROVIDED BY THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.	
C. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.	
D. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.	
E. 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.	
F. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.	
G. ALL ITEMS TO BE RE-USED OR RELOCATED SHALL BE CLEANED, REPAIRED, AND RESTORED TO LIKE NEW CONDITION PRIOR TO RE-USE.	
H. AVOID FREE DUST MOVEMENT AND DIRT MIGRATING TO OCCUPIED AREAS OF THE BUILDING, BLANK 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.	
I. KEEP ALL ADJOINING AREAS ADJACENT TO THE WORK AREAS CLEAN AND FREE OF DEBRIS.	
J. MATERIAL FROM EXISTING SYSTEM WHICH IS RENDERED USELESS SHALL BE REMOVED AND DISPOSED OF OFF SITE.	
K. REPAIR/ REPLACE EXISTING EQUIPMENT/ MATERIALS NOT SCHEDULED IN THE NOTES AS REMOVED, BUT BECOME DAMAGED DURING THE PROCESS OF THE WORK. MAKE ANY AND ALL SUCH REPAIRS/ REPLACEMENTS, MODIFICATIONS TO RESTORE THE DAMAGED ITEMS TO THEIR ORIGINAL CONDITIONS AT THE TIME OF DAMAGE, TO THE SATISFACTION OF AND AT NO ADDITIONAL COST TO THE OWNER.	
L. COORDINATE CUTTING, PATCHING OF EXISTING ROOF, WALLS, CEILINGS, AND FLOORS AFFECTED BY MECHANICAL DEMOLITION WITH G.C.	
KEY NOTES	
① COORDINATE FINAL LOCATION OF EQUIPMENT WITH STRUCTURAL ENGINEER/DRAWINGS.	
② NEW ROOFTOP UNIT IS PROVIDED. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCT CONNECTIONS SEE OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULE. 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.	
③ CONDENSATE DRAIN FROM RTU SHALL BE CONVEYED TO AN APPROVED PLACE OF DISPOSAL. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF NOT LESS THAN 1/8 UNIT VERTICAL IN 12 UNITS HORIZONTAL (1% SLOPE). CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS SO AS TO CAUSE A NUISANCE.	
④ REUSE EXISTING ROOF CURB & PENETRATIONS AS MUCH AS POSSIBLE. REPAIR/MODIFY/REPLACE AS/IF REQUIRED. PROVIDE CURB ADAPTOR AS/IF REQUIRED.	
⑤ PROVIDE ROOF MOUNTED EXHAUST FAN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.	
⑥ TERMINATE Ø8" TOILET EXHAUST DUCT UP THROUGH ROOF WITH GOOSENECK & WIRE-MESH. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.	
⑦ CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY EXHAUST SOURCE SHOULD BE AT LEAST 10' AWAY FROM THE OUTSIDE AIR INTAKE OPENING OF RTUs.	
⑧ CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY INTAKE SOURCE FROM ADJACENT TENANTS SHOULD BE AT LEAST 10'-0" AWAY FROM THE EXHAUST.	
⑨ CONTRACTOR TO COORDINATE THE FINAL LOCATION OF EXISTING RTUs ON ROOF. TRANSITION & CONNECT SUPPLY AND RETURN AIR DUCTWORK FROM BELOW. SET OUTSIDE AIR AS INDICATED ON RTUs SCHEDULE.	
⑩ EXISTING CONDENSATE DRAIN FROM EXISTING RTUs TO REMAIN AS IS. CONTRACTOR TO FLUSH THE EXISTING DRAIN LINES. REPLACE AS/IF REQUIRED.	
NOTE:	
1. CONTRACTOR TO VERIFY CONDITION OF EXISTING ROOF TOP UNITS BEFORE COMMENCING THE BID. BRING INTO NOTICE OF OWNER/ARCHITECT FOR ANY DISCREPANCIES.	

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Drawn by:  
Checked by:  
Issue:  
Design Development  
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UNIT ID	MANUFACTURER	MODEL	AREA SERVED	NOMINAL TONS	ROOF TOP UNIT SCHEDULE										EER	IEER/SEER	THERMAL EFFICIENCY %	MAX OPERATING WEIGHT (LBS.)			
					SUPPLY FAN			HEATING CAPACITY			COOLING CAPACITY										
					SUPPLY AIR CFM	OUTSIDE AIR CFM	MAX. ESP (IN. OF W.G.)	INPUT MBH	OUTPUT MBH	TOTAL MBH	SENSIBLE MBH	AMBIENT TEMP. DB	ENTERING TEMP. DB / WB (°F)	VOLTS	PHASE	MCA (A)	MOCP (A)				
RTU-1(E)	S.A.E	S.A.E	SEE PLAN	S.A.E	S.A.E	495	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E			
RTU-2(E)	S.A.E	S.A.E	SEE PLAN	S.A.E	S.A.E	540	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E			
RTU-3(E)	S.A.E	S.A.E	SEE PLAN	S.A.E	S.A.E	465	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E	S.A.E			
RTU-4(N)	CARRIER	48FCEA06A2A5-0A0A0 (OR EQUIVALENT)	SEE PLAN	5	2000	445	1	110	88	59.3	44.7	95	80/67	208-230	3	31	45	11	14	80	750

**NOTES / ACCESSORIES FOR EXISTING RTUs -**

1. S.A.E.: SAME AS EXISTING., V.I.F.: VERIFY IN FIELD.
2. EXISTING RTUs WITH ALL ACCESSORIES TO REMAIN AND TO BE REUSED.
3. CONTRACTOR TO CONFIRM IF EXISTING RTUs ARE WORKING AT 100% RATED CAPACITY.
4. CONTRACTOR TO FIELD VERIFY EXACT LOCATION AND CONFIGURATION OF RTUs ON SITE.
5. IF REQUIRED, PROVIDE NEW THERMOSTATS AND TEMPERATURE SENSORS COMPATIBLE WITH EXISTING RTUs. COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER.
6. CONTRACTOR TO REBALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON EXISTING RTUs TO MATCH VALUES MENTIONED IN ABOVE TABLE.
7. REPLACE ALL FILTERS, IF REQUIRED. PROVIDE MINIMUM MERV-8 FILTERS.

**NOTES / ACCESSORIES FOR NEW RTU -**

1. CONTRACTOR TO BALANCE OUTSIDE AIR DAMPER ON RTU TO MATCH VALUE MENTIONED IN EQUIPMENT SCHEDULE.
2. 2" MERV 8 STANDARD FILTERS.
3. BOTTOM DISCHARGE & RETURN CONFIGURATION.
4. UNIT TO BE PROVIDED WITH LOW LEAKAGE VOLUME CONTROL DAMPER, NEMA 3R DISCONNECT, FAN WITH VFD, VIBRATION ISOLATION SPRING SUPPORTED BLOWER, INTAKE HOOD, SCREEN INTAKE.
5. PROVIDE ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF & FDD FOR RTU-4(N).
6. PROVIDE FLEXIBLE CONNECTION AT DUCT CONNECTION TO UNIT.
7. PROVIDE VIBRATION ISOLATOR FOR UNIT MOUNTING.
8. UNIT SHALL BE COMPLETE WITH GAS HEATING SECTION. MINIMUM GAS PRESSURE REQUIRED : 4"-13" W.G.
9. CONNECT CONDENSATE DRAIN LINE FROM RTU ON THE ROOF TO THE NEAREST DRAIN POINT. CONNECT TO A DRAIN LINE VIA AIR GAP IN AN APPROVED MANNER.
10. PROVIDE ALL COMPRESSORS WITH 5 YEAR WARRANTY.
11. ANTI SHORT CYCLE TIMER.

EXHAUST FAN SCHEDULE												
TAG	QUANTITY	FLOW RATE	EXTERNAL STATIC PRESSURE	SPEED	ELECTRIC DATA			MAXIMUM LOUDNESS	BASIS OF DESIGN	WEIGHTS (LBS)	REMARK	
					CFM	IN W.G.	RPM					
KEF-1 (N)	1	550	0.75	1390	115/1/60	4.8	15	3.8	57	GREENHECK	G-099-VG	
TEF-1,2,3,4 (N)	4	70	0.5	838	115/1/60	0.4	15	0.29	40	GREENHECK	SP-A50-90-VG	

1) PROVIDE THERMAL OVERLOAD PROTECTION, BACKDRAFT DAMPER, AMCA SEAL & UL CERTIFIED.  
 2) PROVIDE FACTORY MOUNTED & INSTALLED DISCONNECT, NEMA 3R DISCONNECT SWITCH AND ROOF CURB.  
 3) INSTALL AS PER MANUFACTURER'S RECOMMENDATION.  
 4) PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.  
 5) INTERLOCK KEF-1 (N) WITH RTU-1 (E), TEF-1, 2 (N) WITH RTU-3 (E) & TEF-3, 4 (N) WITH RTU-4 (N). COORDINATE WITH ELECTRICAL CONTRACTOR.

AIR TERMINAL DEVICES SCHEDULE									
TAG	SIZE (IN.)	DESCRIPTION	CONSTRUCTION	NECK SIZE (IN.)	BASIS OF DESIGN		NOTES		
					MANUFACTURER	MODEL			
CDS-1	12X12	SQUARE CONE DIFFUSER	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMS-AA			
CDS-2	24X24	SQUARE CONE DIFFUSER	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMS-AA	1,2,3,4,5		
CDR-1	24X24	ALUMINUM EGGCRATE RETURN GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	50F			
CDE-1	24X24	ALUMINUM EGGCRATE RETURN GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	50F			

**NOTES:-**

1) PROVIDE FRAME FOR MOUNTING AIR DEVICE IN LAY-IN GRID CEILING UNLESS REFLECTED CEILING PLAN INDICATES HARD CEILING. IN AREAS UNLESS OTHERWISE NOTED, BRANCH DUCTS SERVING AIR DEVICES SHALL BE SAME SIZE AS NECK OF AIR DEVICE.

3) COORDINATE FINAL COLOR/FINISH WITH ARCHITECT/OWNER.

4) MAXIMUM NOISE CRITERION RATING < 30 DBA.

5) FOR ROUND NECK DIFFUSERS: NECK SIZES SHALL BE:-

16" DIA: 901-1100 CFM  
 14" DIA: 601-900 CFM  
 12" DIA: 401-600 CFM  
 10" DIA: 201-400 CFM  
 8" DIA: 101-200 CFM  
 6" DIA: 0-100 CFM

VENTILATION CALCULATION TABLE												
ROOM NAME	AREA (SQ.FT)	NUMBER OF PEOPLE/1000sq.ft AS PER 2021 IMC	NUMBER OF PEOPLE AS PER 2021 IMC	NUMBER OF CHAIRS	FINAL PEOPLE	MIN OUTSIDE AIR AS PER 2021 IMC	REQUIRED OUTSIDE AIR (CFM)	PROVIDED OUTSIDE AIR (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT) OR (CFM/FIXTURE)	REQUIRED EXHAUST (CFM)	PROVIDED EXHAUST (CFM)	
101-HOSTESS STAND	236	30	8	0	2	5	0.06	24	25	0	0	0
102-BAR	320	100	32	11	12	7.5	0.18	148	150	0	0	0
103-DINING ROOM 1	438	70	31	27	27	7.5	0.18	281	285	0	0	0
104-DINING ROOM 2	240	70	17	22	22	7.5	0.18	208	210	0	0	0
105-DINING ROOM 3	260	70	19	21	21	7.5	0.18	204	205	0	0	0
106-KITCHEN	760	20	16	6	6	7.5	0.12	136	140	0.7	532	550
107-STORAGE	80	0	0	0	0	0	0.12	10	10	0	0	0
108-STORAGE	70	0	0	0	0	0	0.12	8	10	0	0	0
109-DINING SALON	290	70	21	22	22	7.5	0.18	217	220	0	0	0
110-HALLWAY 1	177	0	0	0	0	0	0.06	11	15	0	0	0
111-DINING ROOM 4	112	70	8	8	8	7.5	0.18	80	85	0	0	0
112-DINING ROOM 5	76	70	6	6	6	7.5	0.18	59	60	0	0	0
113-DINING ROOM 6	76	70	6	6	6	7.5	0.18	59	60	0	0	0
114-HALLWAY 2	350	0	0	0	0	0	0.06	21	25	0	0	0
115-RESTROOM	64	0	0	0	0	0	0	0	0	70	70	70
116-RESTROOM	64	0	0	0	0	0	0	0	0	70	70	70
117-DINING ROOM 7	620	70	44	44	44	7.5	0.18	442				

## ELECTRICAL SYMBOLS LIST

ELECTRICAL SYMBOLS LIST				GENERAL NOTES (APPLY TO ALL "E" DRAWINGS)			
LIGHTING		POWER AND TELECOMMUNICATION		ELECTRICAL ABBREVIATIONS			
	FLUORESCENT LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.		JUNCTION BOX WITH BLANK COVER PLATE, FLUSH IN FLOOR.	A	AMPERES	EA	EACH
	LUMINAIRE TYPE : INDICATE BY UPPERCASE LETTER SEE LIGHTING EXTURE SCHEDULE.		JUNCTION BOX WITH BLANK COVER PLATE, WALL MOUNTED, +18" AFF OR AS NOTED.	A/C, AC	AIR CONDITIONING UNIT	EC	EMPTY CONDUIT/ELECTRICAL CONTRACTOR
	CIRCUIT NUMBER : INDICATED BY NUMBER		JUNCTION BOX WITH BLANK COVER PLATE, CEILING MOUNTED..	AF	AMPERE FRAME/AMP FUSE	EF	EXHAUST FAN
	SWITCHING INDICATED BY LOWER CASE LETTERS.		SIMPLEX RECEPTACLE, +18" AFF OR AS NOTED. SUFFIXE DENOTES FOLLOWING: A- NEMA 5-15R B- NEMA 6-15R C- NEMA 14-30R D- NEMA 14-50R	AFF	ABOVE FINISHED FLOOR	EM	EMERGENCY
	EM- DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.		DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.	AS	AMP SWITCH	EMT	ELECTRICAL METALLIC TUBING
	NL- DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS UNSWITCHED CIRCUIT.		DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.	AIC	AMPS INTERRUPTING CAPACITY	EQUIP	EQUIPMENT
	SAME AS ABOVE, EXCEPT WALLWASHER.		DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.	AT	AMP TRIP	ER	EXISTING TO BE RELOCATED
	CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONAL ARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN		CEILING/FLOOR MOUNTED DUPLEX RECEPTACLE	ATS	AUTOMATIC TRANSFER SWITCH	ETR	EXISTING TO REMAIN
	EMERGENCY BATTERY UNIT WITH ATTACHED EMERGENCY FIXTURES AND OUTLET BOX.		FLOOR MOUNTED QUAD RECEPTACLE	AUTO	AUTOMATIC	EWF	ELECTRIFIED WORKSTATION FURNITURE
SWITCHES AND CONTROLS			DUPLEX CONVENIENCE RECEPTACLE, CONTROLLED FROM WALL SWITCH. HALF SWITCHED, HALF CONSTANT HOT.	AWG	AMERICAN WIRE GAUGE	EWH	ELECTRIC WATER HEATER
	20A SPST TOGGLE SWITCH U.O.N. "a" DENOTES LIGHTING FIXTURE CONTROLLED.		DOUBLE DUPLEX RECEPTACLE - 20A-1P, 125V, NEMA 5-20R.	C	CONDUIT	FA	FIRE ALARM
	WALL BOX DIMMER SWITCH, LUTHRON MAESTRO SERIES. "a" DENOTES LIGHTING FIXTURE CONTROLLED.		DUPLEX CONVENIENCE RECEPTACLE WITH GFI PROTECTION	C/B,CB	CIRCUIT BREAKER	FBO	FURNISHED BY OTHERS, INSTALLED & WIRED BY EC
	WALL OCCUPANCY SENSOR, NUMBER INDICATES TYPES; SEE OCCUPANCY SENSOR SCHEDULE.		TELEPHONE/DATA OUTLET, 4" SQUARE OUTLET BOX WITH SINGLE GANG COLLAR AND BLANK PLATE. PROVIDE 3/4" E.C., U.O.N., UP TO HUNG CEILING AND TERMINATE WITH 90° ELBOW, BUSHING AND DRAG WIRE.	CKT	CIRCUIT	FDR	FEEDER
	SWITCH WITH SPEED CONTROLLER U.O.N. "a" DENOTES FIXTURE CONTROLLED.		TELEPHONE OUTLET, WALL-MOUNTED +48" AFF UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1" CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE REE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WITH 1 1/4" DIAMETER GROMMETED OPENING.	CLG	CEILING	FIBO	FURNISHED & INSTALLED BY OTHERS, WIRED BY EC
	MANUAL OVERRIDE SWITCH.		DATA OUTLET - (1) PORT UNO, +18" AFF, UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1" CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WITH 1 1/4" DIAMETER GROMMETED OPENING.	COMM	COMMUNICATION	FIXT	FIXTURE
	WALL MOUNTED PHOTOCELL MOUNTED IN NEMA 3R ENCLOSURE.		DATA OUTLET - (1) PORT UNO, +18" AFF UNO.	CT	CURRENT TRANSFORMER	FL	FLOOR
	CEILING OCCUPANCY SENSOR, NUMBER INDICATES TYPE; SEE OCCUPANCY SENSOR SCHEDULE. 'A' LETTER REFERES TO WIRING DIAGRAM.		CABLE TV OUTLET, WALL-MOUNTED AT 18" AFF UNO.	CU	COPPER	FLUOR	FLUORESCENT
POWER DISTRIBUTION		MOTORS AND CONTROLS				GENERAL NOTES (APPLY TO ALL "E" DRAWINGS)	
	MAJOR ELECTRICAL COMPONENT OR DEVICE. VOLTAGE AND AMPERAGE AS NOTED.		AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.	KCMIL	ONE THOUSAND CIRCULAR MILS	PVC	POLYVINYL CHLORIDE
	BRANCH PANELBOARD, 208Y/120V-SURFACE OR FLUSH MOUNTED TRANSFORMER, SIZE AS NOTED.		AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.	KV	KILOVOLT	PWR	POWER
	DISTRIBUTION PANELBOARD, 208Y/120V-SURFACE OR FLUSH MOUNTED.		NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.	KVA	KILOVOLT-AMPERES	R	REMOVE
ANNOTATION			30A/240V NON FUSED DISCONNECT SWITCH	KW	KILOWATTS	RE	RELOCATED EXISTING
	INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.		60A/240V NON FUSED DISCONNECT SWITCH	LP	LIGHTING PANEL	REC	RECEPTACLE
	KEYED NOTE REFERENCE		100A/240V NON FUSED DISCONNECT SWITCH	LTC	LIGHTING	RGS	RIGID GALVANIZED STEEL
	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM		COMBINATION MAGNETIC STARTER AND DISCONNECT SWITCH, FURNISHED BY HVAC/CONTRACTOR, INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.	MAX	MAXIMUM	RR	REMOVE & RELOCATE
WIRING SYSTEMS			FUSED DISCONNECT SWITCH AND FUSE AMPERAGE AS INDICATED. TOP NUMBER DENOTS SWITCH SIZE AND BOTTOM NUMBER DENOTES FUSE.	MC	MOTOR CONTROLLER	SECT	SECTION
	POWER OR LIGHTING CIRCUITY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 Ø, 1#12 N. & 1#12 G. IN 3/4" C, UNLESS OTHERWISE NOTED.		COMBINATION SOLID-STATE MOTOR STARTER.	MCB	MAIN CIRCUIT BREAKER	SPDT	SINGLE POLE DOUBLE THROW
	POWER OR LIGHTING CIRCUITY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 2#12 N. & 2#12 G. IN 3/4" C, UNLESS OTHERWISE NOTED.		MOTORIZED DAMPER.	MER	MECHANICAL EQUIPMENT ROOM	SPST	SINGLE POLE SINGLE THROW
	POWER OR LIGHTING CIRCUITY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 Ø, 3#12 N. & 3#12 G. IN 3/4" C, UNLESS OTHERWISE NOTED.		FIRE SMOKE DAMPER	MIN	MINIMUM	SPEC	SPECIFICATION
	CONDUIT TURNING UP, SEE FLOOR PLANS FOR CONDITIONS.		DUPLEX PUMP. NUMBER INDICATES HP RATING OF PUMP.	MLO	MAIN LUGS ONLY	SW	SWITCH
	CONDUIT TURNING DOWN, SEE FLOOR PLANS FOR CONDITION.		THERMAL OVERLOAD SWITCH AT MOTOR. PROVIDE THERMAL ELEMENTS AS PER MOTOR RATING.	MTD	MOUNTED	SWBD	SWITCHBOARD
	CONDUIT AND WIRE TO BUILDING GROUND.		MANUAL MOTOR SWITCH	MTS	MANUAL TRANSFER SWITCH	SYM	SYMMETRICAL
	CABLE TRAY, WIDTH AND MOUNTING AS NOTED.		1.5 kW ELECTRICAL HEATER, NUMBER DENOTES HEATER RATING	N	NEUTRAL	SYS	SYSTEMS
CODES AND STANDARDS			VIRGINIA ENERGY CODE 2021 (IECC-2021)	NE	NEW DEVICE TO REPLACE EXISTING	TELE	TELEPHONE
	UNDERGROUND		VIRGINIA ELECTRICAL CODE 2020 (NFPA 70, 2020)	NIC	NOT IN CONTRACT	TEMP	TEMPERATURE
	EXISTING			NL	NIGHT LIGHT	TXF	TOILET EXHAUST FAN
	NEW			NTS	NOT TO SCALE	TYP	TYPICAL
ELECTRICAL DRAWING LIST				OC	ON CENTER	UON	UNLESS OTHERWISE NOTED
E0.1	ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES			P	POLES	V	VOLT/VOLTAGE
E0.2	ELECTRICAL SPECIFICATIONS SHEET 1 OF 2			PB	PULLBOX	VA	VOLT AMPERE
E0.3	ELECTRICAL SPECIFICATIONS SHEET 2 OF 2			Ø	PHASE	VFD	VARIABLE FREQUENCY DRIVE
E1.0	ELECTRICAL LIGHTING PLAN			PNL	PANEL	VP	VAPORPROOF
E2.0	ELECTRICAL POWER PLAN			W	WATT	WP	WEATHER PROOF
E2.1	ELECTRICAL ROOF POWER PLAN			W	WIRE	XFM	TRANSFORMER
E3.0	ELECTRICAL DETAILS SHEET			WH	WALL HEATER	ZRT	ZONE REGISTER TERMINALS
E4.0	ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE			E	EXISTING	IG	ISOLATED GROUND

Comm #  
Scale  
Designed by:  
Drawn by:  
Checked by:  
Issue:  
Design Development  
Progress Set  
Permit Set:  
Revision Number Date

Sheet Number

**EO.1**

## ELECTRICAL SPECIFICATIONS

1. GENERAL:
  - A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.
  - B. DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS, THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.
  - C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.
  - D. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWING MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
  - E. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK MAY BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES AND CHARGES IN MAKING UP THE WORK PROPOSAL.
  - F. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES. AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. MAINTAIN EMERGENCY SYSTEMS WHICH ARE NOT AUTOMATED. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS IS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION, INCLUDING MAINTENANCE OF WIRING CONTINUITY AS REQUIRED.
  - G. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.
  - H. 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.
  - I. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.
  - J. 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.
  - K. ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.
  - L. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICTED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN APPROXIMATELY HOURS, 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.
  - M. 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.
  - N. ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
  - O. INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
  - P. 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 CERTIFICATE OF INSPECTION AND APPROVAL.
2. GENERAL PROVISIONS FOR ELECTRICAL WORK:
  - A. DEFINITIONS:
    - 1) "PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.
    - 2) "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.
    - 3) "FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.
    - 4) "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.
    - 5) "WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.
    - 6) "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.
    - 7) "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.
    - 8) "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.
  - B. TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTION AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEMS DURING WORKING OWNER. PROVIDE ALL REQUIRED MAINTENANCE, INCLUDING LAMPS AND SOCKETS.
  - C. QUALITY ASSURANCE

- 1) QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.
- 2) GUARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.
- 3) CURRENT CHARACTERISTICS:
  - a. SERVICE: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.
  - b. DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUNDED NEUTRAL.
- 4) HEIGHTS OF OUTLETS:
  - a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:
    - RECEPTACLES AND TELEPHONES: 1 FT-6 IN.
    - WALL SWITCHES: 4 FT-0 IN.
    - WALL FIXTURES: 7 FT-0 IN.
    - MOTOR CONTROLLERS: 5 FT-0 IN.
    - CLOCKS: 7 FT 6 IN
  - b. EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDING OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.
- D. PRODUCT DELIVERY, STORAGE AND HANDLING
  - 1) MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.
  - 2) ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.
- E. MATERIALS
  - 1) NAMEPLATES: PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. WHITE LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.
  - 2) CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.
  - 3) INSERTS AND SUPPORTS:
    - a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.
      - SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.
      - MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.
      - CLIP FORM NAILS FLUSH WITH INSERTS.
      - MAXIMUM LOADING 75 PERCENT OF RATING.
    - b. SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.
    - c. GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.
    - d. WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.
  - 4) PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE, DELIVER IN 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.
  - 5) PAINT SHALL BE THE BEST GRADE FOR ITS PURPOSE, DELIVER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON PAINT AND PAINT BOXES, ALUMINUM PAINT ON EXPOSED EQUIPMENT OR DEVICES, 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.
  - 6) 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.
  - 7) FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTACLES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.
  - 8) ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
  - 9) 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 THE NATIONAL ELECTRICAL CODE (NEC), AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.
    - B. ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.
    - C. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP OR OCCUR FROM THE DATE OF FINAL CERTIFICATION PAYMENT AND/OR FROM DATE OF ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.
    - D. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS
  - 10) WORK:
    - E. CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE NEC 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.
    - G. SHOP DRAWINGS
      - A. PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.
      - B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:
        - 1) PROJECT NAME AND LOCATION
        - 2) NAME OF ARCHITECT AND ENGINEER
        - 3) ITEM IDENTIFICATION
        - 4) APPROVAL STAMP OF PRIME CONTRACTOR
      - C. SUBMISSIONS:
        - 1) SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.
        - 2) SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.
      - D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:
        - 1) SAFETY/DISCONNECT SWITCHES
        - 2) FUSES
        - 3) CIRCUIT BREAKERS
        - 4) PANELBOARDS/LOADCENTER (INCLUDING DIMENSIONS, SCHEDULES, AND CATALOG CUTS).
        - 5) RACEWAYS
        - 6) WIRE AND CABLE
        - 7) WALL SWITCHES
        - 8) INSERTION RECEPTACLES
        - 9) MOMENTARY CONTACT SWITCHES
        - 10) TIME SWITCHES
        - 11) LIGHTING FIXTURES.
      - E. ASSIST AND PROVIDE ALL NECESSARY INFORMATION, DIAGRAMS, SKETCHES, ETC. TO THE HVAC CONTRACTOR, FOR THE PREPARATION OF COORDINATED SHOP DRAWINGS INDICATING ROUTING OF FEEDERS, CONTROL CONDUITS, RECESSED FIXTURES AND ADJACENT NEARBY PIPING AND DUCTWORK, WHERE APPROPRIATE, CERTIFIED BY ALL TRADES THAT CONSTRUCTION HAS BEEN ESTABLISHED. SIGN FOUR(4) BOOKBOUND OPERATING AND SERVICE MANUALS WHICH SHALL INCLUDE COPIES OF ALL SHOP DRAWINGS. PROVIDE SHOP DRAWINGS FOR PANELS, FIXTURES, WIRING DEVICES, CONDUIT, CABLE, DISCONNECT SWITCH, RELAYS, CONTRACTORS, AND OTHER SYSTEMS AS DIRECTED BY THE ENGINEER.
      - F. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS
        - A. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.
        - B. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.
        - C. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.
        - D. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION.
      - G. 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 RATING OF 20 AMP, 600 VOLTS, AND 30 AMP, 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HECEMAN NO. 6808F. THREE-POLE SWITCHES SHALL BE SIMILAR TO HART AND HECEMAN 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.
      - H. 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 RATING (FLA) OF 400 AMPERES OR LESS SHALL BE PROTECTED BY FUSES SIMILAR TO CURRENT LIMITING BUSSMAN LOW-PEAK DUAL-ELEMENT TIME-DELAY LPN-RK (AMP)SP (250V) /LPS-RK (AMP)SP (600V) OR LPJ (AMP)SP (600V) (UL CLASS RK1 OR CLASS J), AND BE LISTED BY UL WITH AN INTERRUPTING RATING OF 300,000 AMPERES RMS SYMMETRICAL.
      - I. AMPERES RMS SYMMETRICAL.
        - A. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.
        - B. PROVIDE 1 SPACE MATCHING FUSE FOR EACH SET OF 3.
        - C. 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
        - D. MATERIALS
          - A) RACEWAYS:
            - RIGID STEEL CONDUIT: FULL-WEIGHT PIPE, GALVANIZED, THREADED.
            - ELECTROMETALLIC TUBING (EMT): THIN WALL PIPE, GALVANIZED, THREADLESS.
            - CONTINUOUS SINGLE STRIP, GALVANIZED.
            - WIREWAYS: WIRE SHALL BE AS NOTED, MINIMUM NO. 16 GAUGE STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.
          - B) 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.
        - E) FITTINGS AND ACCESSORIES:
          - RIGID STEEL: NONSPLIT, THREADED, STEEL OR MALLEABLE IRON. ZINC DIE CAST NOT PERMITTED.
          - ELECTROMETALLIC TUBING: COMPRESSION TYPE. GALVANIZED RIGID STEEL ELBOWS, 2 IN. OR LARGER.
          - ANGLE WEDGE TYPE WITH INSULATED THROAT.
          - BUSHINGS: METALLIC INSULATED TYPE.

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Progress Set  
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Sheet Number

**E0.2**

# THE MELTING POT

## ELECTRICAL SPECIFICATIONS SHEET 2 OF 2

Sheet Number

E0.3

### 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 FOR OUTLETS SHALL BE 1-1/4 IN. DEEP, BOXES IN CEILINGS OR SLAB SHALL BE 3 IN. DEEP. BOXES IN WALL FOR FIXTURES 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 277/480 VOLT SYSTEMS. OUTLET BOXES FOR CONDUIT 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, BELL, HORN, HORN POWER, DUAL RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO CUT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

c. PROVIDE RACEWAYS ONLY AS HERIN 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 ACCESSORY SUPPORTS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON THE FLOOR. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE-RATED POKE-THROUGH-FLOOR BOX SYSTEM. PROVIDE RACEWAYS FOR CONDUIT AND CABLES IN 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-HOLDS. SHEATH OR 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 AS NOTED. FOR OTHER RACEWAYS, PROVIDE CONDUIT SUPPORTS OR HOLLOW CONCRETE TIE-UPS. USE HOLLOW CONCRETE TIE-UPS OR TIE-UPS WITH CONCRETE INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND THROU-STRAPS IN METAL. PROVIDE CONDUIT, RAIL PLUGS OR WIRE PLUGS AS NECESSARY. WHERE PERMITTED, WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPATES.

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 COVERS. PROVIDE CONDUIT SUPPORTS FOR PARALLEL RACEWAYS 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. FIELD-CUTTED ENDS SHALL BE TERNATED FOR BRANCH CIRCUITS ONLY. IN DEEP LOCATIONS, DEEP WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES, EMT SHALL NOT BE PERMITTED IN RAISED FLOORS.

FIELD-THREADED CONDUIT SHALL NOT BE USED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS INAPPROPRIATE. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOXES, TRANSFORMERS AND OTHER VIBRATION EQUIPMENT, PROVIDE 1/2 IN. 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-RETARDANT CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE, ONE-PIECE PUZI-GRIP WEDGING PLATE MANUFACTURED BY OZ-GEDNEY. TYPE OF 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 LENGTH TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

A. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURNING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH, SECURE TO BUILDING STRUCTURE, ADJUSTABLE STRAIGHT IRON OR GROUT IN WITH MASON. VERIFY ERECT LOCATION IN ALL 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. CONCEALED JUNCTION AND PULL BOXES IN FINISHED SPACES, WHERE NECESSARY, SHALL BE LOCATED OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS AND MOUNTING PLATES FOR CONDUIT. IN CONSTRUCTION, OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT MOUNT 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-PARTITION ROOMS.

F. PERFORM CONTINUITY TESTS OF RESISTANCE OF FEEDER CONDUCTS FROM SERVICE TO POINT OF FINAL DISTRIBUTION USING 1 CONDUCTOR RETURN. MAXIMUM RESISTANCE SHALL BE 25 OHMS.

9. WIRE AND CABLE:  
 a. PROVIDE WIRE AND CABLE COMPLETE WITH ACCESSORIES. SIZE REFERENCE SHALL BE AWG EXCEPT AS NOTED.

b. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLEING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND 208 VOLTS, CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 275 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

c. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND

PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

d. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IEC STANDARDS. TYPE THW OR THHN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. USE SMOOTH UL LISTED RACEWAYS FOR CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

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

f. COLOR CODING SHALL BE AS FOLLOWS:  
 120/208 VOLT SYSTEM: 277/480 VOLT SYSTEM:  
 BLACK FOR A PHASE BROWN FOR A PHASE  
 RED FOR B PHASE ORANGE FOR C PHASE  
 BLUE FOR C PHASE YELLOW FOR C PHASE

1) NEUTRAL WIRE SHALL UTILIZE WHITE OUTER COVERING THROUGHOUT. EQUIPMENT GROUND WIRE SHALL UTILIZE GREEN OUTER COVERING THROUGHOUT.

WHERE COLOR-CODED CABLE IS NOT AVAILABLE, CERTIFY IN WRITING AND REQUEST PERMISSION TO OVERLAP CONDUCTORS WITH 6 IN. OF COLOR TAPING IN ACCESSIBLE LOCATIONS.

g. PROVIDE FLAMEPROOF LINEN OR FIBER TAGS IN ACCESSIBLE LOCATIONS FOR FEEDERS. INDICATE FEEDER NUMBER, SIZE, PHASE AND POLARITY, ORIGIN OF WIRING, AND DESTINATION FOR CONTROL AND ALARM WIRING. INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.

h. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERINGS. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAW-CUT. PROVIDE 1/2 IN. OF EXPOSED CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTEISZE COMPUND ON TANG.

i. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES GREATER THAN 32 DEG F. FOR RACEWAYS FOR CONDUITS: 120/208 AND 275/480 VOLT SYSTEMS, EXCEPT 480 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 FT.

PERFORM TESTS PRIOR TO CONNECTING EQUIPMENT AND IN PRESENCE OF AUTHORIZED REPRESENTATIVES. SUBMIT WRITTEN REPORT OF RESULTS. CORRECT OR REPLACE CABLE TESTING BELOW MANUFACTURER'S STANDARDS.

11. WIRING DEVICES:  
 a. WIRING DEVICES SHALL BE SPECIFICATION GRADE UNLESS OTHERWISE SPECIFIED. ALL DEVICES SHALL BE FLUSH MOUNTED, UNLESS OTHERWISE NOTED. PROVIDE COMPLETE MATERIAL AND ACCESSORIES AS NOTED.

b. LOCAL WALL SWITCHES SHALL BE ROCKER TYPE, QUIET OPERATING, RATED 20 AMP, 120/277 VOLT, AC. SIMILAR TO LEVITON SERIES A5621 (SINGLE POLE), A5623 (3-WAY) AND A5624 (4-WAY).

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

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

d. INSERTION RECEPTACLES SHALL BE HOSPITAL GRADE DUPLEX CONVENIENCE 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT, GROUNDED, EXCEPT AS NOTED.

1) HEALTH CARE FACILITIES:  
 a) DUPLEX, 20 AMP, 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT: SIMILAR TO HUBBELL NO. 8300 HOSPITAL GRADE.  
 b) SINGLE, 20 AMP, 125 VOLTS, 2 POLE, 3 WIRE, U GROUND SLOT: SIMILAR TO HUBBELL NO. 8310 HOSPITAL GRADE.

2) GROUND FAULT INTERRUPTER RECEPTACLES:  
 a. 20 AMP DUPLEX FEED-THROUGH TYPE, SIMILAR TO NO. GF8300.

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

f. COLORS: COORDINATE COLORS WITH ARCHITECT.

g. MOUNTING ORIENTATION OF RECEPTACLES (HORIZONTAL OR VERTICAL): COORDINATE WITH ARCHITECT.

12. LIGHTING FIXTURES:  
 a. FIXTURES TO BE AS SPECIFIED BY ARCHITECT AND SHALL BE COMPLETELY ASSEMBLED, WIRING AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

b. FIXTURE CATALOG NUMBERS USED TO ILLUSTRATE EQUIPMENT TYPE DO NOT NECESSARILY DENOTE REQUIRED MOUNTING EQUIPMENT OR ACCESSORIES. PROVIDE ACCESSORIES TO SUIT.

c. BALLAST: CLASS P, HIGH POWER FACTOR, LOWEST AVAILABLE NEMA RATED NOISE LEVEL, ETI AND CBM APPROVED. ENERGY SAVING TYPE. FOR SPOT LIGHTING, PROVIDE 120V TANDEM OR 48-INCH, TWO LAMP BALLASTS; NO THREE LAMP BALLASTS. BALLASTS SHALL BE ADVANCE MAGNETIC, UNIVERSAL OR EQUAL.

d. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH IEC/EN 61000-3-2 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

e. DIMMABLE LED DRIVERS SHALL BE CAPABLE OF DIMMING WITHOUT LED STROBING OR FLICKER ACROSS THEIR FULL DIMMING RANGE. PROVIDE TYPE OF LED DRIVER AS PER LIGHTING FIXTURE SCHEDULE. DIMMABLE LED DRIVERS SHALL BE 0-10V WHERE NOT INDICATED.

f. CONTINUOUS ROW, TWO LAMP STRIPLIGHT FIXTURES SHALL BE STAGGERED TYPE.

g. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL BE CONFORMED TO THE ENERGY STAR REQUIREMENTS FOR CONSUMED EDISON CO. AND QUALITY FOR A UTILITY REBATE TO OWNER UNDER CON EDISON'S ENLIGHTENED ENERGY LIGHTING REBATE PROGRAM. CONTRACTOR SHALL COORDINATE REBATE PROGRAM WITH CON EDISON AND APPROVE CON EDISON TO PERFORM A SURVEY TO INVENTORY ALL EXISTING FIXTURES PRIOR TO DEMOLITION.

h. EXIT SIGNS SHALL BE PRECISION DIE-CAST ALUMINUM HOUSING

WITH LASER-FORMED ACRYLIC LEGEND. EXIT SIGNS SHALL COMPLY WITH UL 924 AND BE MEA APPROVED FOR USE IN NEW YORK CITY. AC POWERED WITH PREMIUM LONG-LIFE NICKEL CADMIUM BATTERY WITH STAINLESS STEEL CASE AND RUBBER RIM. PROVIDED WITH INTEGRAL AUTOMATIC CHARGER IN A HALF CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. TELEPHONE CONDUIT SYSTEM:  
 a. PROVIDE COMPLETE SYSTEM OF RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

b. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

c. OUTLETS SHALL BE:  
 1) WALL: 4 IN. SQUARE WITH BUSHED COVER PLATE.

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

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

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

14. GROUNDING AND BONDING:  
 a. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH (NATIONAL ELECTRICAL CODE WITH AMENDMENTS), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONDUCTIVE GROUND SYSTEM. WHERE EXISTING 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 AS INTERNAL BONDING CONDUCTOR SHALL BE INSTALLED.

e. IN ADDITION, FURNISH A SEPARATE INSULATED GROUND 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 CONNECTIONS, PROVIDED THAT THE GROUND CONNECTION IS MADE AT THE EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE, OR AS OTHER WIS IS NOTED ON DRAWINGS.  
 3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPIECLES  
 4) ANY CIRCUIT SERVED BY AN ISOLATION TRANSFORMER OR COMPUTER POWER DISTRIBUTION UNIT.

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

b. CIRCUIT BREAKERS SHALL BE OF THE BOLT-ON THERMAL MAGNETIC MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, A TOTAL OF 5 SPARE CIRCUIT BREAKERS SHALL BE PROVIDED FOR THE OWNER.

c. LOCKING TABS SHALL BE PROVIDED ON ALL CIRCUIT BREAKERS SERVING EMERGENCY LIGHTING, FIRE ALARM SYSTEM, SECURITY SYSTEMS AND OTHER EMERGENCY OR CRITICAL EQUIPMENT AS NOTED ON THE CONTRACT DRAWINGS. CONTRACTOR SHALL RECHECK VOLTAGE AFTER BUILDING LOADS ARE BEING SERVED BY TRANSFORMER AND CHANGE RAPS AS REQUIRED. PROVIDE THE SPECIFIED VOLTAGE ON THE DRAWINGS. TRANSFORMERS SHALL SIMPLY ADJUST TO PROVIDE NOMINAL VOLTAGE WITH TOLERANCE OF +/-1% DURING OFF PEAK LOADS.

f. TRAPEZE MOUNTED TRANSFORMERS SHALL BE SUPPORTED FROM AUXILIARY SUPPORT STEEL BEAMS SECURED TO THE BUILDING SUPPORT BEAMS.

17. INTERCOM CONDUIT SYSTEM:  
 a. PROVIDE COMPLETE SYSTEM OF: RACEWAYS AND ACCESSORIES, OUTLET BOXES, SLEEVES AND FISHWIRES.

b. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

c. OUTLETS SHALL BE:  
 1) WALL: 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

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

e. CONDUIT SHALL BE 3/4 IN. MINIMUM. FURNISH EMPTY CONDUIT FROM EACH APARTMENT TO MAIN INTERCOM CONTROLLER AT ENTRANCE.

18. LOAD CENTERS:  
 a. LOAD CENTERS SHALL COMPLY WITH UL67 AND MEET FEDERAL SPECIFICATION W-P-115C.

b. CIRCUIT BREAKERS SHALL BE OF THE PLUG-IN, 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 TANDEM OR DUPLEX TYPE CIRCUIT BREAKERS SHALL NOT BE PERMITTED. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

c. BUSSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO HANDLE THE TOTAL CIRCUIT RATING. WHERE EXISTING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF BUSSES, MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

d. ENCLOSURES SHALL BE SURFACE OR FLUSH AS INDICATED. TRIMS SHALL BE SECURED TO PANEL WITH MACHINE SCREWS. COVERS SHALL BE SECURED TO PANEL WITH SCREWS. DOORS SHALL BE SECURED TO PANEL WITH SCREWS. 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.

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

f. 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 LAMACID 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 OVERLAYER. 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. SHORC CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED. AS INDICATED, THE DRAWINGS OR SPECIFICATIONS, 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 208/120 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED FOR 480/277 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.

16. LOADCENTERS:  
 a. LOAD CENTERS SHALL COMPLY WITH UL67 AND MEET FEDERAL SPECIFICATION W-P-115C.

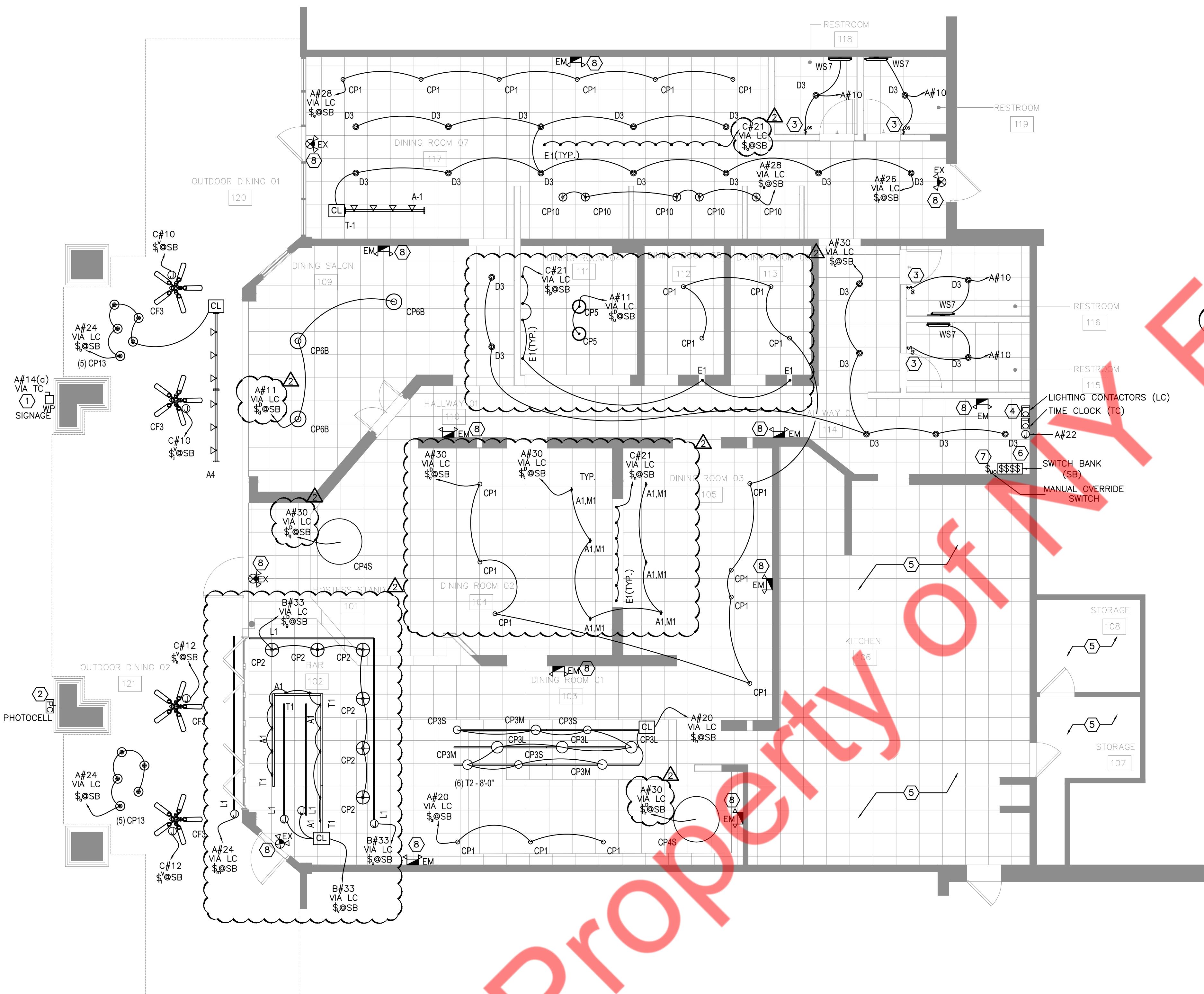
b. CIRCUIT BREAKERS SHALL BE OF THE PLUG-IN, THERMAL MAGNETIC, MOLDED CASE TYPE, AND SHALL HAVE THE TRIP RATINGS AND NUMBER OF POLES SHOWN IN SCHEDULES ON THE CONTRACT DRAWINGS. FOR BLANK (SPACE) COMPARTMENTS, PROVIDE FULL RATED BUS TANDEM OR DUPLEX TYPE CIRCUIT BREAKERS SHALL NOT BE PERMITTED. ONLY ONE WIRE SHALL BE INSTALLED UNDER EACH CIRCUIT BREAKER LUG. TIE-BARS SHALL NOT BE USED TO CREATE MULTI-POLE CIRCUITS. MAXIMUM 42 CIRCUITS ALLOWED.

c. BUSSES SHALL BE HARD DRAWN COPPER OF 98 PERCENT CONDUCTIVITY AND SHALL HAVE CROSS SECTIONAL AREAS LARGE ENOUGH TO HANDLE THE TOTAL CIRCUIT RATING. WHERE EXISTING FULL LOAD, TO 35 DEGREES C. ABOVE AN AMBIENT INSIDE THE ENCLOSURE OF BUSSES, MAIN BUS CAPACITY SHALL BE AS SHOWN ON THE CONTRACT DRAWINGS.

d. ENCLOSURES MANUFACTURED IN CODE GAUGE AND SIZE BOXES FOR FLUSH MOUNTING AS INDICATED ON PLANS COMPLETE WITH TRIM, DOORS AND LOCKS. ALL LOCKS SHALL BE KEYED ALIKE. MINIMUM GUARDIAN SIZE SHALL BE 12" WIDE AND 10" DEEP. 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 208/120 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED FOR 480/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

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# 1 ELECTRICAL LIGHTING PLAN

3/16" = 1'-0"

**Property**

Fixture Type	Manufacturer	Model Number	
CP1	DECORATIVE PENDANT	MITZI	HAILSY OLD BRONZE - H756
CP2	DECORATIVE PENDANT	ELEGANT LIGHTING	LD6047C
CP3S	DECORATIVE PENDANT - SMALL	SEAGULL LIGHTING	LEO HANGING GLOBE - CLEA 6501801EN7-04
CP3M	DECORATIVE PENDANT - MEDIUM	SEAGULL LIGHTING	LEO HANGING GLOBE - CLEA 6501801EN7-04
CP3L	DECORATIVE PENDANT - LARGE	SEAGULL LIGHTING	LEO HANGING GLOBE - CLEA 6501801EN7-04
CP4S	DECORATIVE PENDANT	CUTTING EDGE	METAL LASERED DRUM
CP5	DECORATIVE PENDANT	UTTERMOST	DARSH, 1 LT PENDANT #R22
CP6B	DECORATIVE PENDANT	CUTTING EDGE	METAL LASERED DRUM
CP10	DECORATIVE PENDANT	SHADES OF LIGHT	PE15215
CP13	OUTDOOR DECORATIVE PENDANT	WAC LIGHTING	OUTDOOR PENDANT
D3	RECESSED LED LIGHT	LITELINE	RA4-12RG-90-BK
E1	LOW-VOLTAGE HARDWIRED DECORATIVE CANDLE FIXTURE	QCANDLES	
L1	LINEAR LED LIGHTING	DIODE LED	DI-24V-FV-27K
M1	MONO POINT ADAPTER BLACK	CONTECH LIGHTING	LA-18-B
T1	TRACK	JUNO	R4BL & R8BL
T2	TRACK	SATCO LIGHTING	TR123 (8')
WS7	VANITY LIGHTING	WAC LIGHTING	1939762
CF3	OUTDOOR CEILING FAN	HUNTER	2236624
EM	EMERGENCY LIGHTING FIXTURE	TBD	-
EX	EXIT SIGN WITH EMERGENCY LIGHT FIXTURE	TBD	-

**NOTE:**

1. COORDINATE EXACT MAKE/MODEL NUMBER WITH THE OWNER/ARCHITECT.
2. SELECT LIGHTING FIXTURE RATED FOR SERVICE VOLTAGE OR PROVIDE THE ADAPTER AS NEEDED.
3. PROVIDE SURGE PROTECTOR FOR EACH CANDLE FIXTURE (E1).
4. VERIFY THAT THE LIGHTING FIXTURE IS DIMMABLE.

**LIGHTING FIXTURE SCHEDULE**

- ALL (NEW) LIGHTING FIXTURES ARE TO BE APPROVED BY THE ARCHITECT. E.C. SHALL PROVIDE THE EXACT MAKE, MODEL NUMBER, AND ALL SPECIFICATIONS TO THE ARCHITECT FOR APPROVAL. E.C. SHALL PROVIDE THE EXACT MAKE, MODEL NUMBER, AND ALL SPECIFICATIONS TO THE ARCHITECT FOR APPROVAL.
- THE ADDITIONAL ACCESSORIES (VOLTMETERS, TESTERS, ETC.) REQUIRED FOR THE WORKING OF THE LIGHTING FIXTURES ARE NOT PROVIDED. THE CONTRACTOR IS TO PURCHASE IT SEPARATELY.
- ALL LIGHTING FIXTURES SHALL BE DIMMABLE.
- FOR THE LIGHTING FIXTURES RATED FOR VOLTAGE OTHER THAN 120V, PROVIDE AN EQUIVALENT LIGHTING FIXTURE AS APPROVED BY THE OWNER/ARCHITECT OR PROVIDE THE EXACT MAKE, MODEL NUMBER, AND ALL SPECIFICATIONS TO THE ARCHITECT FOR APPROVAL.
- ALL EMERGENCY LIGHTING FIXTURES SHALL BE PROVIDED WITH BATTERY BACKUP OR AS REQUIRED BY THE OWNER/ARCHITECT.
- WATTS PER FACE FOR EXIT SIGN

**LIGHTING PLAN GENERAL NOTES**

- CONTRACTOR SHALL PROVIDE A COORDINATE APPROVAL, PRIOR TO ORDERING THE LIGHTING FIXTURE. APPROVAL OF THE LIGHTING FIXTURE IS PROHIBITIVE TO THE CONTRACTOR.
- CENTER ALL MECHANICAL AND ELECTRICAL FIXTURES AS SPECIFIED. USE ARCHITECTURAL COORDINATES FOR ALL FIXTURE LOCATIONS.
- PROVIDE FIXTURES AS LISTED IN THE LIGHTING FIXTURE SCHEDULE. PROVIDE FIXTURES AS LISTED IN THE LIGHTING FIXTURE SCHEDULE. PROVIDE FIXTURES AS LISTED IN THE LIGHTING FIXTURE SCHEDULE.
- CONTRACTOR IS ADVISED THAT ALL LIGHTING FIXTURES ARE TO BE PROVIDED IN THE LOCATIONS/QUANTITIES MAY BE INDICATED IN THE LIGHTING FIXTURE SCHEDULE.
- UNLESS OTHERWISE NOTED, LIGHTING FIXTURES ARE TO BE PROVIDED WITH A FACEPLATE.
- E.C. SHALL COORDINATE WITH ARCHITECT/OWNER/LANDLORD FOR THE BID.
- ALL EXTERIOR LIGHTS TO BE TURNED ON AT 120V.
- ALL LIGHT FIXTURES NOT ON THE LIGHTING FIXTURE SCHEDULE ARE TO BE CONTROLLED BY TIMER-CONTROLLER.
- ALL THE LIGHT FIXTURES SHALL BE PROVIDED IN THE LOCATIONS/QUANTITIES AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE. CONTRACTOR IS ADVISED THAT ALL LIGHTING FIXTURES ARE TO BE PROVIDED IN THE LOCATIONS/QUANTITIES AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.
- FOR LIGHTING FIXTURES SPECIFIED AS DIMMABLE, CONTRACTOR IS ADVISED THAT ALL LIGHTING FIXTURES ARE TO BE PROVIDED IN THE LOCATIONS/QUANTITIES AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.

**LIGHTING PLAN KEY NOTES:**

- E.C. SHALL COORDINATE WITH ARCHITECT/OWNER/LANDLORD FOR EXTERIOR SIGNAGE LOCATION. CONTRACTOR IS ADVISED THAT ALL LIGHTING FIXTURES ARE TO BE PROVIDED IN THE LOCATIONS/QUANTITIES AS SPECIFIED IN THE LIGHTING FIXTURE SCHEDULE.
- E.C. SHALL COORDINATE WITH ARCHITECT/OWNER/LANDLORD FOR THE BID.
- WALL MOUNTED SWITCH WITH OPERABLE CONDITION OF THE LIGHTING FIXTURE IS PROHIBITED.
- TIME CLOCK AND LIGHTING CONTACTOR ARE TO BE PROVIDED IN THE FIELD.
- EXISTING LIGHTING FIXTURES ALREADY PROVIDED IN THE FIELD SHALL VERIFY OPERABLE CONDITION OF THE LIGHTING FIXTURE.

**LIGHTING FIXTURE SCHEDULE NOTES:**

- A. ALL (NEW) LIGHTING FIXTURES SHOWN ON THE LIGHTING FIXTURES SCHEDULE ARE SUBJECT TO THE ARCHITECTS APPROVAL. E.C. SHALL COORDINATE MAKE, MODEL, FINISHES, AND OTHER CRITICAL PARAMETERS WITH THE ARCHITECT BEFORE PURCHASING.
- B. THE ADDITIONAL ACCESSORIES (VIZ. DRIVERS AND CURRENT LIMITERS) REQUIRED FOR THE PROPER WORKING OF THE LIGHTING FIXTURES MIGHT NOT BE PROVIDED BY THE VENDOR. E.C. SHALL PURCHASE IT SEPARATELY.
- C. ALL LIGHTING FIXTURES SHALL BE LED-TYPE OPERABLE AT 120V UNLESS OTHERWISE NOTED.
- D. FOR THE LIGHTING FIXTURES RATED OTHER THAN 120 VOLTS, THE CONTRACTOR SHALL EITHER PROVIDE AN EQUIVALENT LIGHTING FIXTURE AT 120 VOLTS (IN COORDINATION WITH OWNER/ARCHITECT) OR PROVIDE AN ADAPTER/TRANSFORMER AS NEEDED.
- E. ALL EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL HAVE A MINIMUM OF 90 MINUTES OF BATTERY BACKUP OR AS REQUIRED BY AHJ.
- F. WATTS PFR FACE FOR EXIT SIGNS SHALL NOT EXCEED 5 WATTS

LIGHTING PLAN GENERAL NOTES:

- A. CONTRACTOR SHALL PROVIDE ARCHITECT WITH LIGHT FIXTURE CUT SHEETS FOR ARCHITECT'S APPROVAL, PRIOR TO ORDERING. NO SUBSTITUTIONS SHALL BE SUBMITTED UNLESS AVAILABILITY OF FIXTURE IS PROHIBITIVE TO MEETING THE PROJECT SCHEDULE.
- B. CENTER ALL MECHANICAL AND ELECTRICAL ITEMS WITHIN EACH CEILING GRID. UNLESS OTHERWISE SPECIFIED. USE ARCHITECTURAL SET FOR PLACEMENT COORDINATION.
- C. PROVIDE FIXTURES AS LISTED IN SCHEDULE, PROVIDE NECESSARY MOUNTING HARDWARE FOR A COMPLETE INSTALLATION, PROVIDE LAMPS, BALLASTS AND SPECIAL CONTROLS
- D. CONTRACTOR IS ADVISED THAT ADJUSTMENTS TO EMERGENCY AND EXIT LIGHT FIXTURE LOCATIONS/QUANTITIES MAY BE REQUIRED BY AHJ UPON FINAL INSPECTION.
- E. UNLESS OTHERWISE NOTED, LIGHT SWITCHES SHALL BE GANGED TOGETHER UNDER A COMMON FACEPLATE.
- F. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR LIGHT FIXTURE QUANTITY, HEIGHTS AND LOCATION BEFORE THE BID.
- G. ALL EXTERIOR LIGHTS TO BE TIME-CLOCK CONTROLLED.
- H. ALL LIGHT FIXTURES NOT ON THE OCCUPANCY SENSOR / OTHER AUTOMATIC CONTROL SHALL BE CONTROLLED BY TIMER-CONTROLLED LIGHTING CONTACTOR(S).
- I. ALL THE LIGHT FIXTURES SHALL PROVIDE AND INSTALL BY LANDLORD/GC. E,C SHALL COORDINATE WITH ARCHITECT/OWNER/LANDLORD FOR MORE INFORMATION.
- J. FOR LIGHTING FIXTURES SPECIFIED WITH THE DIMMER CONTROL, SHARING OF THE NEUTRAL IS STRICTLY PROHIBITED.

LIGHTING PLAN KEY NOTES: 

1. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF DISCONNECT SWITCH FOR EXTERIOR SIGNAGE LOCATION OR REUSE EXISTING DISCONNECT AND CIRCUIT IF AVAILABLE. VERIFY OPERABLE CONDITION OF DISCONNECT AND CIRCUIT IN THE FIELD.
2. E.C SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE PHOTO CELL IN THE FIELD.
3. WALL MOUNTED SWITCH WITH OCCUPANCY SENSOR. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT IN THE FIELD.
4. TIME CLOCK AND LIGHTING CONTRACTOR FOR LIGHTING CONTROL. E.C. SHALL COORDINATE EXACT LOCATION IN THE FIELD.
5. EXISTING LIGHTING FIXTURES ALONG WITH THEIR CIRCUITS AND CONTROLS SHALL REMAIN. E.C. SHALL VERIFY OPERABLE CONDITIONS IN THE FIELD. REPLACE IF FOUND INOPERABLE.
6. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE SWITCH BANK IN THE FIELD. ALL THE SWITCHES TAGGED AS ( \$ @ SB ) IN THE PLAN SHALL BE INSTALLED IN THE SWITCH BANK. REFER TO THE LIGHTING PLAN FOR NUMBER OF THE SWITCHES REQUIRED.
7. MANUAL OVERRIDE SWITCH. THE OVERRIDE SWITCH, WHEN INITIATED, SHALL PERMIT THE CONTROLLED LIGHTING TO REMAIN ON FOR NOT MORE THAN 2 HOURS.
8. LOOP ALL EMERGENCY LIGHT FIXTURES AND EXIT SIGNS AND WIRE THEM BACK TO THE EMERGENCY LIGHTING CIRCUIT (A#8) IN THE PANEL BOARD. THE CIRCUIT BREAKER SHALL HAVE A LOCKOUT BREAKER.

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# THE MELTING POT

# ELECTRICAL LIGHTING

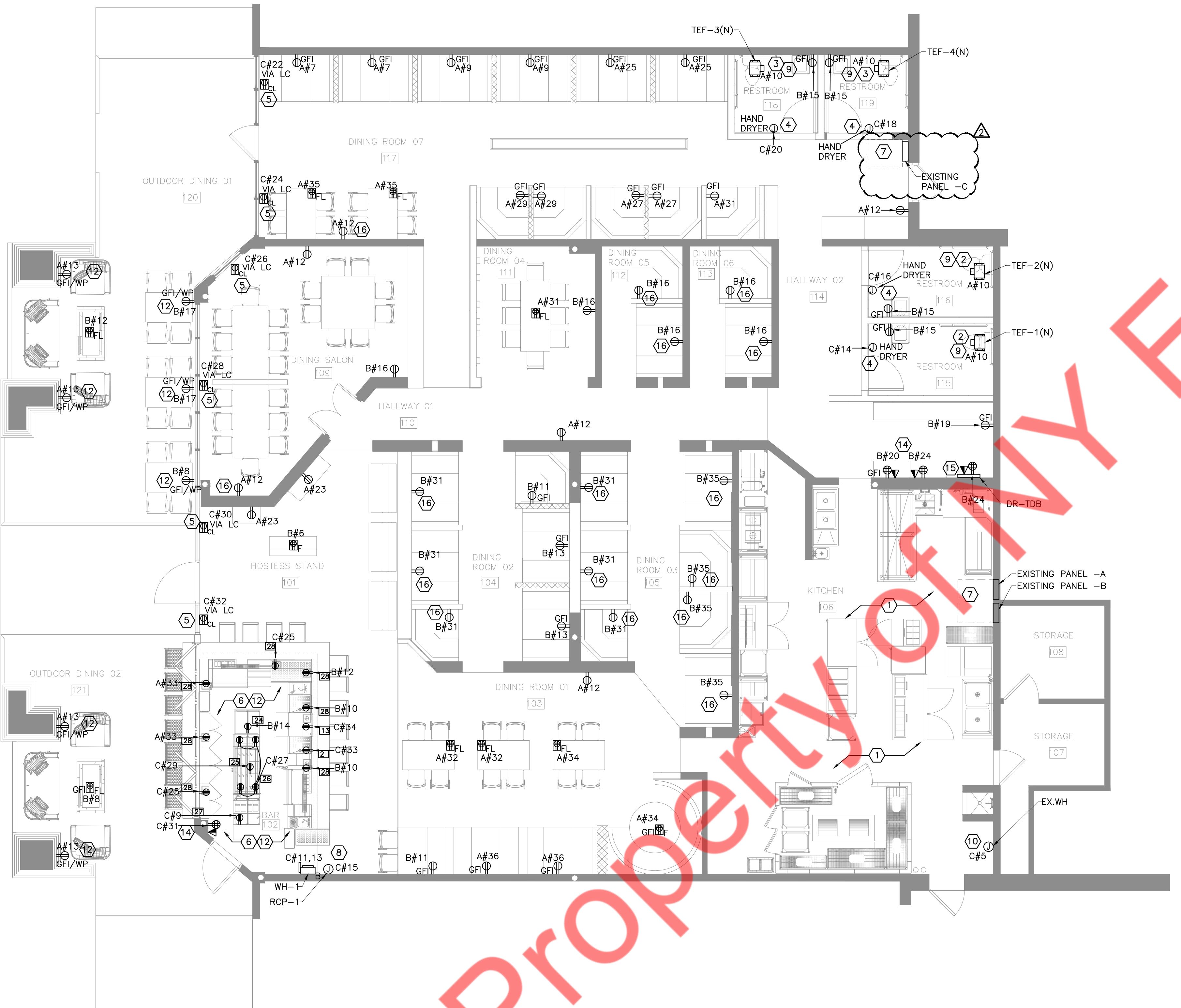
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# THE MELTING POT

## ELECTRICAL POWER PLAN

Sheet Number E2.0



1 ELECTRICAL POWER PLAN  
3/16" = 1'-0"

### ELECTRICAL POWER PLAN KEY NOTES: #

- EXISTING EQUIPMENT IN THE KITCHEN SHALL REMAIN CONNECTED TO THE EXISTING CIRCUIT. E.C. SHALL VERIFY THE OPERABLE CONDITION OF THE ELECTRICAL CIRCUIT AND CONTROL IN THE FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- INTERLOCK TEF-1, 2 (N) WITH RTU-3 (N). COORDINATE WITH MECHANICAL CONTRACTOR.
- INTERLOCK TEF-3, 4 (N) WITH RTU-4 (N). COORDINATE WITH MECHANICAL CONTRACTOR.
- JUNCTION BOX FOR HAND DRYER. E.C. TO COORDINATE WITH ARCHITECT/OWNER FOR JUNCTION BOX EXACT LOCATION AND POWER REQUIREMENT IN THE FIELD.
- PROVIDE CEILING MOUNTED RECEPTACLE FOR SHOW WINDOW AS REQUIRED BY CODE. COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS FOR LED TAPE AND USB PLUGMOLD IN THE FIELD. PROVIDE WIRING AS REQUIRED.
- E.C. SHALL VERIFY THE EXACT LOCATION OF THE EXISTING PANEL IN THE FIELD. ALSO, ENSURE CLEAR WORKING AND DEDICATED SPACE HAVE BEEN PROVIDED AS PER NEC 110.26.
- E.C. SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.
- EXISTING WATER HEATER SHALL REMAIN CONNECTED TO THE EXISTING CIRCUIT. E.C. SHALL VERIFY THE OPERABLE CONDITION OF THE ELECTRICAL CIRCUIT AND CONTROL IN THE FIELD. REPLACE IF FOUND INOPERABLE WITH AS SHOWN ON PLAN. BASE BID ACCORDINGLY.
- NOT USED.
- E.C. SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT LOCATION AND MOUNTING HEIGHT OF ELECTRICAL OUTLET IN THE FIELD. MAKE PROVISION ACCORDINGLY.
- NOT USED.
- E.C. SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT LOCATION AND MOUNTING HEIGHT OF QUAD RECEPTACLE AND DATA, TEL. FOR POS IN THE FIELD.
- PLYWOOD-BACKED OUTLETS FOR DATA AND TELEPHONE SERVICES. COORDINATE WITH THE ARCHITECT/OWNER/SERVICE PROVIDER FOR OTHER REQUIREMENTS. PROVIDE CONDUIT AND CONNECTION AS REQUIRED.
- E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR MOUNTING HEIGHT AND PLACEMENT OF DUPLEX OUTLET WITH USB SLOT IN THE FIELD.

### ELECTRICAL POWER PLAN GENERAL NOTES:

- ALL THE BRANCH WIRING SHALL BE COPPER. THE INSULATION SHALL BE RATED FOR THE AREA OF THE USE.
- THE LOCATION OF ALL ELECTRICAL EQUIPMENT (NOT PROVIDED IN ARCHITECTURAL PLAN) SHALL BE VERIFIED WITH THE ARCHITECT/OWNER BEFORE BID.
- POWER AND LOCATION OF ALL THE MECHANICAL AND PLUMBING UNITS SHALL BE COORDINATE WITH RESPECTIVE CONTRACTORS BEFORE BID.
- ELECTRICAL OUTLETS PLACED ON BOTH SIDE OF THE WALL PARTITION TO BE LOCATED OFFSET OF EACH OTHER.
- VERIFY ALL OUTLET LOCATIONS PRIOR TO ROUGH-IN.
- RUN CONDUITS BELOW ROOF AS FAR AS POSSIBLE BEFORE RISING UP THROUGH ROOF PENETRATE ROOF INSIDE THE EQUIPMENT CURB WHERE PERMITTED.
- ROOF CONDUITS SHALL MAINTAIN A CLEARANCE GREATER THAN 12" FROM THE ROOF SURFACE THIS MAY BE ACCOMPLISHED BY RUNNING ALONG THE WALLS OR ON GALVANIZED STRUT RACKS.
- PROVIDE HAGR (HEATING AIR CONDITIONING AND REFRIGERATION) RATED CIRCUIT BREAKERS FOR ALL HEATING, AIR CONDITIONING, AND REFRIGERATION EQUIPMENT.
- COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ROOF WITH MECHANICAL CONTRACTOR.
- ALL 125 VOLT, SINGLE PHASE, 15 AND 20 AMP RECEPTACLES INSTALLED IN THE KITCHEN, DISHWASHING, PREP AREAS, SHALL HAVE GROUND FAULT CIRCUIT INTERRUPTER PROTECTION FOR PERSONAL. PROVIDE A GFCI TYPE RECEPTACLE WHERE THE RECEPTACLE IS READILY ACCESSIBLE OTHERWISE PROVIDE A GFCI BREAKER IN THE PANELBOARD, PER CEC 210-8 (b), #3.
- ALL EXPOSED CONDUIT SHALL BE INSTALLED AT LEAST 6" OFF THE FLOOR AND 1" AWAY FROM THE WALL TO FACILITATE CLEANING.
- COORDINATE EXACT LOCATION, TERMINATIONS, MOUNTING HEIGHTS AND ELECTRICAL CHARACTERISTICS FOR EACH SPECIFIC MODEL AND PIECE OF EQUIPMENT WITH THE OWNER'S REPRESENTATIVE AND KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-INS INSTALLATION. PROVIDE ELECTRICAL SERVICE AS REQUIRED FOR EACH PIECE OF EQUIPMENT. ALL RECEPTACLES SHALL BE VOLTAGE RATING AND AMPACITY TO MATCH MANUFACTURERS RECOMMENDATIONS.
- PROVIDE RJ-45 OUTLET FOR EACH DATA OUTLET AND ROUTE CAT5e FOR EACH DATA OUTLET.
- COORDINATE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS OF THE MOTORIZED DAMPERS AND THERMOSTATS IN THE FIELD. PROVIDE WIRING AS REQUIRED.
- GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFI RECEPTACLE DISCONNECT IN THE READILY ACCESSIBLE LOCATION. PROVIDE GFI BREAKER IN THE PANEL IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE WHEN INSTALLED IN THE DESIRED LOCATION.
- ALL RECEPTACLES IN THE KITCHEN AREA SHALL BE GFCI-PROTECTED. E.C. SHALL PROVIDE AND INSTALL GFCI CIRCUIT BREAKERS FOR ALL CIRCUITS FEEDING KITCHEN EQUIPMENT REQUIRING GFCI PROTECTION THAT ARE INACCESSIBLE, BEFORE OR AFTER APPLIANCE HAS BEEN INSTALLED, IF RECEPTACLE DOESN'T PROVIDE GFCI PROTECTION. NEC 210.8 AND 422.4(a).

### ELECTRICAL EQUIPMENT SCHEDULE GENERAL NOTES

- FOR EQUIPMENT RATED FOR OTHER THAN THE SERVICE VOLTAGE, THE CONTRACTOR SHALL EITHER PROVIDE EQUIVALENT EQUIPMENT AT SERVICE VOLTAGE (IN COORDINATION WITH OWNER/ARCHITECT) OR PROVIDE AN ADAPTER/TRANSFORMER FOR THAT EQUIPMENT.
- VERIFY ALL MOA, MOCP, CONNECTION TYPE, AND OTHER INSTALLATION REQUIREMENTS WITH FOOD SERVICE CONSULTANT AND EQUIPMENT MANUFACTURER BEFORE BID.
- LOCATIONS OF DISCONNECTS FOR EACH PIECE OF EQUIPMENT MAY NOT BE SHOWN ON PLANS. IF DISCONNECT FOR EQUIPMENT IS NOT SHOWN, THE CONTRACTOR TO FIELD COORDINATE LOCATION PER CODE.
- FUSED DISCONNECTS SHALL HAVE FUSES SIZED AS LISTED ON THE EQUIPMENT NAMEPLATE, OTHERWISE MATCH THE UPSTREAM OVERCURRENT DEVICE IF NO MAXIMUM OVER-CURRENT SIZE IS LISTED ON THE EQUIPMENT, UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING AND INSTALLING ALL CONDUITS, WIRE, SUPPORT SYSTEM, DISCONNECTS, AND OUTLETS TO ALLOW FOR A COMPLETE CODE-COMPLIANT KITCHEN INSTALLATION.
- CONTRACTOR SHALL LIMIT THE AMOUNT OF EXPOSED CONDUIT. ANY EXPOSED CONDUIT SHALL BE LIQUID-TIGHT FLEXIBLE METAL CONDUIT OR RIGID GALVANIZED STEEL CONDUIT.
- ALL ELECTRICAL EQUIPMENT LOCATED ON WALLS OF PRODUCTION KITCHEN AREAS SHALL BE A MINIMUM OF 48" AFF UNLESS NOTED OTHERWISE. ALL ELECTRICAL EQUIPMENT LOCATED ABOVE COUNTERS OF KITCHEN AREAS SHALL BE 6" ABOVE THE COUNTER UNLESS NOTED OTHERWISE. ALL ELECTRICAL EQUIPMENT LOCATED BELOW COUNTERS AND WITHIN THE CASEWORK OF KITCHEN AREAS SHALL BE 6" BELOW THE TOP OF COUNTERS UNLESS NOTED OTHERWISE.
- THE CIRCUIT FOR THE TABLE BURNER IN THAT AREA SHOULD USE THE NEAREST AVAILABLE ONE, INSTEAD OF THE ONE SHOWN ON THE PLAN. OTHERWISE USE THE ONE SHOWN ON THE PLAN. MOUNTING HEIGHT AND LOCATION OF THE OUTLET TO BE COORDINATE WITH ARCHITECT/OWNER/EQUIPMENT VENDOR.

### BAR EQUIPMENT SCHEDULE

TAG	QTY.	EQUIPMENT	MANUFACTURER	MODEL	VOLTAGE	PHASE	AMPS	CONNECTION	COMMENT
2	1	BLENDER SHELF 12"	KROWNE		115	1	-	DUPLEX OUTLET	
13	1	GLASSWASHER	ECOLAB	OMEGA 5E	115	1	16		
24	1	COUNTER HEIGHT WINE COOLER	EUDROB	USF54	110	1	1.1	NEMA 5-15P	
25	1	DOUBLE DOOR BACKBAR WITH SLIDING DOORS	KROWNE	KPT60L	115	1	-	NEMA 5-15P	
26	4	24" DOUBLE LIGHTED LIQUOR DISPLAY	KROWNE	-	115	1	-	-	
27	1	32" MEGA FRIG	TRUE	TFP-32-12M	115	1	3.3	NEMA 5-15P	
28	7	IMR. INDUCTION COOKTOP	SUNPAN - MR. INDUCTION	SR-141R 8A	120	1	8	-	

NOTES:

- COORDINATE EXACT MAKE/MODEL NUMBER WITH THE OWNER/ARCHITECT.
- COORDINATE EXACT POWER REQUIREMENTS WITH THE EQUIPMENT VENDOR.
- COORDINATE THE EXACT CONNECTION TYPE WITH THE VENDOR BEFORE BID.
- COORDINATE MOUNTING HEIGHT OF THE RECEPTACLE OR DISCONNECTION WITH THE ARCHITECT/OWNER.
- PROVIDE CIRCUIT BREAKER, WIRING, JUNCTION BOX, RECEPTACLES, DISCONNECTS AS NEEDED.
- SELECT EQUIPMENT RATED FOR SERVICE VOLTAGE OR PROVIDE THE ADAPTER OR TRANSFORMER AS NEEDED.

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Drawn by:  
Checked by:  
Issue:  
Design Development  
Progress Set  
Permit Set:  
Revision Number Date

**THE MELTING POT**  
**ELECTRICAL ROOF**  
**POWER PLAN**

Sheet Number  
**E2.1**

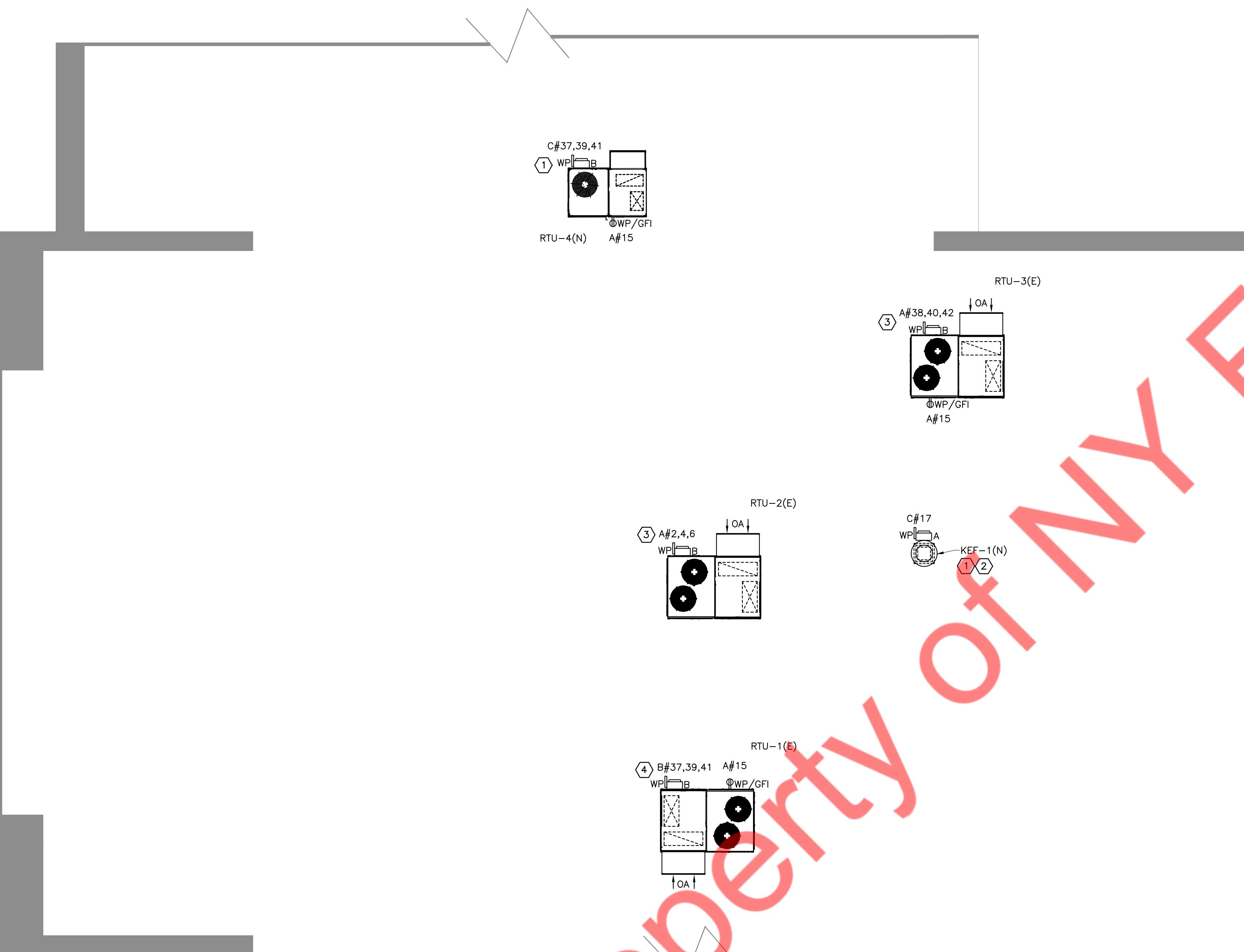
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ROOF POWER PLAN GENERAL NOTES:

- A. ALL THE ELECTRICAL ELEMENT VIZ. CONDUITS, WIRING, AND DISCONNECT SWITCHES SHALL BE RATED FOR THE EXTERIOR USE.
- B. THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.
- C. GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFI BREAKER IN THE PANEL FOR THE INDICATED CIRCUIT IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE.
- D. A 125-VOLT, SINGLE-PHASE, 15- OR 20-AMPERE-RATED RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION WITHIN 7.5 M (25 FT) OF THE EQUIPMENT AS SPECIFIED IN 210.63(A) AND (B) AS PER NEC 210.63.

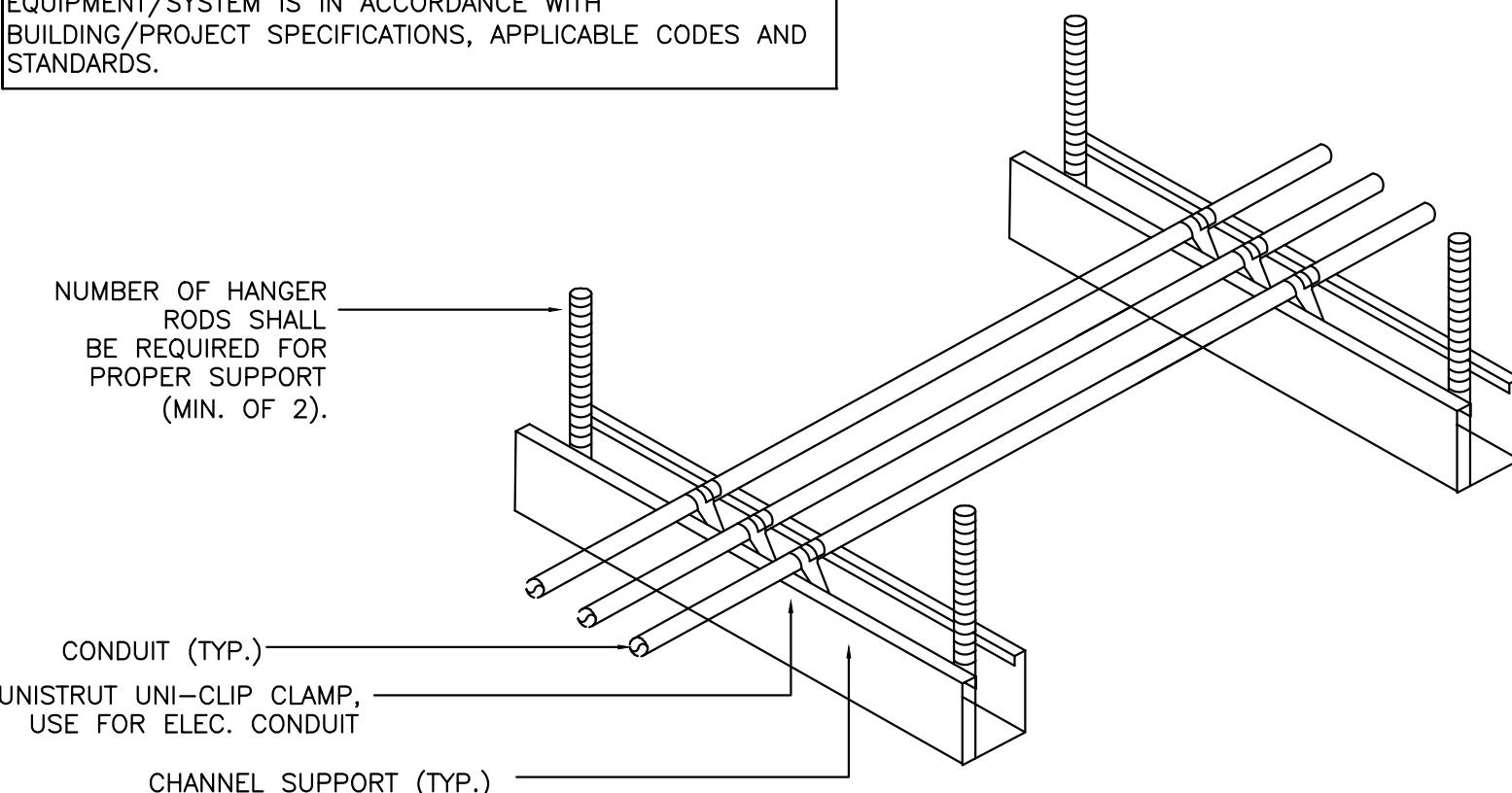
ROOF POWER PLAN KEY NOTES: 

1. E.C. SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE HVAC UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROLS AS REQUIRED.
2. INTERLOCK KEF-1 (N) WITH RTU-1 (N). COORDINATE WITH MECHANICAL CONTRACTOR.
3. EXISTING MECHANICAL EQUIPMENT SHALL REMAIN CONNECTED TO THE EXISTING CIRCUIT. E.C. SHALL VERIFY THE OPERABLE CONDITION OF THE ELECTRICAL CIRCUIT AND CONTROL IN THE FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
4. EXISTING MECHANICAL EQUIPMENT TO REMAIN. E.C. SHALL REROUTE THE EXISTING WIRING AND CONNECT TO THE INDICATED CIRCUIT.



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



**NOTES:**

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

**MANUAL MODE OPERATION:**

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

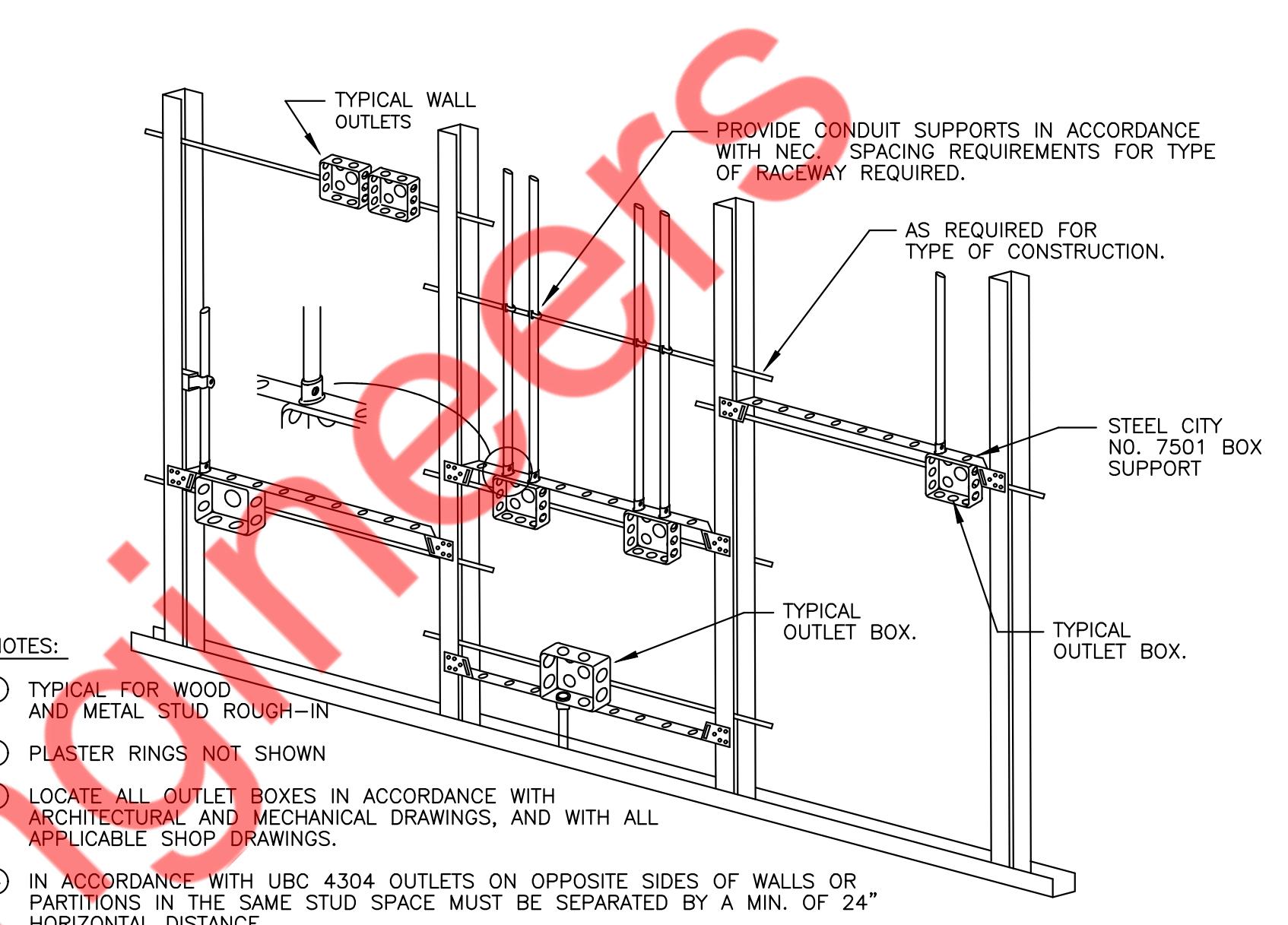
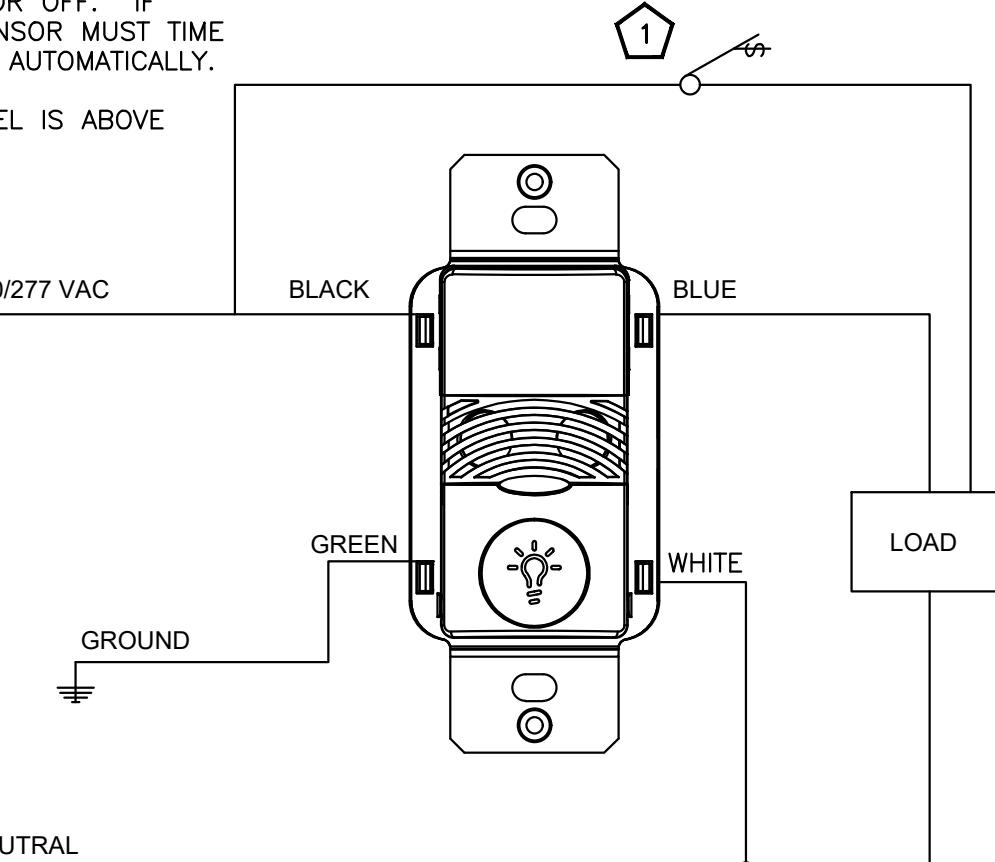
**AUTOMATIC MODE OPERATION:**

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

**SENSOR TYPES INCLUDE:**

ONW-D-1001-MV-N

① PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.

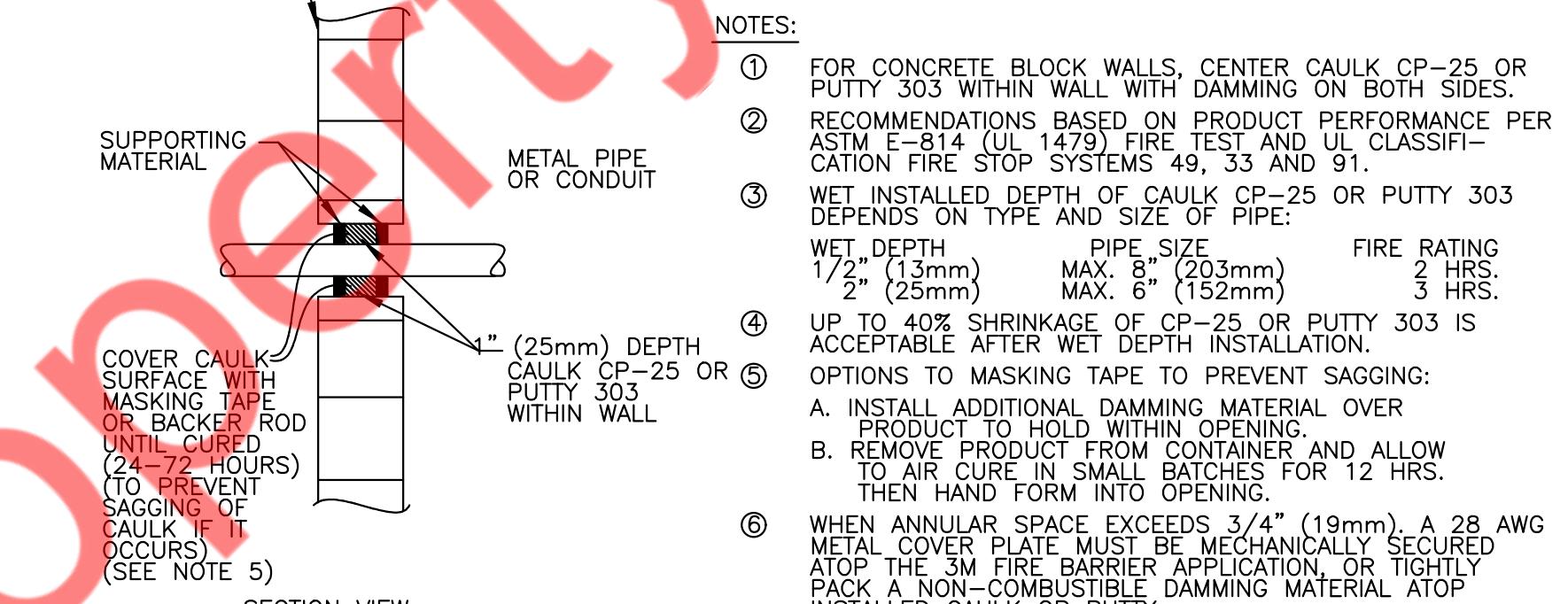
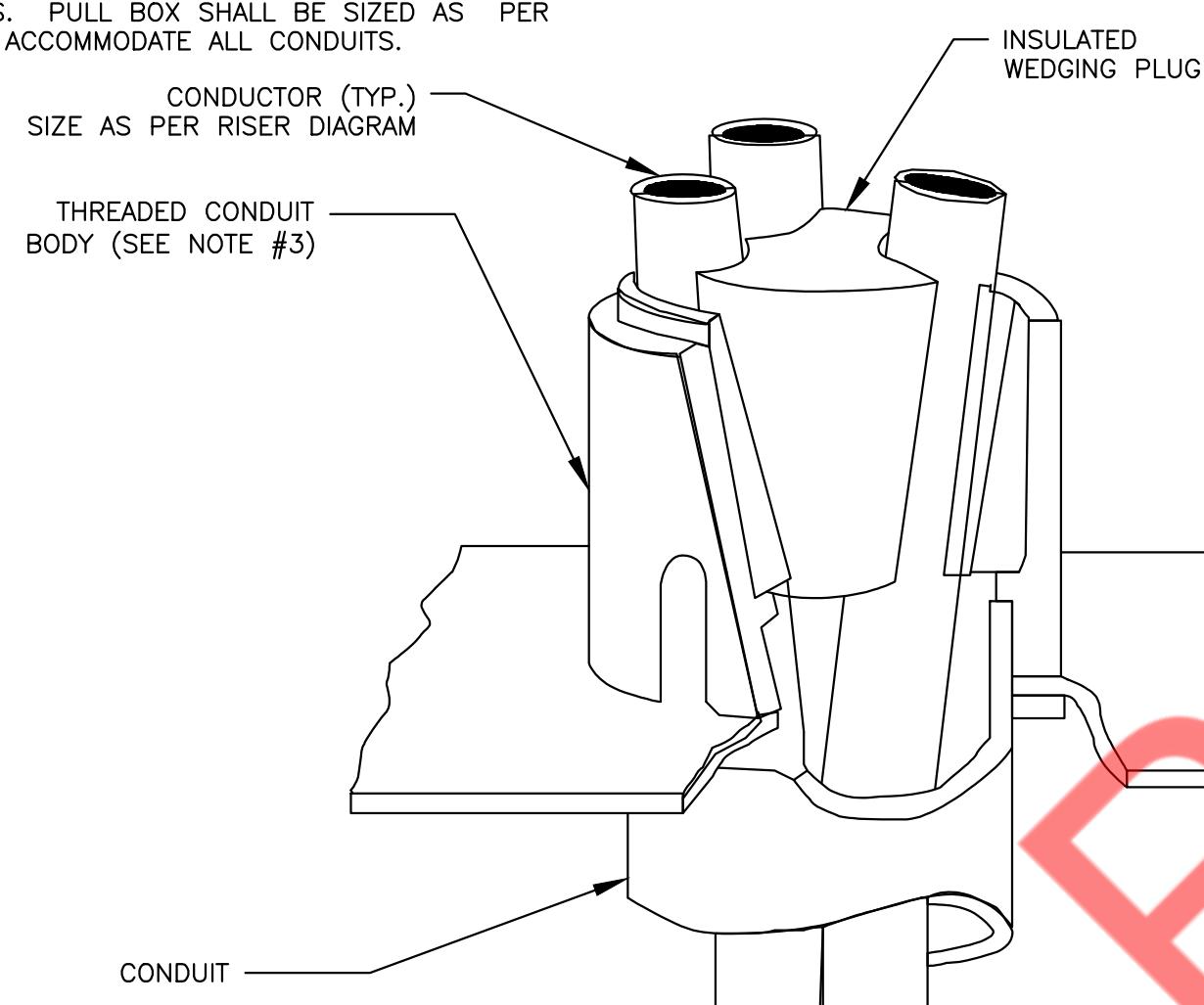


**6 CONDUIT SUPPORT DETAIL**  
E3.0 N.T.S

**4 WIRING DIAGRAM-LOW VOLTAGE WALL SWITCH SENSOR(NEUTRAL CONNECTION) OCCUPANCY/VACANCY-SINGLE LEVEL**  
E3.0 N.T.S

**NOTES:**

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

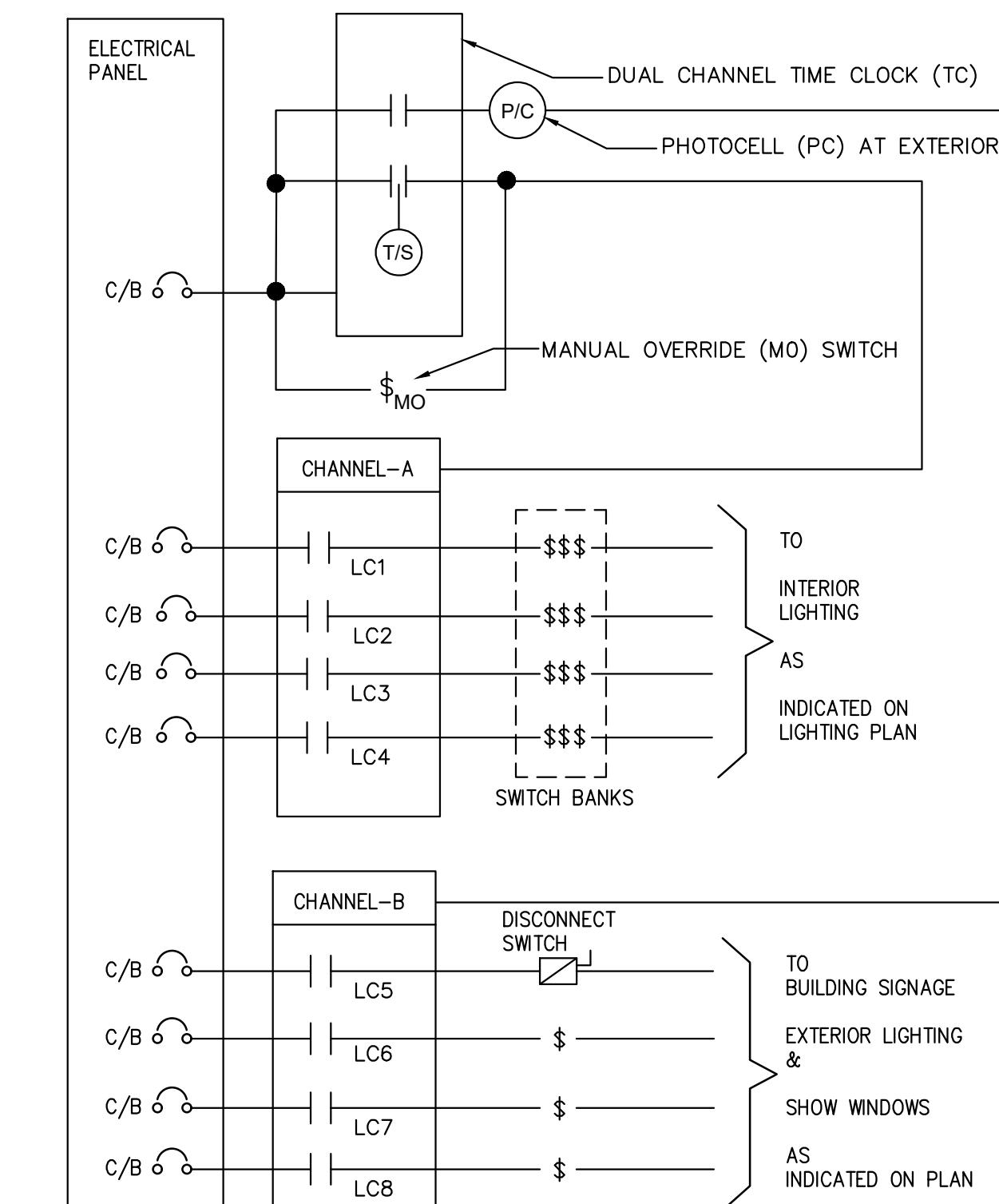


**5 VERTICAL CABLE SUPPORT DETAIL**  
E3.0 N.T.S

**3 FIRE STOP DETAIL**  
E3.0 N.T.S

**2 DETAIL TYPICAL ROUGH-IN REQUIREMENTS**  
E3.0 N.T.S

DIAGRAM BELOW INDICATES THE GENERAL ARRANGEMENT OF THE LIGHTING CONTACTORS.  
SEE ELECTRICAL LIGHTING PLAN FOR CIRCUIT AND CONTROL DETAILS.  
CONTRACTOR SHALL SELECT THE QUANTITY OF THE CONTACTORS AS REQUIRED.



**1 LIGHTING CONTACTORS DETAIL (TYPICAL)**  
E3.0 N.T.S

**THE MELTING POT**

**ELECTRICAL RISER DIAGRAM &**

**PANEL SCHEDULE**

Sheet Number

**E4.0**

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# E4.0

PANEL:	A	(EXISTING)	-										MOUNTING:		RECESSED			
208Y/120	VOLTS	PHASE	3		-	-			DEMAND LOAD	69.88			PANEL LOCATION:	KITCHEN				
200A	MLO	WIRE	4		-	-			DEMAND CURRENT	194.18			FED FROM:	EXISTING METER				
NOTE:																		
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.				
						A	B	C										
1		SPACE	H			9.00			EXISTING	9.00	H	RTU-2(E)			2			
3			H	0.00			9.00			9.00	H				4			
5			H	0.00				9.00		9.00	H				6			
7	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C	1.20			2#12, #12G, 3/4"C	0.20	L	EMERGENCY LIGHTING	20	8				
9	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C		1.20		2#12, #12G, 3/4"C	0.20	L	BATHROOM LIGHTING, TEF-1,2,3,4 (N)	20	10				
11	20	INTERIOR LIGHTING	L	0.34	2#12, #12G, 3/4"C			1.42	EXISTING	1.08	R	RECEPTACLES	20	12				
13	20	OUTSIDE RECEPT.	R	0.72	EXISTING	2.32			EXISTING	1.60	O	SIGN/KITCHEN GFI	20/20	14(a/b)				
15	20	ROOF TOP RECEPT.	R	0.54	EXISTING		1.84		EXISTING	1.30	E	ICE MACHINE			16			
17	20	PRINTERS IN KITCHEN	O	0.80	EXISTING			2.10		1.30	E				20/2P	18		
19	20	GENERAL RECEPT.	R	0.18	2#12, #12G, 3/4"C	0.33			EXISTING	0.15	L	DINNING AREA LIGHTING	20	20				
21	20	DATA AND TEL. RACK	O	1.80	2#12, #12G, 3/4"C		2.30		EXISTING	0.50	O	TIME CLOCK JB	20	22				
23	20	PROJECTOR SCREEN	O	0.50	2#12, #12G, 3/4"C			0.61	EXISTING	0.11	L	OUTDOOR LIGHT	20	24				
25	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C	1.39			EXISTING	0.39	L	DINNING AREA LIGHTING	20	26				
27	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C		1.10		EXISTING	0.10	L	LEFT SIDE PENDANTS	20	28				
29	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C			1.24	EXISTING	0.24	L	BACK CENTER AND HALL	20	30				
31	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C	2.00			2#12, #12G, 3/4"C	1.00	E	TABLE BURNER	20	32				
33	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C		2.00		2#12, #12G, 3/4"C	1.00	E	TABLE BURNER	20	34				
35	20	TABLE BURNER	E	1.00	2#12, #12G, 3/4"C			2.00	2#12, #12G, 3/4"C	1.00	E	TABLE BURNER	20	36				
37	60/3P	DISHWASHER	E	5.00	EXISTING	9.80			EXISTING	4.80	H	RTU-3 (E)			38			
39			E	5.00			9.80			4.80	H				40			
41			E	5.00				9.80		4.80	H				42			

PANEL:	B	(EXISTING)	-										MOUNTING:	RECESSED	
208Y/120	VOLTS	PHASE	3	-	-	-	-	DEMAND LOAD	55.88	-		PANEL LOCATION:	KITCHEN		
200A	MCB	WIRE	4	-	-	-	-	DEMAND CURRENT	155.28	-		FED FROM:	EXISTING METER		
NOTE:															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.	
						A	B	C							
1(a/b)	20/20	SPARE/SPARE				1.98			EXISTING	1.98	E	NEW DISHWASHER/SPARE	20/20	2(a/b)	
3	20	TEA BREWER	E	1.78	EXISTING		1.78					SPARE	20	4	
5	20	KITCHEN PREHEAT BURNERS	E	1.00	EXISTING			1.36	2#12, #12G, 3/4"C	0.36	R	HOSTESS STAND	20	6	
7	20	HOT WATER DISPENSER	E	1.83	EXISTING	2.83			2#12, #12G, 3/4"C	1.00	E	TABLE BURNERS	20	8	
9	20	SANDWICH UNIT	E	1.08	EXISTING		2.08		2#12, #12G, 3/4"C	1.00	E	TABLE BURNERS	20	10	
11	20	TABLE BURNERS	E	1.00	2#12, #12G, 3/4"C			2.00	2#12, #12G, 3/4"C	1.00	E	TABLE BURNERS	20	12	
13	20	TABLE BURNERS	E	1.00	2#12, #12G, 3/4"C	1.13			2#12, #12G, 3/4"C	0.13	E	24-COUNTER HEIGHT WINE COOLER	20	14	
15	20	BATHROOM RECEPTACLES	R	0.72	2#12, #12G, 3/4"C		1.80		2#12, #12G, 3/4"C	1.08	R	DINNING AREA GENERAL RECEPT.	20	16	
17	20	TABLE BURNERS	E	1.00	2#12, #12G, 3/4"C			2.20	EXISTING	1.20	E	BAG IN BOX	20	18	
19	20	COOLER EXSPORATOR	E	0.50	EXISTING	2.30			EXISTING	1.80	O	POS IG OFFICE	20	20	
21	20	COOLER LIGHT	L	0.20	EXISTING		1.64		EXISTING	1.44	E	SPARE BY DISHWASHER KITCHEN	20	22	
23	20	COOLER POWER PACK	E	1.27	EXISTING			3.07	EXISTING	1.80	O	POS IG OFFICE	20	24	
25	20	MICROWAVE	E	1.75	EXISTING	2.41			EXISTING	0.66	E	COOLER CONDENSER	20/2P	26	
27	20	REFRIGERATOR	E	1.08	EXISTING		1.74			0.66	E			28	
29	20	PIZZA PREP TABLE	E	0.96	EXISTING			2.08	EXISTING	1.12	E	HOT FOOD TABLE	20/2P	30	
31	20	DINNING AREA GENERAL RECEPT.	R	1.08	2#12, #12G, 3/4"C	2.20				1.12	E			32	
33	20	BAR LIGHTING	L	0.65	2#12, #12G, 3/4"C		1.73		EXISTING	1.08	E	OUTSIDE COOLER/FREEZ	70/2P	34	
35	20	DINNING AREA GENERAL RECEPT.	R	1.08	2#12, #12G, 3/4"C			2.16		1.08	E			36	
37	100/3P*	RTU-1(E)	H	9.00	3#3 + 1#8G, 1"C	9.50			EXISTING	0.50	L	KITCHEN LIGHTS	20	38	
39			H	9.00			9.50		EXISTING	0.50	L	KITCHEN LIGHTS	20	40	
41			H	9.00				9.50	EXISTING	0.50	L	LAVA LIGHTS	20	42	

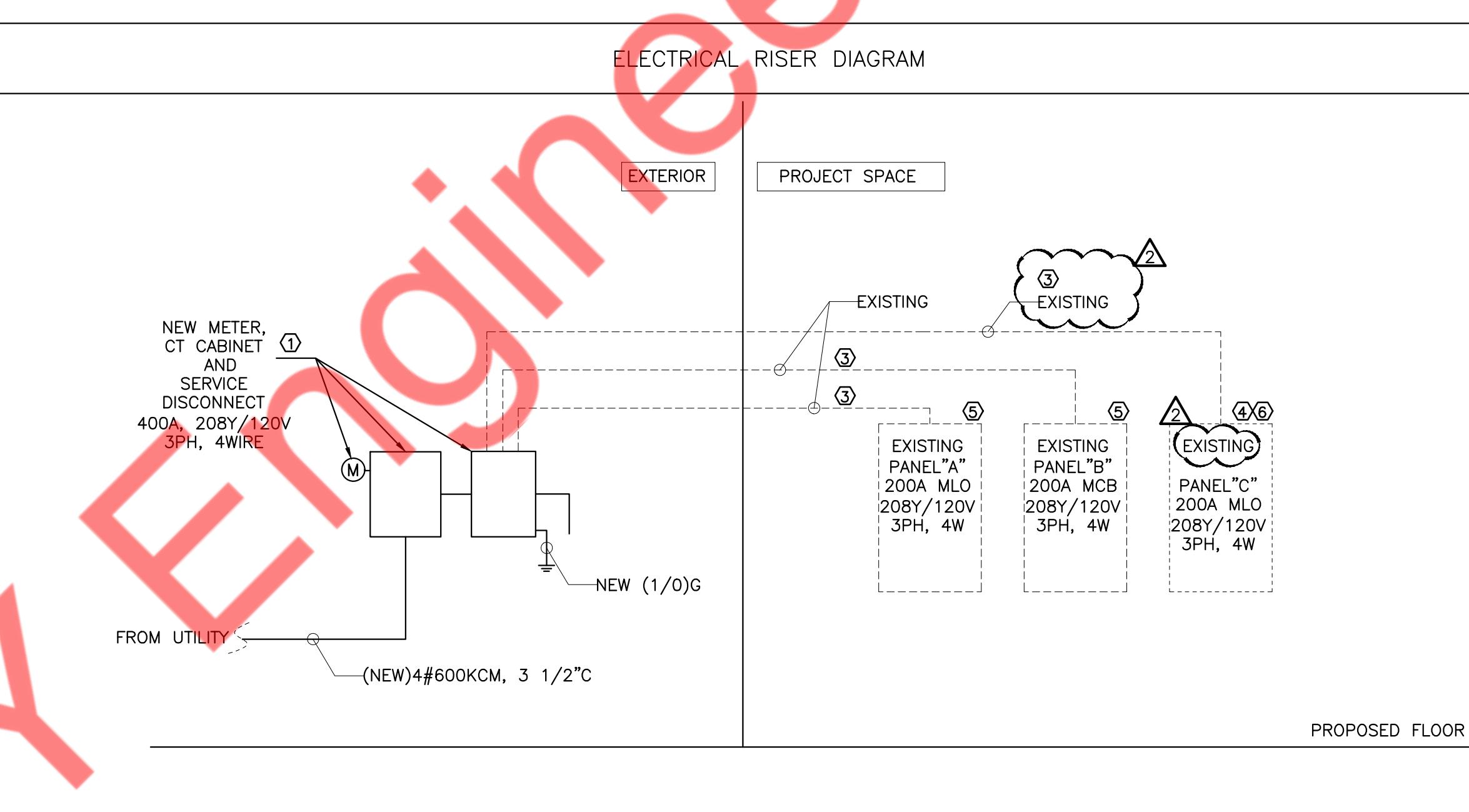
NEL SCHEDULE ABBREVIATIONS:

L=LIGHTING  
R=RECEPTACLE  
H=HVAC  
M=MOTOR  
O=OTHER

\*= NEW BREAKER IN EXISTING PANEL

\*= NEW BREAKER IN EXISTING PANEL

ELECTRICAL SERVICE LOAD CALCULATION							
LOAD DESCRIPTION	PANEL A	PANEL B	PANEL C	TOTAL		D.F.	TOTAL DEMAND (kVA)
LIGHTING LOAD	1.73	2.35	2.45	6.53	x	1.25	8.17
RECEPTACLE LOAD (UPTO 10kVA)	2.52	4.32	6.00	2.84	x	1	2.84
HVAC LOAD	41.40	27.00	15.58	83.98	x	0.5	41.99
KITCHEN EQUIPMENT LOAD	28.60	27.72	5.02	61.34	x	0.65	39.87
OTHER LOAD	5.20	3.60	16.90	25.70	x	1	25.70
LARGEST MOTOR LOAD				27.00	x	0.25	6.75
NON COINCIDENT LOAD (-)							
TOTAL DEMAND LOAD IN (kVA)							125.32
TOTAL DEMAND CURRENT IN (A)						208V	348.25
ELECTRICAL SERVICE SWITCH SIZE (IN AMPS) @ 208Y/120V, 3 PHASE							400A



RISER GENERAL NOTE:

- A. E.C. SHALL COORDINATE WITH UTILITY FOR THE AVAILABLE FAULT CURRENT AND VERIFY AIC RATING OF THE EXISTING DEVICES IN FIELD ACCORDINGLY.
- B. E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
- C. E.C. SHALL VERIFY THE EXISTING POWER DISTRIBUTION IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCY BEFORE COMMENCING ANY WORK.
- D. E.C. TO VERIFY SCOPE OF WORK WITH OWNER/LANDLORD PRIOR TO BID.
- E. THE PART OF RISER MARKED AS EXISTING IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY THAT THE RISER MATCHES THE SITE CONDITION.
- F. ENSURE THE COMBINED VOLTAGE DROP OF THE FEEDER AND BRANCH CIRCUIT SHALL NOT EXCEED 5% PER CODE.
- G. COORDINATE THE EXACT LOCATION OF ALL THE NEW ELECTRICAL COMPONENTS SHOWN ON THE RISER. AND ENSURE THE CLEAR WORKING AND DEDICATED SPACE HAS BEEN PROVIDED AS PER NEC 110.26.
- H. ADDITION OR ALTERATION TO THE EXISTING SYSTEM SHALL NOT BE DONE WITHOUT THE WRITTEN CONSENT OF THE OWNER.
- I. REFER POWER PLAN FOR PROPOSED LOCATION OF THE ELECTRICAL PANEL. INFORM ENGINEER ON RECORD FOR ANY DISCREPANCY.

## RISER DIAGRAM KEYED WORK NOTES

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1. E.C. SHALL VERIFY THE EXACT LOCATION AND RATING OF THE EXISTING METER, CT CABINET AND SERVICE DISCONNECT IN THE FIELD. IF THE EXISTING SERVICE IS LESS THAN 400A, THEN IT SHALL BE UPGRADED TO A 400A SERVICE. THE ENGINEER OF RECORD SHOULD BE INFORMED OF ANY DISCREPANCIES BEFORE BIDDING.
2. NOT USED 
3. E.C. SHALL VERIFY THE RATING AND OPERABLE CONDITION OF THE EXISTING FEEDER FROM THE RESPECTIVE ELECTRICAL METER TO PANELS. IF INOPERABLE, PROVIDE A NEW FEEDER. BASE BID ACCORDINGLY.
4. E.C. SHALL RELOCATE PANEL-C. COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION IN THE FIELD. VERIFY EXACT RATING AND OPERABLE CONDITION IN THE FIELD. REPLACE WITH NEW IF EXISTING INOPERABLE.
5. E.C. SHALL VERIFY THE EXACT LOCATION, RATING AND OPERABLE CONDITION OF EXISTING PANELS IN THE FIELD. PROVIDE NEW IF EXISTING INOPERABLE. BASE BID ACCORDINGLY.
6. E.C. SHALL VERIFY THE AVAILABILITY AND LOCATION OF THE PANEL IN THE FIELD. INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY BEFORE BID.

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# THE MELTING POT

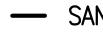
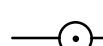
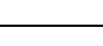
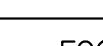
## PLUMBING ABBREVIATIONS, SYMBOLS & SPECIFICATIONS

Sheet Number

PO.0

### PLUMBING SPECIFICATIONS:

#### PLUMBING SYMBOLS LIST

	SANITARY SEWER (UNDERFLOOR)
	GREASE SANITARY SEWER (UNDERFLOOR)
	SANITARY SEWER (ABOVE FLOOR)
	VENT PIPING
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	GAS PIPING
	BALANCING VALVE
	FLOOR DRAIN
	PIPE UP
	PIPE DROP
	CLEANOUT
	POINT OF CONNECTION

#### PLUMBING ABBREVIATIONS

FCO	FLOOR CLEANOUT
WCO	WALL CLEANOUT
CW	COLD WATER
HW	HOT WATER
SAN	SANITARY
V	VENT
L	LAVATORY
WC	WATER CLOSET
MS	MOP SINK
TYP.	TYPICAL
DN	DOWN
FD	FLOOR DRAIN
BFP	BACK FLOW PREVENTER
WH	WATER HEATER
N.I.C.	NOT IN CONTRACT
CODP	CLEAN OUT DECK PLATE
ET	EXPANSION TANK
RCP	RECIRCULATION PUMP

#### PLUMBING DRAWING LIST

P0.0	PLUMBING ABBREVIATIONS, SYMBOLS & SPECIFICATIONS
P1.0	PLUMBING WATER AND GAS FLOOR PLAN
P1.1	PLUMBING SANITARY FLOOR PLAN
P2.0	PLUMBING DETAILS
P3.0	PLUMBING RISERS AND SCHEDULES

#### BUILDING DEPARTMENT PLUMBING NOTES

- ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER, STORM) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2021 VIRGINIA PLUMBING CODE.
- INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 702.2
- PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
- TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC 306.
- RODENT PROOFING AS PER PC 304
- MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 303, PC 605, PC 702, PC 902, PC 1102.
- EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
- DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708.
- DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
- VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308
- WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610
- THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 SECTION PC 701, 704, 705, 706, 707, 708, 711.
- VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTION PC 901 THROUGH PC 912 THROUGH PC 917
- INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 312.
- GAS PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH 2021 VIRGINIA FUEL GAS CODE CHAPTER 4 (ADOPTS IFCC 2021).

#### 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. MIXING VALVES
  - 9. ALL SCHEDULED PLUMBING EQUIPMENT

- B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.
- C. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS, REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.
- D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.
- E. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.
- F. 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.
- G. 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.
- H. 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.

##### 1.05 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.

##### 1.06 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 JACKS, AND ROUTING AND ELEVATION OF ALL PIPES AND STEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.
- B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE, IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.
- C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.
- D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.
- E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.
- F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

##### 1.07 PRODUCTS

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

1. SANITARY PIPING SHALL BE HUBLESS CAST IRON PIPE WITH 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. 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 2-1/2" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
3. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

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

1. ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
2. FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS.
3. JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.

4. THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
5. COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.
6. AS PER 2021 VIRGINIA ENERGY CONSERVATION CODE (IECC2021) C403.12.3, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE OF MINIMUM PIPE INSULATION THICKNESS.

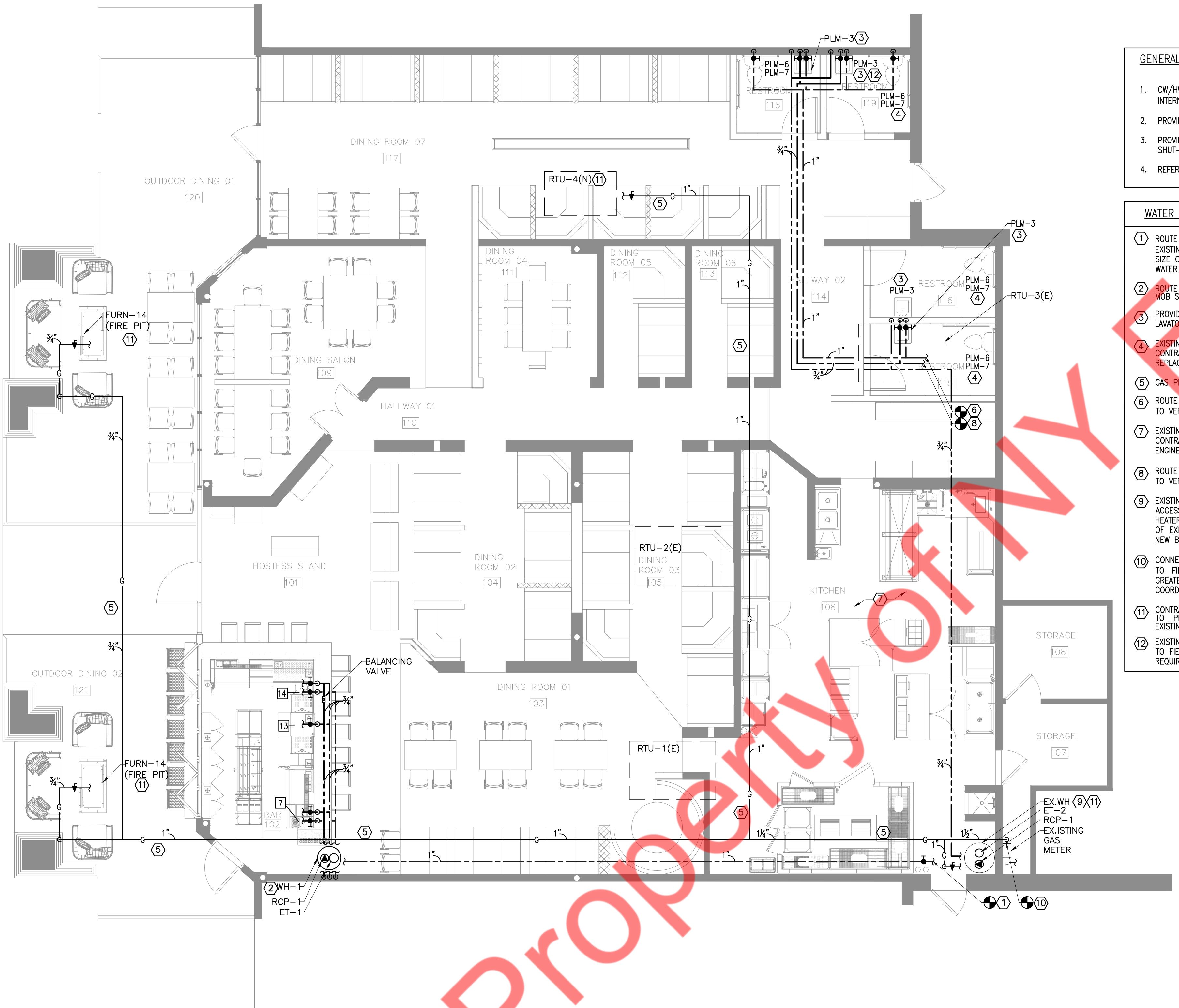
###### MINIMUM PIPE INSULATION THICKNESS

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY	NOMINAL PIPE OR TUBE SIZE (INCHES)	MINIMUM PIPE INSULATION THICKNESS				
			<1	1 to 1/2	1/2 to 4	4 to 8	>8
141-200	0.25-0.29	125	1.5	1.5	2	2	2
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0	1.0

7. WATER DISTRIBUTION SYSTEM AS PER 2021 VIRGINIA ENERGY CONSERVATION CODE (IECC2021), C404.6.1, HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
  - THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
  - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
8. AS PER 2021 VIRGINIA ENERGY CONSERVATION CODE (IECC2021) C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD-WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.
9. HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE C404.5.1. THE HOT WATER PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE.

NOMINAL PIPE SIZE (INCHES)	MAXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
1/2"	2'	43'
3/4"	0.5'	21'
1"	0.5'	13'
1 1/4"	0.5'	8'
1 1/2"	0.5'	6'
2" OR LARGER	0.5'	4'

- F. 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

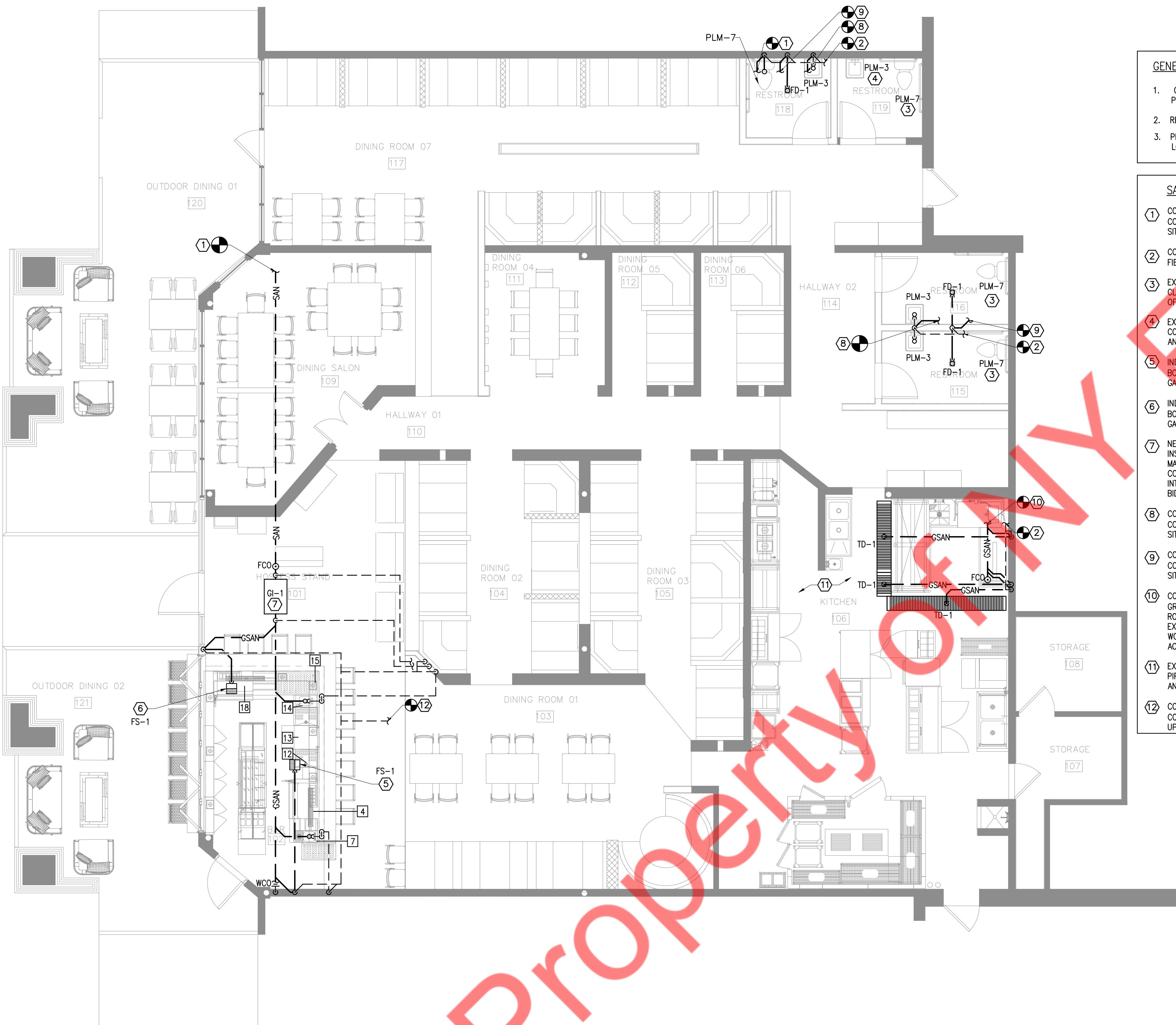


1 PLUMBING WATER AND GAS FLOOR PLAN  
3/16" = 1'-0"

GENERAL NOTES:	
1.	CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2021 INTERNATIONAL ENERGY CODE CODE (REFER SHEET P.0)
2.	PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3.	PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT-OFF VALVES AS REQUIRED.
4.	REFER RISER DIAGRAMS FOR ALL PIPE SIZES.

WATER AND GAS KEYED NOTES:	
①	ROUTE NEW 1" CW PIPING WITH SHUT OFF VALVE AND TIE-INTO THE EXISTING WATER LINE IN SPACE. CONTRACTOR TO FIELD VERIFY LOCATION, SIZE OF EXISTING WATER LINE AND AVAILABILITY OF BACKFLOW PREVENTER, WATER METER. IF NOT PROVIDE NEW BASE BID ACCORDINGLY.
②	ROUTE T&P RELIEF VALVE DRAIN SPILLS TO NEAREST FLOOR DRAIN OR MOB SINK.
③	PROVIDE ASSE 1070 OR SIMILAR APPROVED TEMPERING VALVE FOR LAVATORIES SET AT TEMPERATURE TO A MAXIMUM 110 °F.
④	EXISTING WATER CLOSET TO BE REPLACED WITH NEW WATER CLOSET. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION OF PIPING AND FITTING, REPLACE IF REQUIRED.
⑤	GAS PIPING RUNNING AT ROOF.
⑥	ROUTE NEW 1" CW PIPING TO EXISTING CW LINE IN SPACE. CONTRACTOR TO VERIFY EXISTING PIPING ROUTING, LOCATION AND SIZE ON SITE.
⑦	EXISTING KITCHEN TO REMAIN WITH EXISTING FIXTURE AND PIPING. CONTRACTOR TO FIELD VERIFY CONDITION OF KITCHEN AND LET KNOW THE ENGINEER IF ANY DISCREPANCY.
⑧	ROUTE NEW 3/4" HW PIPING TO EXISTING HW LINE IN SPACE. CONTRACTOR TO VERIFY EXISTING PIPING ROUTING, LOCATION AND SIZE ON SITE.
⑨	EXISTING WATER HEATER TO REMAIN WITH EXISTING PIPING, FITTING AND ACCESSORIES. CONTRACTOR TO VERIFY EXISTING CONDITION OF WATER HEATER, PIPING AND FITTING ON SITE. CONTRACTOR TO VERIFY AVAILABILITY OF EXPANSION TANK AND RECIRCULATION PUMP ON SITE. IF NOT PROVIDE NEW BASE BID ACCORDINGLY.
⑩	CONNECT NEW 1-1/2" GAS LINE TO EXISTING GAS METER. CONTRACTOR TO FIELD VERIFY EXISTING GAS METER CAPACITY IS EQUAL TO OR GREATER THAN 285.1 CFH. UPGRADE GAS METER IF REQUIRED. COORDINATE ALL WORK WITH UTILITY COMPANY AND LANDLORD.
⑪	CONTRACTOR TO FIELD VERIFY AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR RTU-1(N), EXISTING WATER HEATER AND FIRE PIT.
⑫	EXISTING LAVATORY TO BE REPLACED WITH NEW LAVATORY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION OF PIPING AND FITTING. REPLACE IF REQUIRED.



1 PLUMBING SANITARY FLOOR PLAN  
3/16" = 1'-0"

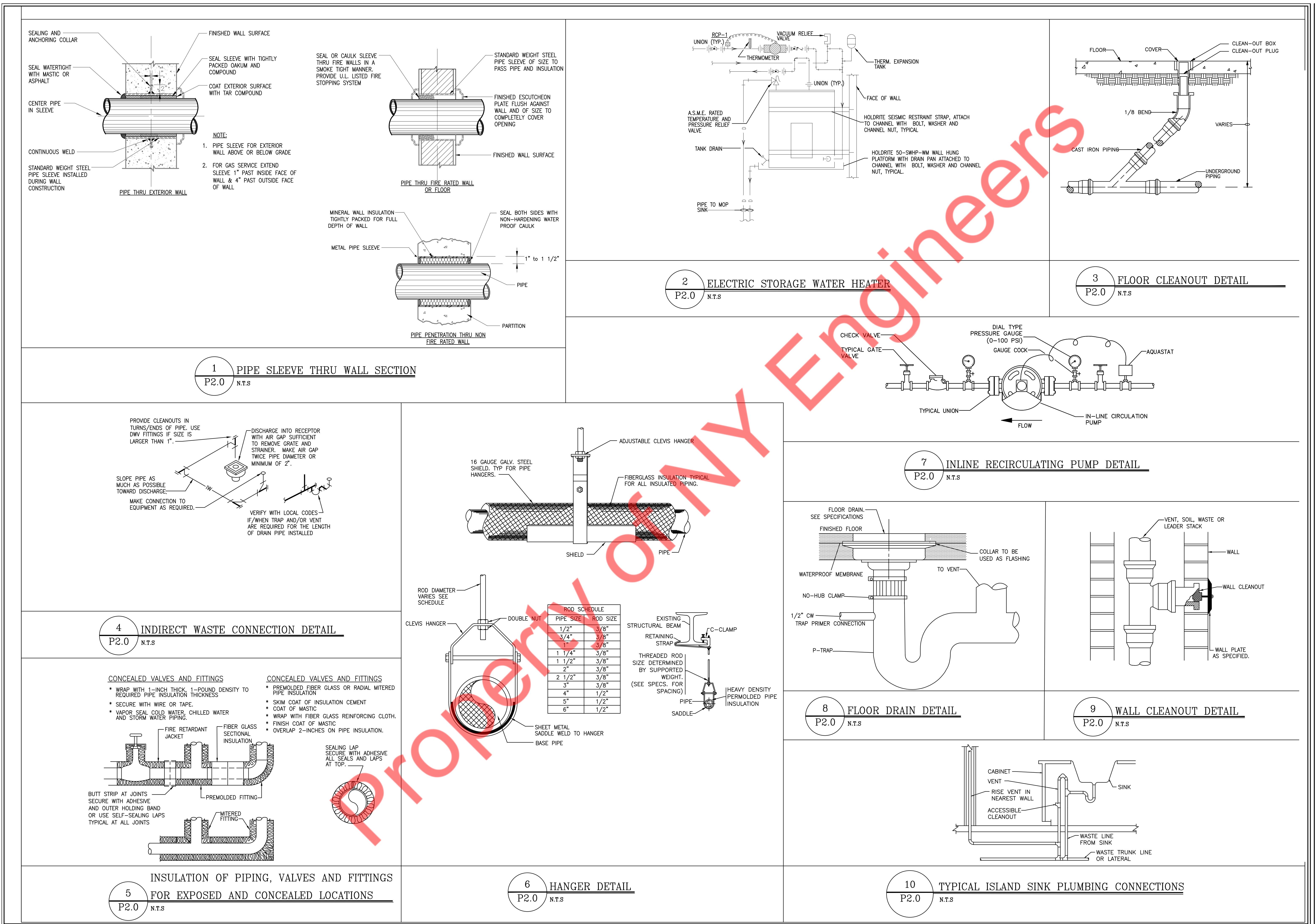
GENERAL NOTES:

1. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
2. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
3. PROVIDE TRAP PRIMER FOR FLOOR DRAIN AS PER LOCAL JURISDICTION.

SANITARY KEYED NOTES:

- ① CONNECT NEW 4" SANITARY LINE TO EXISTING SANITARY LINE. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING AND INVERT ON SITE. UPGRADE IF REQUIRED.
- ② CONNECT NEW 2" VENT TO EXISTING VENT. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING ON SITE. UPGRADE IF REQUIRED.
- ③ EXISTING WATER CLOSET TO BE REPLACED WITH NEW WATER CLOSET. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION OF PIPING AND FITTING. REPLACE IF REQUIRED.
- ④ EXISTING LAVATORY TO BE REPLACED WITH NEW LAVATORY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITION OF PIPING AND FITTING. REPLACE IF REQUIRED.
- ⑤ INDIRECT WASTE FROM GLASSWASHER, ICE BIN AND 18" DRAIN BOARD TO ADJACENT FLOOR SINK AS PER APPROVED AIR GAP.
- ⑥ INDIRECT WASTE FROM ICE BIN AND 18"X36" CORNER DRAIN BOARD TO ADJACENT FLOOR SINK AS PER APPROVED AIR GAP.
- ⑦ NEW SCHIERS GB-2 GREASE INTERCEPTOR WITH 35 GPM FLOW. INSTALL GREASE INTERCEPTOR UNDERGROUND AND AS PER MANUFACTURER'S RECOMMENDATION. CONTRACTOR TO COORDINATE FINAL LOCATION AND SIZE OF GREASE INTERCEPTOR AS PER LOCAL HEALTH JURISDICTION AND BASE BID ACCORDINGLY.
- ⑧ CONNECT NEW 2" SANITARY LINE TO EXISTING SANITARY LINE. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING AND INVERT ON SITE.
- ⑨ CONNECT NEW 3" SANITARY LINE TO EXISTING SANITARY LINE. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING AND INVERT ON SITE.
- ⑩ CONNECT NEW 4" GREASE SANITARY LINE TO EXISTING GREASE SANITARY LINE. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING AND INVERT ON SITE. CONTRACTOR TO FIELD VERIFY EXISTING GREASE INTERCEPTOR CAPACITY, LOCATION AND WORKING CONDITION. REPLACE IF REQUIRED BASE BID ACCORDINGLY.
- ⑪ EXISTING KITCHEN TO REMAIN WITH EXISTING FIXTURE AND PIPING. CONTRACTOR TO FIELD VERIFY CONDITION OF KITCHEN AND LET KNOW THE ENGINEER IF ANY DISCREPANCY.
- ⑫ CONNECT NEW 3" VENT LINE TO EXISTING VENT LINE. CONTRACTOR TO FIELD VERIFY SIZE, ROUTING ON SITE. UPGRADE IF REQUIRED.

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Issue:  
Design Development  
Progress Set  
Permit Set:  
Revision Number Date



# THE MELTING POT

## PLUMBING RISERS AND SCHEDULES

Sheet Number

**P3.0**

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Progress Set  
Permit Set:  
Revision Number Date

