MECHANICAL SYMBOL LIST

AC-1 / TXF-1	EQUIPMENT SYMBOL
AIR DEVICES	
	GRILLE SUPPLY
	GRILLE RETURN/EXHAUST
	SUPPLY DIFFUSER
	SIDE GRILLE SUPPLY/RETURN
DUCT ACCESSORIES	
VD VD	VOLUME DAMPER W/ ACCESS DOOR
GD	BACKDRAFT DAMPER
M	MOTORIZED DAMPER W/ ACCESS DOOR
	FIRE SMOKE DAMPER W/ ACCESS DOOR
CONTROLS AND SENSORS	
T	THERMOSTAT
T_S	TEMPERATURE SENSOR
S_D	DUCT SMOKE DETECTOR
	DOOR UNDERCUT
DUCTWORK	
24X12	RECTANGULAR DUCT (WIDTH X DEPTH)
ø6	CIRCULAR DUCT (DIAMETER)
	AIR DUCT W/ 1.5" ACOUSTICAL LINING
FC FC	FLEXIBLE CONNECTION
ø12	ROUND DUCT (DIAMETER)
	ROUND DUCT CROSS SECTION
	POINT OF NEW CONNECTION
	SUPPLY AIR RECTANGULAR DUCT GOING UP/DOWN
	RETURN AIR RECTANGULAR DUCT GOING UP/DOWN

MECHANICAL ABBREVIATIONS

AC	AIR CONDITIONING UNIT
ACCU	AIR COOLED CONDENSING UNIT
AFF	ABOVE FINISHED FLOOR
AL	ACOUSTIC LINING
BD	GRAVITY DAMPER
CD	CONDENSATE DRAIN
CFM	CUBIC FEET OF AIR PER MINUTE
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CDS	CEILING DIFFUSER SUPPLY
DIA	DIAMETER
DN	DOWN
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
FC	FLEXIBLE CONNECTION
FD/AD	FIRE DAMPER W/ACCESS DOOR
FD	FIRE DAMPER W/FUSIBLE LINK
FSD	FIRE SMOKE DAMPER
GXF	GENERAL EXHAUST FAN
HSPF	HEATING SEASONAL PERFORMANCE FACTOR
HWHT	HOT WATER HEATER
IEER	INTEGRATED ENERGY EFFICIENCY RATIO
IN	INCH
KXF	KITCHEN EXHAUST FAN
MD	MOTORIZED DAMPER
MAU	MAKE-UP AIR UNIT
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
RA	RETURN AIR
RAD	RETURN AIR DUCT
REF	REFRIGERANT PIPING
RG	RETURN GRILLE
RTU	ROOF TOP UNIT
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SG	SUPPLY GRILLE
SEER	SEASONAL ENERGY EFFICIENCY RATIO
TXF	TOILET EXHAUST FAN
VD	VOLUME CONTROL DAMPER
W	WEIGHT

MECHANICAL DRAWING LIST

M001	MECHANICAL GENERAL, HVAC NOTES, SYMBOLS LIST & ABBREVIATIONS
M002	MECHANICAL SPECIFICATIONS (1 OF 2)
M003	MECHANICAL SPECIFICATION (2 OF 2)
M101	MECHANICAL FLOOR PLAN
M102	MECHANICAL ROOF PLAN
M501	MECHANICAL DETAILS (1 OF 2)
M502	MECHANICAL DETAILS (2 OF 2)
M601	MECHANICAL SCHEDULE
H701	HOOD DATA SHEET (1 OF 4)
H702	HOOD DATA SHEET (2 OF 4)
H703	HOOD DATA SHEET (3 OF 4)
H704	HOOD DATA SHEET (4 OF 4)

CODE COMPLIANCE

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

a. 2018 INTERNATIONAL BUILDING CODE

b. 2018 INTERNATIONAL FIRE CODE

c. 2018 INTERNATIONAL MECHANICAL CODE

d. 2018 INTERNATIONAL PLUMBING CODE

e. 2018 INTERNATIONAL FUEL GAS CODE

f. 2009 INTERNATIONAL ENERGY CONSERVATION CODE

g. 2017 NATIONAL ELECTRICAL CODE

BROWNSVILLE BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF THE 2018 INTERNATIONAL BUILDING CODE, AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
2. VENTILATION FOR ALL AREA SHALL COMPLY WITH 2018 INTERNATIONAL MECHANICAL CODE, CHAPTER 4.
3. 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 2009 INTERNATIONAL ENERGY CONSERVATION CODE REQUIREMENTS AS OUTLINES IN SECTION.
4. 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.
5. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE INTERNATIONAL 2018 INTERNATIONAL MECHANICAL CODE:
   A. VENTILATION SYSTEM BALANCING 2018 INTERNATIONAL MECHANICAL CODE – MC 403.3
   B. REFRIGERATION SYSTEMS 2018 INTERNATIONAL MECHANICAL CODE – MC 1108
6. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   E. STANDARDS OF HEATING 2018 INTERNATIONAL MECHANICAL CODE – 309.1
   F. DUCT CONSTRUCTION AND INSTALLATION 2018 INTERNATIONAL MECHANICAL CODE – 603
   G. AIR INTAKES, EXHAUSTS AND RELIEF 2018 INTERNATIONAL MECHANICAL CODE – 401.5
   H. AIR FILTERS 2018 INTERNATIONAL MECHANICAL CODE – 605
   I. MANUAL AND AUTOMATIC FIRE AND SMOKE CONTROLS FOR AIR DISTRIBUTION SYSTEMS – 2018 INTERNATIONAL MECHANICAL CODE – 606.
   J. GAS FIRED EQUIPMENT – 2018 INTERNATIONAL FUEL GAS CODE
7. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
8. SMOKE DETECTOR SHALL MEET UL268A.
9. SMOKE DETECTION SYSTEMS SHALL BE INSTALLED AND SEQUENCED TO FOLLOW CONTROLS OPERATIONS WITH THE REQUIREMENTS OF SECTION MC 606 TO CLOSE DAMPERS AND AUTOMATICALLY STOP THE FAN.
10. 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 2018 INTERNATIONAL MECHANICAL CODE – 403.3
11. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
12. 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.
13. VENTILATION SYSTEMS SHALL BE BALANCED TO MAINTAIN THE MINIMUM VENTILATION AIRFLOW RATE AS SHOWN IN VENTILATION REQUIREMENT TABLE. THIS SYSTEM SHALL BE BALANCED BY APPROVED METHOD. CONTRACTOR SHALL SUBMIT THE AIR BALANCE REPORT TO THE INSPECTOR OF RESPECTIVE BUILDING DEPARTMENT PRIOR FINAL INSPECTION.

SCOPE OF WORK

SCOPE OF WORK

1. NEW #3 4.0 TON SPLIT AC TO BE USED TO CONDITION THE SPACE.
2. CEILING MOUNT EXHAUST FAN TO BE USED FOR TOILET VENTILATION.
3. KITCHEN VENTILATION IS TO BE PROVIDED VIA KITCHEN EXHAUST HOOD & KITCHEN MAKE UP AIR FAN.
4. ALL HVAC WORKS SHALL BE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS.
5. THE WORK UNDER CONTRACT INCLUDES ALL LABOR, MATERIALS AND APPLIANCES NECESSARY FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR SAFE OPERATION OF THE SYSTEMS AS DESCRIBED IN THE SPECIFICATIONS, FLOOR PLAN(S) DESIGN, DETAIL DRAWINGS, NOTES, RFI'S, ETC. FOR THIS PROJECT. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER.
6. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.
7. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES, BY OWNER, INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

GENERAL NOTES

1. CONTRACTOR SHALL SURVEY THE AREA OF THIS WORK BEFORE SUBMITTING A BID AND SHALL BE RESPONSIBLE FOR NOTIFYING THE ARCHITECT OF ANY CONDITIONS WHICH WOULD PREVENT THE INSTALLATION OF THE WORK AS SHOWN ON DRAWINGS.
2. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
3. BEFORE PROCEEDING WITH ANY WORK IN OCCUPIED OR USED AREAS, THE CONTRACTOR SHALL APPLY TO OWNER FOR PERMISSION TO ENTER SUCH AREAS. THE CONTRACTOR IS OBLIGED TO PERFORM HIS WORK ONLY AT THE TIMES DESIGNATED BY OWNER. THERE WILL BE NO ADDITIONAL COMPENSATION FOR THE WORK PERFORMED AFTER HOURS OR ON OFF-DAYS WITHOUT PRIOR WRITTEN APPROVAL.
4. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
5. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.
6. CONTRACTOR SHALL ASCERTAIN THE APPROPRIATE METHOD FOR BRINGING THE UNITS INTO AND THROUGH THE BUILDING TO POSITION UNIT IN LOCATION SHOWN ON THE PLANS. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH RESTRICTIVE SPACES. COORDINATE WITH BUILDING OWNER APPROPRIATE TIMES OF DAY SUCH EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.
7. DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL MAKE ALLOWANCE IN PRICING FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS ARE SUBJECT TO APPROVAL OF ARCHITECT. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED.
8. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. SINGLE ROD SHALL BE SIMILAR TO GRINNELL FIG. 281. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS. MAXIMUM LOADING INCLUDING PIPES, DUCTWORK CONTENTS AND COVERING SHALL NOT EXCEED 75% OF RATED INSERT CAPABILITY. WHEN SUPPORTING FROM BUILDING USE BEAM CLAMPS IN APPROVED MANNER.
9. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPES, DUCTS, LOUVERS, CONDUIT, AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AND DUNNAGE STEEL AS REQUIRED.
10. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
11. 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.
12. ACCESS DOORS ARE REQUIRED FOR ALL BUILDING SERVICE VALVES THAT RUN THROUGH THE SPACE, AND ACCESS DOOR SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL. COORDINATE ALL LOCATIONS OF ACCESS DOORS WITH THE ARCHITECT.
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. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
16. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE
17. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
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.
21. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING DUCTWORK, PIPING (SIZES, CLEARANCES, ETC) AND CONDITIONS.
22. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
23. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, BALANCED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATES OF INSPECTION AND APPROVAL.
24. SPECIFICATIONS ARE OF SIMPLIFIED FORM AND INCLUDE INCOMPLETE SENTENCES. WORDS OR PHRASES SUCH AS "THE CONTRACTOR SHALL," "SHALL BE," "FURNISH," "PROVIDE," "A," "THE," AND "ALL" HAVE BEEN OMITTED FOR BREVITY.
25. 25. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY.

DEFINITIONS:

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

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

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

GENERAL HVAC NOTES

1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.
3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
11. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT. OF, ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS) THROUGHOUT MECHANICAL EQUIPMENT ROOMS. DO THE SAME FOR SUPPORTS OF STEAM MAINS WITHIN 50 FT. OF BOILER OR PRESSURE-REDUCING VALVES.
12. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
13. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.
14. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
15. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND OTHER CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.
16. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
17. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
18. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.
19. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.

Property of Engineer

project name:
The Great Greek

sheet name:
MECHANICAL GENERAL, HVAC NOTES, SYMBOLS LIST & ABBREVIATIONS

sheet no.:
M001

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

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

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

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

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

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

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

SPECIFICATIONS

SECTION 0001 – NOTICE TO BIDDERS

1.1 BIDDERS REPRESENTATIONS

A. THE BIDDER BY MAKING A BID REPRESENTS THAT:

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

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

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

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

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

1.2 EXISTING CONDITIONS AND COORDINATION

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

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

1.3 RESPONSIBILITIES

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

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

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

END OF SECTION 0001

SECTION 0101 – QUALITY OF WORK

1.1 WORKMANSHIP

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

B. ALL DEFECTS WHICH DEVELOP OR ARE DISCOVERED WITHIN THIS PERIOD SHALL BE REPAIRED BY THE CONTRACTOR TO THE SATISFACTION OF THE ARCHITECT OR BUILDING MANAGER AT NO ADDITIONAL COST TO THE OWNER.

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

1.2 CODE COMPLIANCE

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

END OF SECTION 0101

SECTION 0102 –REQUIRED DOCUMENTS

1.1 SHOP DRAWINGS

A. A SET OF PRINTS FOR ANY MECHANICAL WORK INCLUDING BUT NOT LIMITED TO, DUCTWORK AND PIPING LAYOUT SHALL BE SUBMITTED FOR APPROVAL TO THE ENGINEER PRIOR TO CONSTRUCTION OR PURCHASE OF MATERIALS.

1.2 SUBMITTALS

A. EQUIPMENT SUBMITTALS OF ALL PROPOSED MECHANICAL AND ANCILLARY EQUIPMENT INCLUDING ALL ACCESSORIES SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. ALL PERTINENT MODELS, SIZES, ACCESSORIES AND CHOICES SHALL BE CLEARLY CHECKED, PRINTED OR OTHERWISE INDICATED ON THE SUBMITTALS.

1.3 RECORD DRAWINGS

A. UPON COMPLETION OF THE WORK, A RECORD DRAWING SHALL BE SUBMITTED TO THE OWNER DEPICTING ALL SUBSEQUENT CHANGES, ADDITIONS AND OR CORRECTIONS TO THE CONTRACT DRAWINGS AND OR CONTRACT SCOPE MADE DURING CONSTRUCTION. THIS DRAWING SHALL REPRESENT A COMPLETE RECORD OF THE WORK INSTALLED.

1.4 EQUIPMENT OPERATING INSTRUCTIONS

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

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

C. THE INSTRUCTION BOOKLET SHALL BE ORGANIZED IN SECTIONS, WITH ONE SECTION PER SYSTEM. THE COVER OF THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND PHONE NUMBER OF THE PROJECT, ARCHITECT, ENGINEER, MECHANICAL CONTRACTOR AND SUBCONTRACTORS.

END OF SECTION 0102

SECTION 078413–PENETRATION FIRE–STOPPING

1.1 QUALITY ASSURANCE

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

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

1.2 PENETRATION FIRESTOPPING

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

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

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

D. W–RATINGS: PER UL 1479.

1.3 INSTALLATION

A. IDENTIFICATION: PREPRINTED METAL OR PLASTIC LABELS.

1.4 FIELD QUALITY CONTROL

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

1.5 THROUGH–PENETRATION FIRESTOP SYSTEM SCHEDULE

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

FOR THE FOLLOWING SYSTEMS:

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

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

1.6 MANUFACTURERS

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

END OF SECTION 078413

SECTION 230529 – HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

1.1 PERFORMANCE REQUIREMENTS

A. DELEGATED DESIGN: DESIGN TRAPEZE PIPE HANGERS AND EQUIPMENT SUPPORTS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.

B. STRUCTURAL PERFORMANCE: HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS INDICATED ACCORDING TO ASCE/SEI 7.

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

2. DESIGN EQUIPMENT SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS AND COMPONENTS.

1.2 SUBMITTALS

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

1.3 QUALITY ASSURANCE

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

1.4 COMPONENTS

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

B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL

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

D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER

E. FIBERGLASS STRUT SYSTEMS: COOPER B–LINE

F. THERMAL–HANGER SHIELD INSERTS:

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

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

I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

SECTION 230548 – VIBRATION CONTROLS FOR HVAC EQUIPMENT

PART 1 – GENERAL

1.1 PERFORMANCE REQUIREMENTS

A. SEISMIC–RESTRAINT LOADING:

1. SITE CLASS AS DEFINED IN THE IBC: A, B

2. ASSIGNED SEISMIC USE GROUP OR BUILDING CATEGORY AS DEFINED IN THE IBC: I II III
   a. COMPONENT IMPORTANCE FACTOR: 1.0
   b. COMPONENT RESPONSE MODIFICATION FACTOR: 2.5
   c. COMPONENT AMPLIFICATION FACTOR: 2.5.

3. DESIGN SPECTRAL RESPONSE ACCELERATION AT SHORT PERIODS (0.2 SECOND) 18%

4. DESIGN SPECTRAL RESPONSE ACCELERATION AT 1–SECOND PERIOD: 8%

1.2 COMPONENTS

A. VIBRATION ISOLATORS:

1. ISOLATOR PADS: NEOPRENE, RUBBER, HERMETICALLY AND/OR SEALED COMPRESSED FIBERGLASS

2. MOUNTS: DOUBLE–DEFLECTION TYPE.

3. RESTRAINED MOUNTS: ALL DIRECTIONAL MOUNTINGS WITH SEISMIC RESTRAINT; CAST–DUCTILE–IRON HOUSING.

4. SPRING ISOLATORS: FREESTANDING, LATERALLY STABLE, OPEN–SPRING TYPE.

5. RESTRAINED SPRING ISOLATORS: FREESTANDING, STEEL, OPEN–SPRING TYPE WITH SEISMIC RESTRAINT.

6. HOUSED SPRING MOUNTS: DUCTILE–IRON OR STEEL HOUSING, WITH INTEGRAL, VERTICALLY ADJUSTABLE SEISMIC SNUBBERS.

7. ELASTOMERIC HANGERS: DOUBLE–DEFLECTION TYPE.

8. SPRING HANGERS: COMBINATION COIL–SPRING AND ELASTOMERIC–INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION.

9. SPRING HANGERS WITH VERTICAL–LIMIT STOP: COMBINATION COIL–SPRING AND ELASTOMERIC–INSERT HANGERS WITH SPRING AND INSERT IN COMPRESSION AND WITH VERTICAL–LIMIT STOP.

10. PIPE RISER RESILIENT SUPPORT: ALL–DIRECTIONAL, ACOUSTICAL PIPE ANCHOR.

11. RESILIENT PIPE GUIDES.

B. AIR–MOUNTING SYSTEMS:

1. AIR MOUNTS: FREESTANDING, SINGLE OR MULTIPLE, COMPRESSED–AIR BELLOWS.

2. RESTRAINED AIR MOUNTS: HOUSED COMPRESSED–AIR BELLOWS.

C. RESTRAINED VIBRATION ISOLATION ROOF–CURB RAILS: FACTORY–ASSEMBLED, FULLY ENCLOSED, INSULATED, AIR– AND WATERTIGHT CURB RAIL; WITH SPRING ISOLATORS MOUNTED ON ELASTOMERIC ISOLATION PADS, AND SNUBBER BUSHINGS.

D. VIBRATION ISOLATION EQUIPMENT BASES:

1. STEEL BASE: FACTORY–FABRICATED, WELDED, STRUCTURAL–STEEL BASES AND RAILS.

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

1.3 FIELD QUALITY CONTROL

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

PART–2 PRODUCTS

1.4 VIBRATION ISOLATORS & SEISMIC–RESTRAINT DEVICES

A. AVAILABLE MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

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

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

END OF SECTION 230548

SECTION 230593 – TESTING, ADJUSTING, AND BALANCING FOR HVAC

1.1 SUMMARY

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

1. AIR SYSTEMS: CONSTANT–VOLUME.

1.2 QUALITY ASSURANCE

A. THE CONTRACTOR SHALL PROCURE THE SERVICES OF A TESTING, ADJUSTING AND BALANCING (TAB) SPECIALIST WHO SPECIALIZES IN HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS. THE TAB AGENT SHALL HAVE THE FOLLOWING QUALIFICATIONS: AABC, NEBB OR TABB CERTIFIED.

1.3 EXECUTION

A. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL EXISTING AIR AND HYDRONIC SYSTEMS THAT ARE TO REMAIN OR TO BE INCORPORATED INTO NEW WORK PRIOR TO THE STARTING OF WORK IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.

B. THE TAB SPECIALIST SHALL PERFORM FLOW MEASUREMENTS OF ALL NEW AIR AND HYDRONIC SYSTEMS AS LISTED ABOVE IN THE PROJECT SCOPE. A REPORT OF THESE MEASUREMENTS, INDICATING ANY AND ALL DEFICIENCIES SHALL BE SUBMITTED FOR OWNER REVIEW.

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

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

E. THE CONTRACTOR SHALL HAVE FURNISH AND INSTALL ALL ADDITIONAL BALANCING EQUIPMENT, PRESSURE TAPS, GAUGES AND OTHER EQUIPMENT AS REQUIRED FOR A PROPERLY BALANCED SYSTEM AT NO ADDITIONAL COST TO THE OWNER. SUCH ADDITIONAL EQUIPMENT SHALL ADHERE IN STRICT ACCORDANCE WITH THE RESPECTIVE EQUIPMENT MANUFACTURER'S RECOMMENDATIONS.

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

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

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

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

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

END OF SECTION 230593

SECTION 230713 – DUCT INSULATION

1.1 QUALITY ASSURANCE

SURFACE–BURNING CHARACTERISTICS: ALL INSULATION SHALL HAVE COMPOSITE (INSULATION JACKET OR FACING AND ADHESIVE USED TO ADHERE THE FACING OR JACKET TO THE INSULATION) A FLAME–SPREAD INDEX OF 25, AND SMOKE–DEVELOPED INDEX OF 50 FOR INSULATION INSTALLED INDOOR, 75, AND SMOKE–DEVELOPED INDEX OF 150 FOR INSULATION INSTALLED OUTDOORS; ACCORDING TO ASTME 84.

1.2 FIELD QUALITY CONTROL

A. FIELD INSPECTIONS: BY OWNER–ENGAGED AGENCY.

1.3 INDOOR DUCT AND PLENUM INSULATION SCHEDULE;

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

B. FLEXIBLE ELASTOMERIC, MINERAL–FIBER BLANKET,

MINERAL–FIBER BOARD OR POLYOLEFIN WITH MINIMUM INSTALLED THERMAL RESISTANCE AS FOLLOWS:
UNCONDITIONED SPACES WITHIN BUILDING: R–5
WITHIN BUILDING ENVELOPE ASSEMBLY: R–8
OUTSIDE OF BUILDING: R–8

1.4 ITEMS NOT INSULATED:

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

1.5 PRODUCTS

A. THE FOLLOWING INSULATION MANUFACTURERS WILL BE ACCEPTABLE:

1. JOHNS–MANVILLE
2. OWENS–CORNING

1.6 ACOUSTICAL TREATMENT

1. WHERE SHOWN ON THE DRAWINGS, LOW PRESSURE DUCTWORK SHALL BE LINED WITH 1.5" THICK R–6 AS MANUFACTURED BY DUCTMATE, 1–1/2 POUND MINIMUM DENSITY, NEOPRENE COATED, FLEXIBLE FIBERGLASS DUCT LINER. LINING SHALL COMPLY WITH NFPA 90A AND SHALL HAVE A FLAME SPREAD CLASSIFICATION OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING NOT MORE THAN 50. DUCT SIZES WHERE LINING IS INDICATED ON PLANS ARE MINIMUM INSIDE CLEAR DIMENSIONS REQUIRED,

END OF SECTION 230713

SECTION 233113 – METAL DUCTS

1.1 CONSTRUCTION

A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 1 INCH WG PRESSURE, SEAL CLASS "A".

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

1. CONSTRUCT SO THAT ALL INTERIOR SURFACES ARE SMOOTH. USE SLIP AND DRIVE OR FLANGED AND BOLTED CONSTRUCTION WHEN FABRICATING RECTANGULAR DUCTWORK. USE SPIRAL LOCK SEAM CONSTRUCTION WHEN FABRICATING ROUND SPIRAL DUCTWORK. SHEET METAL SCREWS MAY BE USED ON DUCT HANGERS, TRANSVERSE JOINTS AND OTHER SMACNA APPROVED LOCATIONS IF THE SCREW DOES NOT EXTEND MORE THAN 1/2 INCH INTO THE DUCT.

2. SHEET STEEL SHALL COMPLY WITH ASTMA653 STANDARD SPECIFICATION FOR STEEL SHEET METAL, ZINC COATED (GALVANIZED) OR ZINC IRON ALLOY–COATED (GALVANINEALED) BY HOT DIP PROCESS, AND A924 STANDARD SPECIFICATION FOR GENERAL REQUIREMENT FOR SHEET METALLIC–COATED BY HOT DIP PROCESS. ALL ANGLE IRON USED FOR SUPPORT SHALL BE GALVANIZED. CONNECTIONS TO WALLS OR FLOOR SHALL BE AIR TIGHT WITH ANGLE IRON AND CAULKING. SEAL ALL DUCT SEAMS, TRANSVERSE AND LONGITUDINAL, AIR TIGHT. PROVIDE TURNING VANES ALL 90° ELBOWS.

3. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30–03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30–02 AND COVERED WITH APPROVED SEALING TAPE.

4. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM 215; AWG A5.2.

C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:

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

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MECHANICAL SPECIFICATIONS (1 OF 2)

sheet no.:
M002

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

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

E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3–6 AND AS SHOWN IN FIG. 3–1 AND 3–2 FOR ROUND DUCTWORK.

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

1.2 MATERIALS

A. SINGLE–WALL RECTANGULAR DUCTS AND FITTINGS.
B. DOUBLE–WALL RECTANGULAR DUCTS AND FITTINGS.
1. FIBROUS–GLASS OR FLEXIBLE ELASTOMERIC DUCT LINER FOR INTERSTITIAL INSULATION.
2. PERFORATED INNER DUCT.
C. SINGLE–WALL ROUND AND FLAT–OVAL DUCTS AND FITTINGS.
D. DOUBLE–WALL ROUND AND FLAT–OVAL DUCTS AND FITTINGS.
1. FIBROUS–GLASS OR FLEXIBLE ELASTOMERIC DUCT LINER FOR INTERSTITIAL INSULATION.
2. PERFORATED INNER DUCT.
E. SHEET METAL MATERIALS:
1. GALVANIZED SHEET STEEL.
2. PVC–COATED, GALVANIZED SHEET STEEL.
3. CARBON–STEEL SHEETS.
4. STAINLESS–STEEL SHEETS.
5. ALUMINUM SHEETS.
6. FACTORY–APPLIED ANTI–MICROBIAL COATING.
F. DUCT LINER:
1. FIBROUS GLASS, TYPE I, FLEXIBLE.
a. WITH ANTI–MICROBIAL EROSION–RESISTANT COATING.
2. FLEXIBLE ELASTOMERIC.
3. NATURAL FIBER.
G. SEALANT MATERIALS:
1. TWO–PART TAPE SEALING SYSTEM.
2. WATER–BASED JOINT AND SEAM SEALANT.
3. SOLVENT–BASED JOINT AND SEAM SEALANT.
4. FLANGED JOINT SEALANT.
5. FLANGE GASKETS.
6. ROUND DUCT JOINT O–RING SEALS.

1.3 SEISMIC–RESTRAINT DEVICES

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

1.4 DUCT CLEANING

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

1.5 DUCT SCHEDULE

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

END OF SECTION 233113

THERMOSTATIC CONTROL NOTES

503.2.4.1 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, AT LEAST 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 OR GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED:

1. THE PERIMETER SYSTEM INCLUDES AT LEAST ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN +/– 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15.2 M); AND
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY A THERMOSTAT(S) LOCATED WITHIN THE ZONE(S) SERVED BY THE SYSTEM.

503.2.4.2 SET POINT OVERLAP RESTRICTION

WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL PROVIDE A TEMPERATURE RANGE OR DEADBAND OF AT LEAST 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS CAPABLE OF BEING SHUT OFF OR REDUCED TO A MINIMUM.

EXCEPTION: THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.

503.2.4.3 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 READILY ACCESSIBLE MANUAL SHUTOFF SWITCH.

503.2.4.3.1 THERMOSTATIC SETBACK CAPABILITIES

THERMOSTATIC SETBACK CONTROLS SHALL HAVE THE CAPABILITY 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).

503.2.4.3.2 AUTOMATIC SETBACK AND SHUTDOWN CAPABILITIES

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 AT LEAST 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 CAPABLE OF BEING ADJUSTED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

503.2.4.4 SHUTOFF DAMPER CONTROLS

BOTH OUTDOOR AIR SUPPLY AND EXHAUST DUCTS SHALL BE EQUIPPED WITH MOTORIZED DAMPERS THAT WILL AUTOMATICALLY SHUT WHEN THE SYSTEMS OR SPACES SERVED ARE NOT IN USE.

EXCEPTIONS:

1. GRAVITY DAMPERS SHALL BE PERMITTED IN BUILDINGS LESS THAN THREE STORIES IN HEIGHT.
2. GRAVITY DAMPERS SHALL BE PERMITTED FOR BUILDINGS OF ANY HEIGHT LOCATED IN CLIMATE ZONES 1, 2 AND 3.
3. GRAVITY DAMPERS SHALL BE PERMITTED FOR OUTSIDE AIR INTAKE OR EXHAUST AIRFLOWS OF 300 CFM (0.14 M3/S) OR LESS.

<u>PIPING INSULATION</u>

A. INSULATE ALL PIPING IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.

B. PIPING, VALVES AND FITTINGS TO BE INSULATED:

1) LOW TEMPERATURE PIPING SYSTEMS – 0 TO 60 DEG F INCLUDING:

<u>INSULATION SCHEDULE – PIPING</u>

SERVICE	SIZE	MATERIAL FINISH
REFRIGERANT PIPING	1.5"	P–6
CONDENSER DRAIN PIPING	1.0"	P–6

2) PROTECTIVE COVERINGS SHALL BE INSTALLED ON AREAS OF INSULATION THAT ARE EXPOSED TO WEATHER OR SUBJECT TO MECHANICAL DAMAGE. THE PROTECTIVE COVERING SHALL BE:

a. ARMA–CHEK SILVER" MULTI–LAYER LAMINATE OF ALUMINUM, COATED WITH A UV PROTECTIVE FILM AND BACKED WITH A FLEXIBLE PVC FILM. THE MATERIAL SHOULD BE ADHERED WITH ARMAFLEX 520 ADHESIVE OR EQUIVALENT, AND ALL JOINS AND SEAMS SECURED WITH "ARMA–CHEK SILVER TAPE". INSTALLATION SHALL BE IN ALL CASES TO THE MANUFACTURER'S RECOMMENDATIONS.

OR

b. HIGH DENSITY RUBBER CLADDING OF THE "ARMA–CHECK R" TYPE BONDED USING AN APPROPRIATE FULL CONTACT ADHESIVE WITH A MINIMUM 50 MM OVERLAP AT ALL BUTT JOINTS AND LONGITUDINAL SEAMS. A WEATHER–PROOF MASTIC SEALANT SHALL BE APPLIED OVER ALL SEAMS AND JOINTS. ALL MATERIAL SHALL BE OVERLAPPED AND STAGGERED IN SUCH A WAY AS TO ENSURE A WATERSHED IS ALWAYS PROVIDED. INSTALLATION SHALL BE IN ALL CASES TO THE MANUFACTURER'S RECOMMENDATIONS. ALL EXCESS ADHESIVE VISIBLE ON THE SURFACE OF THE COMPLETED ASSEMBLY SHALL BE REMOVED USING AN APPROPRIATE CLEANING MATERIAL.

OR

c. METAL CLADDING, COMPRISED OF COATED SHEET METAL, WITH ALL EXTERNAL JOINTS AND FIXING MADE WEATHER–PROOF WITH SILICONE SEALANT.

C. MATERIAL:

1) TYPE P–1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.24 K–FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY–APPLIED FIRE–RETARDANT FOIL–SKRIM–KRAFT FACING. ALL SERVICE JACKET. SIMILAR TO OWENS–CORNING 650 ASJ.
2) TYPE P–3: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS FITTING, MAXIMUM 0.23 K–FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO EPOLUX HAMFAB MOLDED FITTINGS.
3) TYPE P–4: MINIMUM 1 LB DENSITY FIBERGLASS FITTING INSERTS, MAXIMUM 0.27 K–FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO MANVILLE HI–LO TEMP INSULATION INSERTS.
4) TYPE P–6: MINIMUM 6 LB MOLDED FOAMED PLASTIC. MAXIMUM 0.27 K–FACTOR AT 75 DEG F MEAN TEMPERATURE. MAXIMUM 0.17 PERMEANCE. SIMILAR TO ARMSTRONG ARMAFLEX II.

D. FINISH:

1) TYPE F–1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.
2) TYPE F–2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE–FIT, UL LABEL.
3) TYPE F–4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.
4) TYPE F–6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.

E. INSTALLATION:

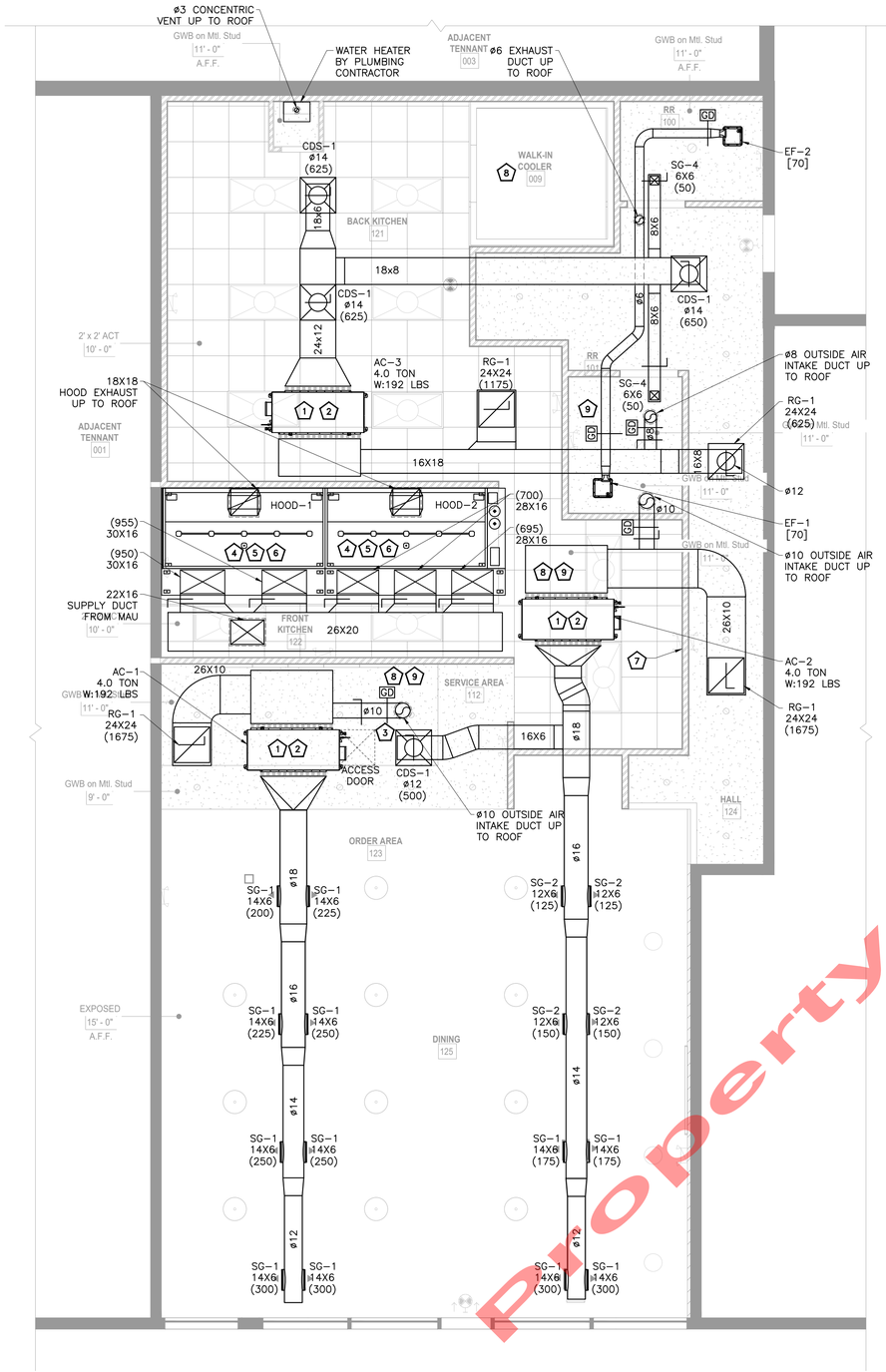
1) BEFORE APPLYING INSULATION ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED.
2) ALL INSULATION SHALL BE BUTTED FIRMLY TOGETHER. PROVIDE 2 IN. LAMP STRIPS AT ALL SEAMS SECURED WITH ADHESIVE. USE VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE WHERE REQUIRED. STAPLES NOT PERMITTED. REFRIGERANT PIPING INSULATION SHALL HAVE MITERED FITTINGS.
3) ALL INSULATION AND VAPOR BARRIERS SHALL BE CONTINUOUS PASSING THROUGH SLEEVES, HANGERS, ETC., OR OTHER OPENINGS. PROVIDE SADDLES OR SHIELDS FOR PROTECTION AT ALL HANGINGS.
4) INSULATION FOR STRAINERS OR OTHER FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.

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project name:
The Great Greek

sheet name:
MECHANICAL SPECIFICATIONS (2 OF 2)

sheet no.:
M003



1 M101 MECHANICAL FLOOR PLAN
1/4" = 1'-0"

PROJECT NORTH

GENERAL NOTES:

1. ALL WORK SHALL COMPLY WITH ALL LOCAL AND STATE CODES AND AUTHORITIES HAVING JURISDICTION.
2. THE CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND ARRANGE ALL REQUIRED INSPECTIONS.
3. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER CONTRACTORS AND TRADES.
4. THESE DRAWINGS, AS PREPARED, ARE DIAGRAMMATIC BUT SHALL BE FOLLOWED AS CLOSELY AS CONSTRUCTION OF THE PROJECT AND THE WORK OF THE TRADES WILL PERMIT. EQUIPMENT LOCATIONS INDICATED ARE APPROXIMATE. COORDINATE EXACT LOCATIONS AND REQUIRED CLEARANCES WITH EQUIPMENT SUPPLIER AND ALL TRADES PRIOR TO INSTALLATION.
5. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL THE EQUIPMENT INDICATED WITHIN THE MECHANICAL DRAWINGS UNLESS OTHERWISE NOTED. ALL EQUIPMENT SHALL BE UL LISTED. VERIFY LOCATION AND DIMENSIONS IN THE FIELD PRIOR TO FABRICATION AND / OR INSTALLATION.
6. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSIONS.
7. ALL METAL DUCT AND AIR DISTRIBUTION DEVICES SHALL BE INSULATED WITH MINIMUM R-5, 75 DENSITY FOIL-BACKED INSULATION WITH FIRE AND SMOKE RATING 25-50.
8. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
9. THE CONTRACTOR SHALL COORDINATE DIFFUSER LOCATIONS ON SITE WITH THE MOST RECENT REFLECTED CEILING PLAN.
10. THE CONTRACTOR IS TO MAKE ALL LOW-VOLTAGE WIRING CONNECTIONS FOR ALL HVAC EQUIPMENT INCLUDING TEMPERATURE CONTROLS, ROOF TOP UNITS, SMOKE DETECTORS AND CONTACTOR PANEL.
11. PROVIDE AND INSTALL SMOKE DUCT DETECTORS IN EACH AIR CONDITIONING UNIT SUPPLY AIR DUCT GREATER THAN 2000 CFM. CONTRACTOR SHALL PROVIDE INTERCONNECTION AND WIRE TO THE FIRE ALARM CONTROL PANEL IF REQUIRED. DUCT DETECTORS SHALL HAVE REMOTE TEST STATIONS LOCATED NEAR THE RESPECTIVE THERMOSTATS. VERIFY CODE REQUIREMENTS FOR DUCT DETECTORS IN BOTH THE SUPPLY AND RETURN AIR STREAMS.
12. THE ENTIRE INSTALLATION SHALL BE GUARANTEED FREE OF DEFECTS AND CONTRACTOR SHALL REPAIR AND / OR REPLACE ANY DEFECTIVE MATERIALS OR EQUIPMENT AT NO COST TO THE OWNER FOR A MINIMUM PERIOD OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY ARCHITECT OR ENGINEER.
13. 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.
14. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST AND BALANCE OF ALL EQUIPMENT. PROVIDE A WRITTEN REPORT TO THE ARCHITECT. ALL CAPACITIES MUST BE SET TO WITHIN ±10% OF AMOUNTS INDICATED ON THE FLOOR PLAN AND SCHEDULES.
15. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS AS PER LOCAL CODE. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
16. PROVIDE VOLUME DAMPER AT EACH SUPPLY, RETURN AND EXHAUST DUCTWORK BRANCH.
17. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
18. PROVIDE CORD-OPERATED DAMPERS IN INACCESSIBLE CEILINGS.
19. ALL CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH A CONTINUOUS SLOPE OF NOT LESS THAN 1/8 INCH PER FOOT TOWARD THE POINT OF DISCHARGE TO ENSURE PROPER DRAINAGE.

KEYED NOTES:

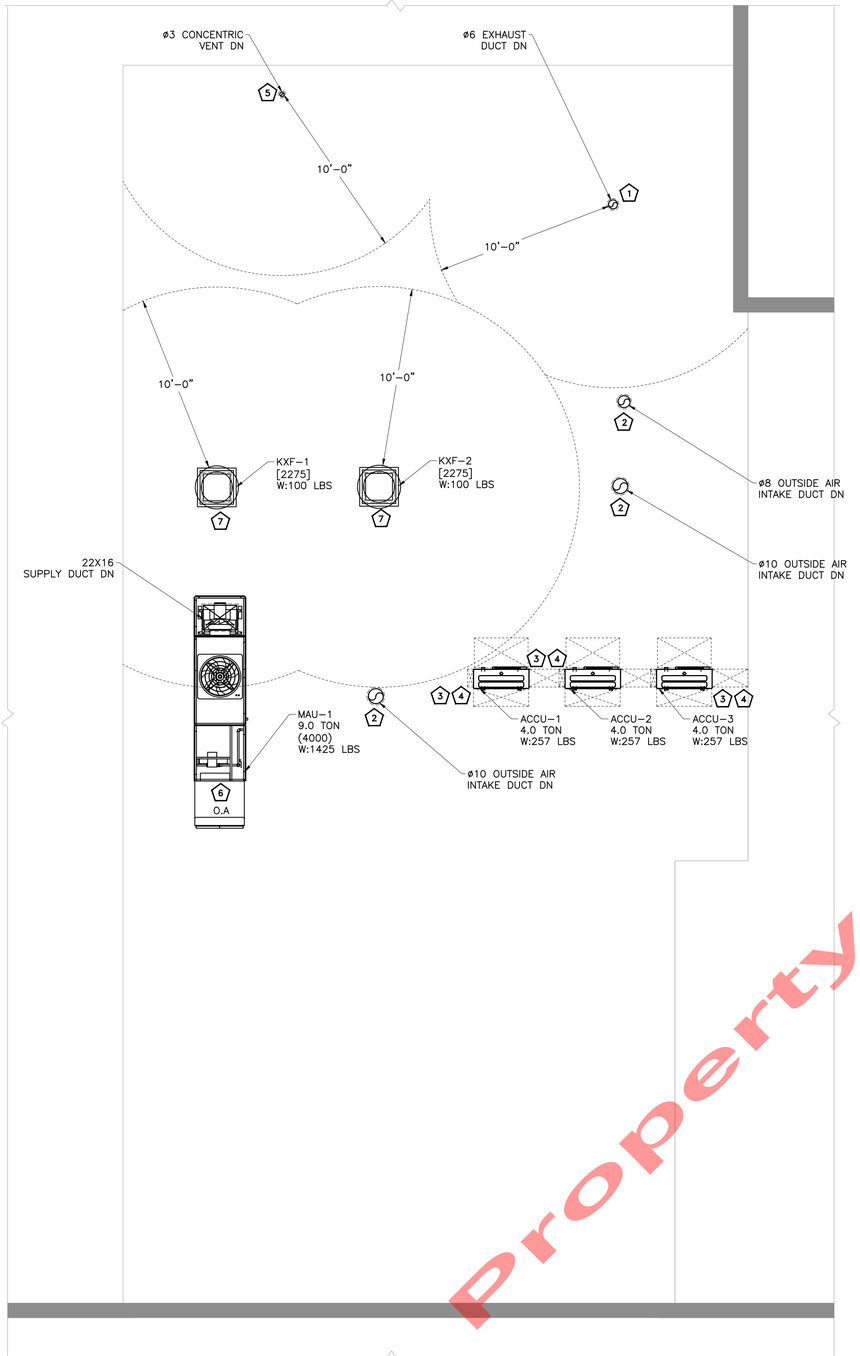
1. CONTRACTOR TO PROVIDE AND INSTALL NEW AC 1,2&3. COMPLETE WITH ALL ACCESSORIES, REFRIGERANT PIPING, CONDENSATE DRAIN, ELECTRICAL CONNECTIONS, AND START-UP AS PER MANUFACTURER'S REQUIREMENTS.
2. 1"ø CONDENSATE DRAIN WITH DRAIN PUMP TO LAVATORY WASTE W/AIR GAP FITTING, COORDINATE W/ PLUMBING DRAWING.
3. PROVIDE ACCESS DOOR FOR AC INDOOR UNIT SIZE OF 24"X24".
4. HOOD SUPPLIER SHALL PROVIDE, AND CONTRACTOR SHALL INSTALL, TYPE I EXHAUST HOOD. INSTALL STAINLESS STEEL WRAPPER PANELS AT TOP PERIMETER OF HOOD UP TO T-BAR CEILING. SUPPORT HOOD AND DUCT PER MANUFACTURER'S INSTRUCTIONS. PROVIDE AND INSTALL TRANSITION FROM HOOD CONNECTION TO TYPE I DUCT
5. HOOD SUPPLIER SHALL PROVIDE, AND CONTRACTOR SHALL INSTALL, TYPE I DOUBLE-WALL MANUFACTURED GREASE DUCT IN ACCORDANCE WITH LOCAL CODES. DUCT SIZE TO MATCH PLAN. REFER TO HOOD DRAWINGS FOR DUCTWORK SPECIFICATIONS AND DETAILS. SLOPE GREASE DUCT 1/4" PER FOOT TOWARD HOOD OR APPROVED GREASE COLLECTION RESERVOIR PER LOCAL CODE. FOR HORIZONTAL DUCTS EXCEEDING 75', SLOPE AT 1" PER FOOT.
6. ANSUL R-102 FIRE SUPPRESSION SYSTEM SHALL BE PROVIDED FOR TYPE I KITCHEN HOOD. SYSTEM SHALL BE SUPPLIED WITH HOOD BY HOOD SUPPLIER AND SHALL INCLUDE ANSUL REGULATED RELEASE ASSEMBLY WITH WET CHEMICAL STORAGE TANK, WET CHEMICAL AGENT, DISTRIBUTION PIPING, GAS SOLENOID VALVE, AND PULL STATION ASSEMBLY. TYPE I HOOD COMES PRE-PIPED WITH ANSUL DISCHARGE NOZZLES. COORDINATE INSTALLATION WITH ELECTRICAL AND PLUMBING CONTRACTORS. LOCATE GAS SOLENOID VALVE PER GAS PIPING PLANS AND VERIFY EXACT LOCATIONS WITH OWNER. SYSTEM SHALL BE U.L. LISTED AND U.L. 300 COMPLIANT.
7. PROVIDE AND INSTALL ANSUL R-102 PULL STATION FOR MANUAL ACTIVATION OF HOOD FIRE SUPPRESSION SYSTEM. LOCATE IN A READILY ACCESSIBLE POSITION ALONG PATH OF EGRESS.
8. WALK IN COOLER TO BE PROVIDED AND INSTALLED BY OTHER.

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The Great Greek

sheet name:
MECHANICAL FLOOR PLAN

sheet no.:
M101



1 M102 MECHANICAL ROOF PLAN
1/4" = 1'-0"

PROJECT NORTH

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
3. 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.
4. MAINTAIN ALL CODES AND MANUFACTURERS RECOMMENDED CLEARANCE AROUND ALL ROOF EQUIPMENT'S.
5. ALL CONDENSATE DRAIN PIPING SHALL BE INSTALLED WITH A CONTINUOUS SLOPE OF NOT LESS THAN 1/8 INCH PER FOOT TOWARD THE POINT OF DISCHARGE TO ENSURE PROPER DRAINAGE.

KEYED NOTES:

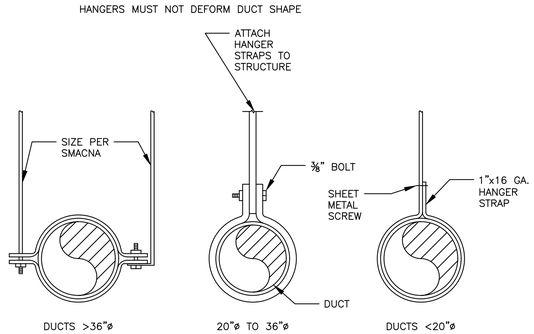
1. EXHAUST AIR DUCT COMING FROM THE FLOOR BELOW TO BE TERMINATED AT LEAST 6" ABOVE ROOF SURFACE. TERMINATE THE EXHAUST DUCT AT LEAST 3' AWAY FROM LOT LINES & 10' HORIZONTALLY AWAY FROM OR 3' VERTICALLY ABOVE ALL THE OUTSIDE AIR INTAKE OPENINGS. TERMINATE WITH GOOSENECK & PROVIDE BIRD/INSECT SCREEN.
2. OUTDOOR AIR DUCT COMING FROM THE FLOOR BELOW TO BE TERMINATED AT LEAST 6" ABOVE ROOF SURFACE. TERMINATE THE OUTSIDE AIR INTAKE DUCT AT LEAST 10' HORIZONTALLY AWAY FROM OR 3' VERTICALLY BELOW ALL THE EXHAUST TERMINATIONS. TERMINATE WITH GOOSENECK & PROVIDE BIRD/INSECT SCREEN
3. CONTRACTOR SHALL FIELD VERIFY THE FEASIBILITY OF THE CONDENSING UNIT INSTALLATION AT THE PROPOSED LOCATION AND MAKE ANY NECESSARY MODIFICATION AS REQUIRED. THE FINAL INSTALLATION LOCATION OF THE CONDENSING UNIT SHALL BE DETERMINED IN THE FIELD IN COORDINATION WITH THE STRUCTURE ENGINEERS. CONTRACTOR TO INSTALL OUTDOOR UNIT AS PER MANUFACTURERS RECOMMENDATIONS AND PROVIDE THE NECESSARY STRUCTURAL SUPPORTS AS REQUIRED.
4. COORDINATE REFRIGERANT PIPING ROUTE AS PER FIELD CONDITIONS. INSTALL REFRIGERANT PIPING AS PER MANUFACTURERS RECOMMENDATIONS.
5. Ø3" CONCENTRIC VENT LINE FOR COMBUSTION AIR INTAKE / EXHAUST FROM GAS FIRED EQUIPMENT TO ROOF TERMINATION KIT. ROUTE PIPING FROM RESPECTIVE UNIT TO LOCATION INDICATED ON ROOF PLAN. ROUTE PIPING WITH MINIMAL AMOUNT OF BENDS AND MINIMUM LENGTH AS PER MANUFACTURER'S REQUIREMENTS.
6. CONTRACTOR TO RUN CONDENSATE DRAIN FROM MAU-1 TO NEAREST ROOF DRAIN OR DOWN SPOUT.FINAL POINT OF TERMINATION TO BE DETERMINED IN FIELD IN COORDINATION WITH THE PLUMBING CONTRACTOR.
7. KITCHEN EXHAUST TERMINATION SHALL BE 40" ABOVE THE ROOF SURFACE, 3' AWAY FROM OPENING INTO BUILDING AND 10 FEET AWAY FROM ANY OUTSIDE AIR INTAKES.

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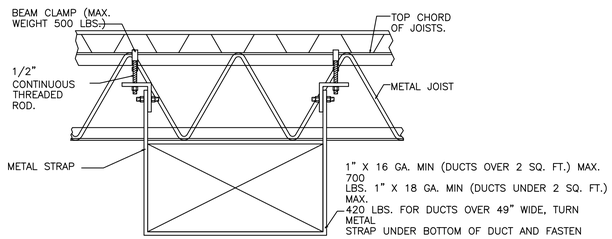
project name:
The Great Greek

sheet name:
MECHANICAL ROOF PLAN

sheet no.:
M102



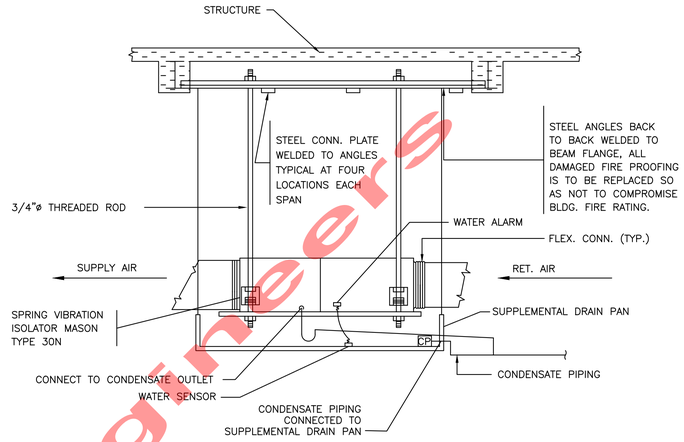
1 M-501 N.T.S ROUND DUCT SUPPORT DETAIL



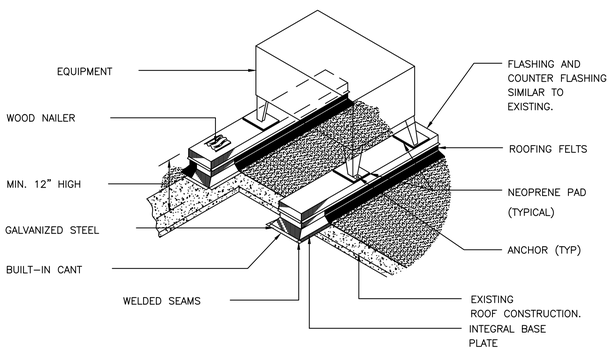
MAX. SIDE INCHES	RECTANGULAR DUCTS MIN. GALV. SHT. GAUGE	ALUMINUM MIN. B & S GAUGE
THROUGH 12	26 (0.022 IN.)	24 (0.020 IN.)
13 THROUGH 30	24 (0.028 IN.)	22 (0.025 IN.)
31 THROUGH 54	22 (0.034 IN.)	20 (0.032 IN.)
55 THROUGH 84	20 (0.040 IN.)	18 (0.040 IN.)
OVER 84	18 (0.052 IN.)	16 (0.051 IN.)

NOTE: DISTANCE BETWEEN DUCT HANGERS SHALL BE IN ACCORDANCE WITH THE RULES OF THE AGENCIES HAVING JURISDICTION.

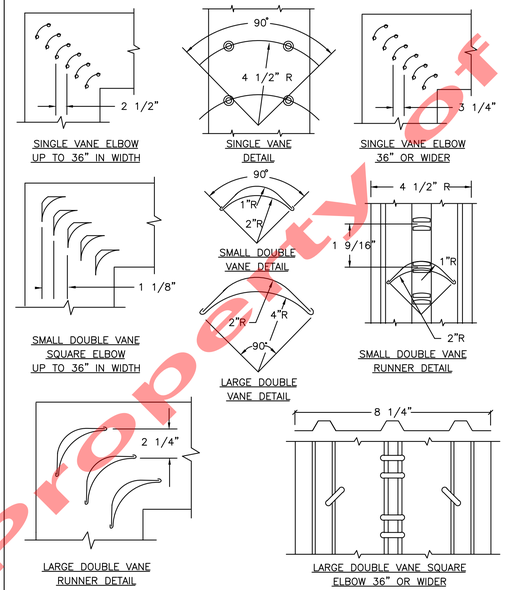
2 M-501 N.T.S METHOD OF HANGING DUCTWORK



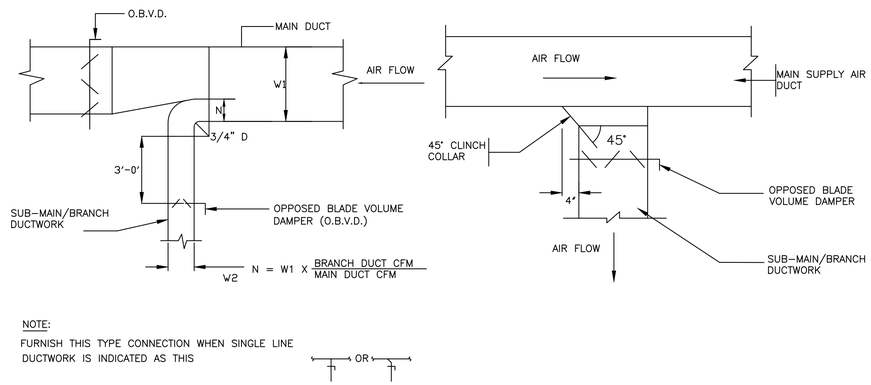
3 M-501 N.T.S A.C. UNIT INSTALLATION DETAIL



4 M-501 N.T.S EQUIPMENT RAILS ROOF SUPPORT DETAIL



5 M-501 N.T.S LOW VELOCITY DUCTWORK ELBOWS



NOTE:
FURNISH THIS TYPE CONNECTION WHEN SINGLE LINE DUCTWORK IS INDICATED AS THIS OR

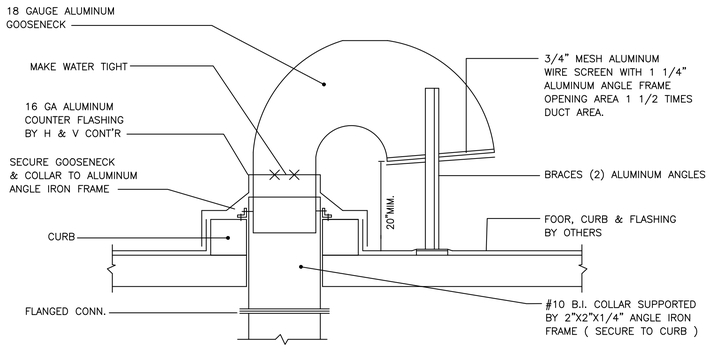
6 M-501 N.T.S SUPPLY AIR DUCTWORK SUB-MAIN/BRANCH DUCT CONNECTION

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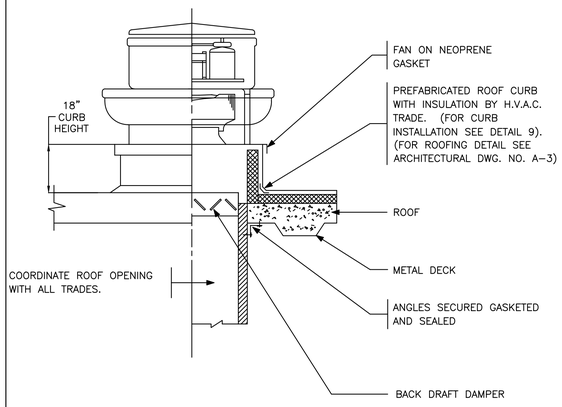
project name:
The Great Greek

sheet name:
MECHANICAL DETAILS (SHEET 1 OF 2)

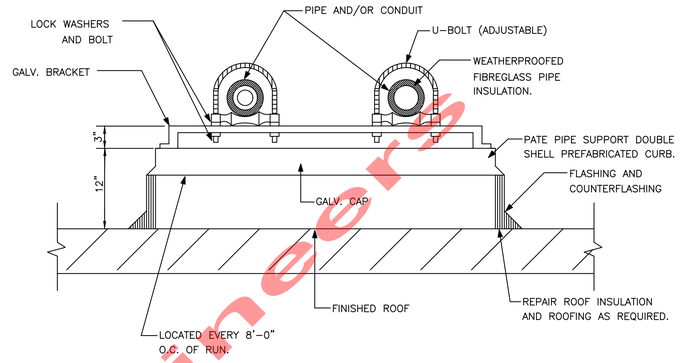
sheet no.:
M501



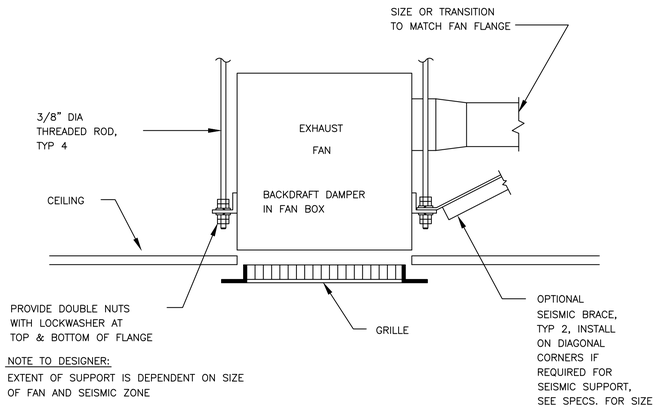
1 / M-502 N.T.S TYPICAL DETAIL OF ROOF GOOSENECK



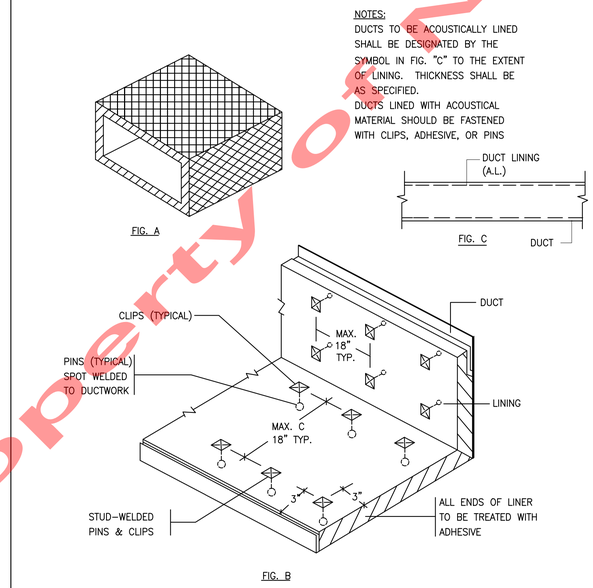
2 / M-502 N.T.S UP BLAST EXHAUST FAN DETAIL



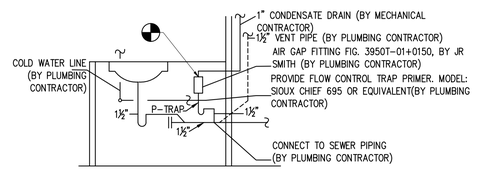
3 / M-502 N.T.S DETAIL OF PIPE AND CONDUIT SUPPORT ON ROOF



4 / M-502 N.T.S CEILING EXHAUST FAN



5 / M-502 N.T.S ACOUSTICAL TREATMENT DUCT LINING



NOTE:
LOCATE AIR GAP FITTING AND PIPING WITHIN SINK/LAVATORY ENCLOSURE.

6 / M-502 N.T.S AIR GAP FITTING DETAIL

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project name:
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sheet name:
MECHANICAL DETAILS (SHEET 2 OF 2)

sheet no.:
M502

SPLIT HEAT PUMP UNIT SCHEDULE (INDOOR)

MAKE: LG

UNIT TAG	LOCATION	UNIT TYPE	CAP. (TON)	COOLING MBH	HEATING MBH	TOTAL CFM (MAX.)	OUTSIDE AIR CFM	MAX. ESP. (IN. WG)	ELECTRICAL DATA			DIMENTIONS (HXWXD) (IN.)	PIPE SIZE			WEIGHT (LBS.)	MODEL NO.
									VOLT/PH/HZ	MCA	MOP		LIQ.	SUCTION	DRAIN (ID)		
AC-1	SEE PLANS	HIGH STATIC DUCTED	4.0	48.0	51.0	2000	325	0.7	208-230/60/1	6.5	15	18x61x27	3/8"	3/4"	1"	192	ZRNU483B8AA
AC-2	SEE PLANS	HIGH STATIC DUCTED	4.0	48.0	51.0	2000	325	0.7	208-230/60/1	6.5	15	18x61x27	3/8"	3/4"	1"	192	ZRNU483B8AA
AC-3	SEE PLANS	HIGH STATIC DUCTED	4.0	48.0	51.0	2000	200	0.7	208-230/60/1	6.5	15	18x61x27	3/8"	3/4"	1"	192	ZRNU483B8AA

NOTES:
1. SUPPLY AIR CFM BASED ON HIGH SPEED.
2. REFRIGERANT R32 SHALL BE PROVIDED.
3. ALL REFRIGERANT PIPING TO BE SIZED PER MANUFACTURERS RECOMMENDATIONS.
4. PROVIDE MERV 13 FILTER IN RETURN.
5. INDOOR UNIT ACCESS PANEL FIELD-PROVIDED.
6. CONTRACTOR TO BALANCE THE OUTSIDE AIR INTAKE OF ALL THE AC UNITS AS PER THE CFM MENTIONED ABOVE.

SPLIT HEAT PUMP UNIT SCHEDULE(OUTDOOR)

MAKE: LG

UNIT TAG	LOCATION	INDOOR UNITS SERVED	CAP.TR	COOLING MBH	HEATING MBH	COMPRESSOR TYPE	UNIT DIMENSIONS IN.(HXWXD)	WEIGHT (LBS)	PIPING		ELECTRICAL			SOUND LEVEL (Dba)	EER2	SEER2	HSPF	MODEL NO.
									LIQUID	GAS	(V/Hz/Ph)	MCA	MOP					
ACCU-1	SEE PLANS	AC-1	4	48	54	SCROLL	54X37X15	257	3/8"	5/8"	208-230/60/1	31	40	54	12.2	17.0	10.0	ZRUM048GSS0
ACCU-2	SEE PLANS	AC-2	4	48	54	SCROLL	54X37X15	257	3/8"	5/8"	208-230/60/1	31	40	54	12.2	17.0	10.0	ZRUM048GSS0
ACCU-3	SEE PLANS	AC-3	4	48	54	SCROLL	54X37X15	257	3/8"	5/8"	208-230/60/1	31	40	54	12.2	17.0	10.0	ZRUM048GSS0

NOTES:
1. UNIT SHALL HAVE TEN YEAR EXTENDED WARRANTY FOR COMPRESSORS/PARTS.
2. PROVIDE COMPRESSOR CYCLE PROTECTOR.
3. PROVIDE PADS FOR CONDENSER UNIT MOUNTING.
4. CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEED THE MANUFACTURER'S STANDARD RECOMMENDED
5. AIR CONDITIONER UNIT SHALL NOT PRODUCE NOISE LEVELS IN EXCESS OF 42 dB FOR A SINGLE AIR CIRCULATING DEVICE AND 45 DECIBELS FOR THE CUMULATIVE NOISE LEVEL OF MULTIPLE AIR CIRCULATING DEVICES AS MEASURED 3 FEET FROM THE NOISE SOURCE AT AN OPEN DOOR OR WINDOW OF A NEARBY RESIDENCE.

MAKEUP AIR UNIT SCHEDULE

UNIT ID	MANUFACTURER	MODEL	SUPPLY FAN DATA		COOLING DATA				GAS HEATING			ELECTRICAL DATA					IEER	OPERATING WEIGHT (LBS)
			DESIGN	TOTAL STATIC PRESSURE (IN. W.G.)	TOTAL	SENSIBLE	ENTERING TEMP.	LEAVING TEMP.	INPUT	OUTPUT	EFFICIENCY	VOLTS	PHASE	HZ	MCA(A)	MOP(A)		
			CFM		MBH	MBH	DB / WB(˚F)	DB (˚F)	MBH	MBH	%							
MAU-1	ACCUREX	XDGX-P116-H12-MF-8	4000	0.50	108	86.2	95/80.7	74.3	157	145.2	92	208	3	60	50.6	70	14.2	1425

NOTES:-
1. PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.
2. COORDINATE WITH PLUMBING CONTRACTOR FOR CONDENSATE DISPOSAL.
3. PROVIDE REQUIRED CLEARANCE AND ACCESS SPACE FOR THE UNIT AS PER MANUFACTURER'S RECOMMENDATIONS.

FAN SCHEDULE

UNIT ID	MANUFACTURER	AREA SERVED	MODEL	CFM	TYPE	DRIVE	FAN RPM	E.S.P.	MOTOR							INTERLOCKED WITH	WEIGHT (LBS)	NOTES / ACCESSORIES
								(IN. W.G.)	HP	FLA	MCA	MOP	VOLTS	HZ	PHASE			
EF-1	GREENHECK	SEE PLAN	SP-LP0511-1	70	CEILING	DIRECT	773	0.3	-	0.3	0.4	15	115	60	1	TIME CLOCK	34	1-4
EF-2	GREENHECK	SEE PLAN	SP-LP0511-1	70	CEILING	DIRECT	773	0.3	-	0.3	0.4	15	115	60	1	TIME CLOCK	34	1-4
KXF-1	ACCUREX	SEE PLAN	XCUE-160-VG	2275	ROOF	DIRECT	1298	1.2	3/4	-	10	15	208	60	1	HOOD CONTROL	100	1,3-5
KXF-2	ACCUREX	SEE PLAN	XCUE-160-VG	2275	ROOF	DIRECT	1298	1.2	3/4	-	10	15	208	60	1	HOOD CONTROL	100	1,3-5

NOTES / ACCESSORIES:
1.AMCA SEAL & UL CERTIFIED
2.GRAVITY BACKDRAFT DAMPER
3.THERMAL OVERLOAD PROTECTION
4.WEATHER PROOF DISCONNECT SWITCH
5.ROOF CURB

HOODS

UNIT ID	MANUFACTURER	LENGTH (INCH)	MODEL	SERVICE	TYPE	COOKING	EXHAUST			SUPPLY	CONSTRUCTION	WEIGHT (LBS)
						TEMPERATURE (DEG F)	AIR (CFM)	COLLAR LENGTH (INCH)	COLLAR WIDTH (INCH)	E.S.P (IN. W.G.)	MAU (CFM)	
HOOD-1	ACCUREX	109	XBEW-109-S	SEE PLAN	I	600	2300	22	9	0.5	1905	430 SS WHERE EXPOSED	336
HOOD-2	ACCUREX	109	XBEW-109-S	SEE PLAN	I	600	2300	22	9	0.5	2095	430 SS WHERE EXPOSED	561

NOTES / ACCESSORIES:
1. PROVIDE MANUFACTURER RECOMMENDED ACCESSORIES & INSTALL AS PER MANUFACTURER'S RECOMMENDATION.
2. REFER HOOD DATA IN MECHANICAL DETAILS SHEET FOR MORE DETAILS.

SCHEDULE OF SQUARE DIFFUSER

TAG	SIZE	DESCRIPTION	CONSTRUCTION	FINISH	BASIS OF DESIGN		ACCESSORIES
					MANUFACTURER	MODEL	
CDS-1	24"X24"	SUPPLY AIR DIFFUSER	ALUMINUM	WHITE	TITUS	TMS-AA	VOLUME DAMPER

NOTES:
1. MAX. NC LEVEL 20 OR LESS.
2. COORDINATE WITH ARCHITECT/OWNER FOR FINAL MOUNTING, FRAME TYPE, PAINT AND FINISH.
3. PROVIDE INSULATED BACKS ON ALL DIFFUSERS/GRILLE.
FOR ROUND NECK DIFFUSERS:
6" DIA: 0-120 CFM
8" DIA: 125-220CFM
10" DIA: 225-400 CFM
12" DIA: 405-550 CFM
14" DIA: 550-650 CFM

SCHEDULE OF GRILLE

TAG	SIZE (IN)	TYPE	DEFLECTION (DEGREE)	MAX NC	BASIS OF DESIGN		ACCESSORIES
					MANUFACTURER	MODEL	
SG-1	14X6	SUPPLY AIR GRILLE	0	WHITE	TITUS	S300F	AIR SCOOP DAMPER
SG-2	12X6	SUPPLY AIR GRILLE	0	WHITE	TITUS	S300F	AIR SCOOP DAMPER
SG-3	6X6	SUPPLY AIR GRILLE	0	WHITE	TITUS	300F	VOLUME DAMPER
RG-1	24X24	RETURN AIR GRILLE	0	WHITE	TITUS	350R	VOLUME DAMPER

NOTES:
1. COORDINATE WITH ARCHITECT/OWNER FOR FINAL MOUNTING, FRAME TYPE, PAINT AND FINISH.L
2. PROVIDE INSULATED BACKS ON ALL GRILLE.

AIR BALANCE

UNIT	AREA SERVED	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR(CFM)
AC-1	SEE PLAN	2000	325	1675	0
AC-2	SEE PLAN	2000	325	1675	0
AC-3	SEE PLAN	2000	200	1800	0
EF-1	RESTROOM	0	0	0	70
EF-2	RESTROOM	0	0	0	70
KXF-1	HOOD-1	0	0	0	2300
KXF-1	HOOD-2	0	0	0	2300
MAU-1	HOOD-1&2	0	4000	0	0
TOTAL:		6000	4850	5150	4740
BUILDING PRESSURE:			110	POSITIVE	

NOTES:
1. CONTRACTOR TO ADJUST VOLUME DAMPER ON OUTSIDE AIR TAP TO PROVIDE OUTSIDE AIR AS

VENTILATION CALCULATION

ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000 SQ.FT.	NUMBER OF PEOPLE AS PER IMC 2018	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR		REQUIRED OA (CFM)	PROVIDED OA (CFM)	EXHAUST AIRFLOW RATE	REQUIRED EXHAUST	PROVIDED EXHAUST	CODE REFERANCE
						CFM/PEOPLE	CFM/SQ.FT						
KITCHEN	287	20	6	0	6	7.5	0.12	79	100	0.7	201	4600	FOOD AND BEVERAGE SERVICE – KITCHENS (COOKING)
KITCHEN MAU									4000	-	-	-	-
DINING AREA	874	70	61	44	44	7.5	0.18	487	600	0	0	0	FOOD AND BEVERAGE SERVICE – DINING ROOMS
SERVICE AREA	204	15	4	3	3	7.5	0.12	47	50	0	0	0	RETAIL STORE, SALES AND SHOWROOM FLOOR- SALES
RR-MEN	48	0	0	0	0	0	0	0	0	70	70	70	PUBLIC SPACES – TOILET ROOMS — PUBLIC
RR-WOMEN	40	0	0	0	0	0	0	0	0	70	70	70	PUBLIC SPACES – TOILET ROOMS — PUBLIC
RR-HALLWAY	213	0	0	0	0	0	0.06	13	25	0	0	0	PUBLIC SPACES – CORRIDOR
BOH	430	0	0	0	0	0	0.12	52	75	0	0	0	RETAIL STORE, SALES AND SHOWROOM FLOOR- STORAGE
TOTAL	2096				53			678	4850		341	4740	-

Property of NY Engineers

project name:
The Great Greek

sheet name:
MECHANICAL SCHEDULE

sheet no.:
M601

HOOD INFORMATION

HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST						SUPPLY		HANGING WEIGHT LBS.	SECTION LOCATION
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)					MUA CFM	AC CFM		
									WIDTH	LENGTH	DIA.	CFM	S.P.				
1	#A1 - KH-1	XBEW-109-S	109	54	24	430 SS WHERE EXPOSED	HEAVY	2271	9	22		2271	0.492	1905		336	LEFT
2	#A1 - KH-1	XBEW-109-S	109	54	24	430 SS WHERE EXPOSED	HEAVY	2271	9	22		2271	0.492	2095		561	RIGHT

HOOD INFORMATION

HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS				UTILITY CABINET(S)				
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.) L	H	LOCATION	FIRE SYSTEM TYPE	SIZE	CONTROLS MODEL	CONTROLS INTERFACE
1	#A1 - KH-1	INCANDESCENT (GLOBE) 100W A19 (BULBS NOT INCL.)	5	48.08	BAFFLE STAINLESS STEEL	3	16	20					
						3	20						
2	#A1 - KH-1	INCANDESCENT (GLOBE) 100W A19 (BULBS NOT INCL.)	5	48.08	BAFFLE STAINLESS STEEL	3	16	20	RIGHT	ANSUL R102	6	XKC	MB TOUCHSCREEN
						3	20						

SUPPLY PLENUM INFORMATION

HOOD NO.	MARK	POS.	TYPE	SIZE (IN.) L	W	H	INSULATED	DAMPER(S)	LED LIGHT(S) SUPPLIED	QTY	TOTAL CFM	TOTAL S.P.	COLLARS TYPE	MOUNTING	QTY	W	L	DIA.	CFM	VEL
1	#A1 - KH-1	FRONT	ASP	110	18	4	YES	YES	NO		1905	0.01	MUA	FACTORY	3	16	26		635	220
2	#A1 - KH-1	FRONT	ASP	121	18	4	YES	YES	NO		2095	0.01	MUA	FACTORY	3	16	28		698	224

FIRE SYSTEM INFORMATION

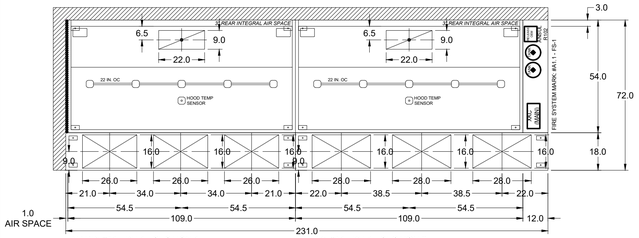
MARK	MODEL	LOCATION	FLOW POINTS HOODS	FLOW POINTS PCU	SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
#A1.1 - FS-1	ANSUL R-102 WET CHEMICAL	CABINET – RIGHT END OF #A1 - KH-1	18 UTILIZED 22 AVAILABLE		CONTINUOUS	FUSIBLE LINK	#A1 - KH-1 SECTION 1 #A1 - KH-1 SECTION 2

HOOD OPTIONS

- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- BACK INTEGRAL AIR SPACE - 3 IN WIDE
- LEFT NON-INTEGRAL AIR SPACE - 1 IN THICK - ZERO CLEARANCE
- 18 IN HIGH CEILING ENCLOSURES - FRONT RIGHT - FIELD INSTALLED
- CONTINUOUS CAPTURE
- FACTORY MOUNTED EXHAUST COLLAR(S)
- BACKSPLASH 84.00 IN HIGH 231.00 IN LONG
- LEFT SIDESPLASH 84.00 IN HIGH 54.00 IN LONG
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

FIRE SYSTEM OPTIONS AND ACCESSORIES

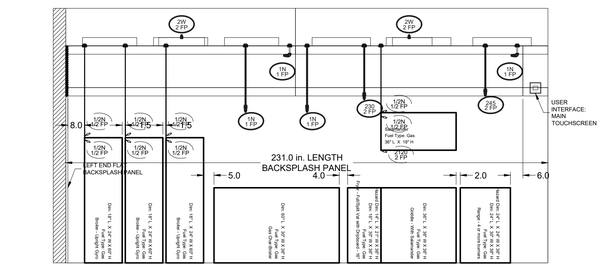
- FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
- CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
- METAL BLOW-OFF CAPS - INCLUDED
- GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# 468817
- HOOD SUPPRESSION TANK - INCLUDED - 6 GAL. - [(2) 3.0 TANK(S)]
- REMOTE PULL STATION - STANDARD - FIELD INSTALLATION AT SINGLE POINT OF EGRESS



MARK: #A1 - KH-1 - SECTION 1
PLAN VIEW

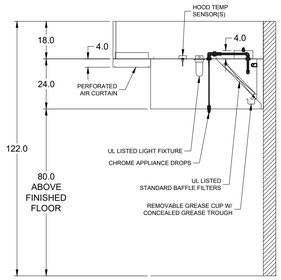
MARK: #A1 - KH-1 - SECTION 2
PLAN VIEW

FIRE (PIPING/DROPS/NOZZLES/ETC.) SUBJECT TO CHANGE. AS-BUILT DRAWINGS CAN BE PROVIDED AT TIME OF ORDER AND INCLUDED WITH PRODUCT SHIPMENT



MARK: #A1 - KH-1 - SECTION 1
ELEVATION VIEW

MARK: #A1 - KH-1 - SECTION 2
ELEVATION VIEW

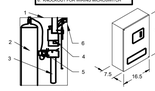


MARK: #A1 - KH-1 (LAST HOOD IN ROW)
SECTION VIEW

ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FSSC

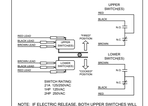
CONTROL PANEL

1. STAINLESS STEEL ENCLOSURE
2. ANSUL R-102 AGENT
3. EXPELLENT GAS CARTRIDGE
4. ANSUL AUTOMAN RELEASE
5. 1/2" CONDUIT
6. KNOCKOUT FOR WIRING MICROSWITCH



NOT TO SCALE

WIRING DIAGRAM FOR MICRO SWITCHES



NOTE: IF ELECTRIC RELEASE, BOTH UPPER SWITCHES WILL BE WIRED TO EACH OTHER AND TO THE BROWN WIRE (WILL BE WIRED TO EACH OTHER AND TO THE BROWN WIRE ON THE ELECTRIC SOLENOID). THEREFORE, USE ONE OF THE UPPER SWITCHES TO WIRE BACK TO CONTROL PANEL (DO NOT USE EITHER OF THE UPPER SWITCHES).

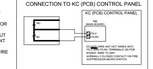
IF USING LOWER SWITCHES TO WIRE BACK TO CONTROL PANEL, NORMALLY-CLOSED WILL BE BLACK LEAD, AND NORMALLY-OPEN WILL BE BROWN LEAD.

OPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED TO ACTUATE ALARM DEVICES, BUT IT IS THE LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

CONNECTION TO BUILDINGS ALARM



CONNECTION TO KC (PCB) CONTROL PANEL



NOTES:
1. ——— DENOTES FIELD INSTALLATION.
2. ——— DENOTES FACTORY INSTALLATION.

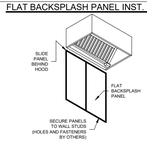
NOTES:

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.
-VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION
-ALL FIRE SYSTEM PIPING IS STANDARD (1/2 TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
-ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 60" OF HOOD.

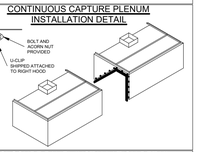
THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:
-GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
-MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS
-ALL MECHANICAL, ELECTRICAL AND FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

THE BASIC FIRE SYSTEM DOES NOT INCLUDE THE FOLLOWING:
-FULL DUMP TEST OTHER THAN WHT IS SPECIFIED PER THE INSTALLATION MANUAL. ALL TESTS TO BE WITNESSED BY THE LOCAL AUTHORITIES HAVING JUREDICTION
-ANY NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
-MORE THEN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL, WITHIN 100 MILES ONE WAY FROM THE OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS.
-INSTALLATION OF GAS SHUT-OFF VALVE.
-SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN REVIEW FEES, PERMIT FEES, OR FIELD SIGN OFF.
-UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOKUP.
-ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER, ETC.) OR GAS SHUT-OFF VALVE, ETC.
-ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
-ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
-ANY WORK OUTSIDE OF THE HOOD PLENUM (-) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT. (6.1M.)
-PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS. OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THEN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

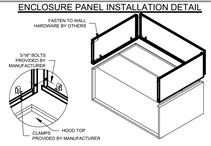
FLAT BACKSPLASH PANEL INST. DETAIL



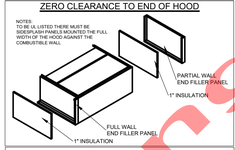
CONTINUOUS CAPTURE PLENUM INSTALLATION DETAIL



ENCLOSURE PANEL INSTALLATION DETAIL



ZERO CLEARANCE TO END OF HOOD



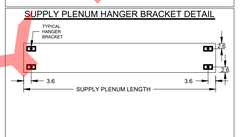
HOOD HANGING HEIGHT FOR FIRE SYSTEMS

VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

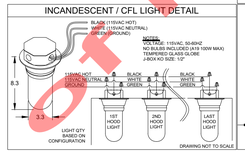
☐ RECOMMENDED HANGING HEIGHT = 80" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.

☐ OTHER HANGING HEIGHT = ____" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.

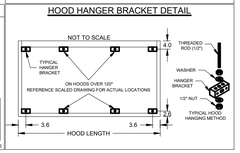
SUPPLY PLENUM HANGER BRACKET DETAIL



INCANDESCENT / CFL LIGHT DETAIL



HOOD HANGER BRACKET DETAIL



Property of NXG Engineers

THE GOOD GREEK - BROWNSVILLE, TX

#A1 - KH-1 & #A1.1 - FS-1

PROJECT 10/24/2025

MARK

ACCURATE KITCHEN EXHAUST CORP.
AUSTIN, TEXAS 78754
AUSTIN.WILSON@ACCUREX.COM
(305)900-7650

ACCUREX

project name:
The Great Greek

sheet name:
HOOD DATA SHEET (1 OF 4)

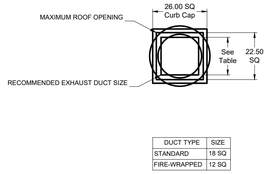
sheet no.:
H701

Direct Drive Upblast Centrifugal Roof Exhaust Fan

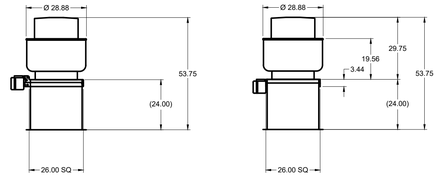
MARK INFORMATION				FAN INFORMATION							SOUND INFORMATION					MOTOR INFORMATION						
MARK	QTY	MODEL	DRIVE TYPE	VOLUME (CFM)	EXTERNAL SP (IN. WG)	TOTAL EXTERNAL SP (IN. WG)	FAN SPEED (RPM)	OUTLET VELOCITY (FT/MIN)	FEI	TOTAL WEIGHT (LB)	INLET dBA	INLET SONES	INLET SONES (SPHERICAL)	OUTLET dBA	OUTLET SONES	OPERATING POWER (HP)	MOTOR SIZE (HP)	FEP INPUT POWER (KW)	ENCLOSURE	VOLTAGE	CYCLE	PHASE	EC MOTOR
#A1.2 - KEF-1.1	1	XCUE-160-VG	Direct	2,271	1.242	1.242	1,298	1,320.35	1.5	100	67.91	16.02	0	0	0	0.78	1	0.7	OP	208	60	1	VariGreen

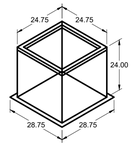
#A1.2 - KEF-1.1 : SELECTED OPTIONS AND ACCESSORIES

One piece fully welded windband
Tapered bushing wheel hub
Breather tube outlet area min. 4.4 sq. in. (sizes 99-480), 2.0 sq. in. (sizes 60-95)
Min. windband material thickness: 0.051" aluminum (060-240), 0.064" aluminum (240HP, 240XP), 0.080" aluminum (sizes 300-480)
Curb Cap Size - 26 Square
UL/cUL 705 Listed - Supplement SC - "Power Ventilators for Restaurant Exh. Appliances" (Formerly UL 762)
Switch, NEMA-3R, Toggle,
High Wind Rated (+/-150 PSF Rating)
Florida Product Approval #FL 13225.9 & Miami-Dade NOA #24-0919.01
Hinge, Factory Installed
High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
Fastener Material: Stainless
Grease Trap (PN 475538)
Aluminum Wheel Material



DUCT TYPE	SIZE
STANDARD	18 SQ
FIRE-WRAPPED	12 SQ





DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB.
CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

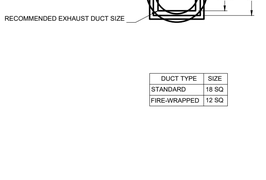
OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.

Direct Drive Upblast Centrifugal Roof Exhaust Fan

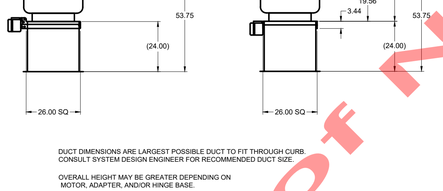
MARK INFORMATION				FAN INFORMATION							SOUND INFORMATION					MOTOR INFORMATION						
MARK	QTY	MODEL	DRIVE TYPE	VOLUME (CFM)	EXTERNAL SP (IN. WG)	TOTAL EXTERNAL SP (IN. WG)	FAN SPEED (RPM)	OUTLET VELOCITY (FT/MIN)	FEI	TOTAL WEIGHT (LB)	INLET dBA	INLET SONES	INLET SONES (SPHERICAL)	OUTLET dBA	OUTLET SONES	OPERATING POWER (HP)	MOTOR SIZE (HP)	FEP INPUT POWER (KW)	ENCLOSURE	VOLTAGE	CYCLE	PHASE	EC MOTOR
#A1.3 - KEF-1.2	1	XCUE-160-VG	Direct	2,271	1.242	1.242	1,298	1,320.35	1.5	100	67.91	16.02	0	0	0	0.78	1	0.7	OP	208	60	1	VariGreen

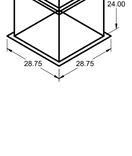
#A1.3 - KEF-1.2 : SELECTED OPTIONS AND ACCESSORIES

One piece fully welded windband
Tapered bushing wheel hub
Breather tube outlet area min. 4.4 sq. in. (sizes 99-480), 2.0 sq. in. (sizes 60-95)
Min. windband material thickness: 0.051" aluminum (060-240), 0.064" aluminum (240HP, 240XP), 0.080" aluminum (sizes 300-480)
Curb Cap Size - 26 Square
UL/cUL 705 Listed - Supplement SC - "Power Ventilators for Restaurant Exh. Appliances" (Formerly UL 762)
Switch, NEMA-3R, Toggle,
High Wind Rated (+/-150 PSF Rating)
Florida Product Approval #FL 13225.9 & Miami-Dade NOA #24-0919.01
Hinge, Factory Installed
High Temp Curb Seal Rated for Continuous Duty at 1500 F (Factory Attached)
Fastener Material: Stainless
Grease Trap (PN 475538)
Aluminum Wheel Material



DUCT TYPE	SIZE
STANDARD	18 SQ
FIRE-WRAPPED	12 SQ





DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB.
CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR, ADAPTER, AND/OR HINGE BASE.

Property of NY Engineers

THE GOOD GREEK - BROWNSVILLE, TX

#A1.2 - KEF-1.1 & #A1.3 - KEF-1.2

PROJECT 10/24/2025 MARK

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ACCUREX

project name:
The Great Greek

sheet name:
HOOD DATA SHEET (2 OF 4)

sheet no.:
H702

EQUIPMENT SCHEDULE

Tempered Make-Up Air Unit — **Mark: #A1.4 - KSF-1**

Qty	Accurex Model	Volume	External SP	Total SP	MCA	MOP	Weight	SCCR
1	XDGX-P116-H12-MF-8	4,000 CFM	0.5 in. wg	1.912 in. wg	50.6	70	1,425 lb	5kA

Motor Information

Size	V/C/P	Enclosure	Motor with Shaft Gounding	Motor RPM	Operating Power
3 hp	208/60/3	ODP	No	1725	2.36 hp

Heating

Type	Gas Type	Temperature			Energy			Connection Gas (IN)	Building Gas Pressure	Control Access	Gas Pressure	
		Winter DB	Max Δ	Max LAT	Input	Output	Efficiency				Min	Max
Direct Gas	Natural	36.4 F	33.6 F	70.0 F	157.8 MBH	145.2 MBH	92%	3/4"	1/2 PSI	Right Hand	7 in. wg	0.5 PSI

Cooling

Cooling Type	Coil Model	Rows Deep	Fins Per Inch	Face Velocity	Total Energy	Sensible Energy	Entering Air (F)		Leaving Air (F)	
							Dry	Wet	Dry	Wet
Packaged DX	DX38S02Q10-32x35-RH	2	10	514 ft/min	108.4 MBH	86.2 MBH	95.5 F	80.7 F	74.3 F	74.3 F

Coil SP	Refrigerant	Suction Temp	Liquid Temp	Super Heat	Code 18/19	Suction Conn Qty / Size	Liquid Conn Qty / Size
NA	R-454B	55.2 F	110 F	8 F	0	NA	NA

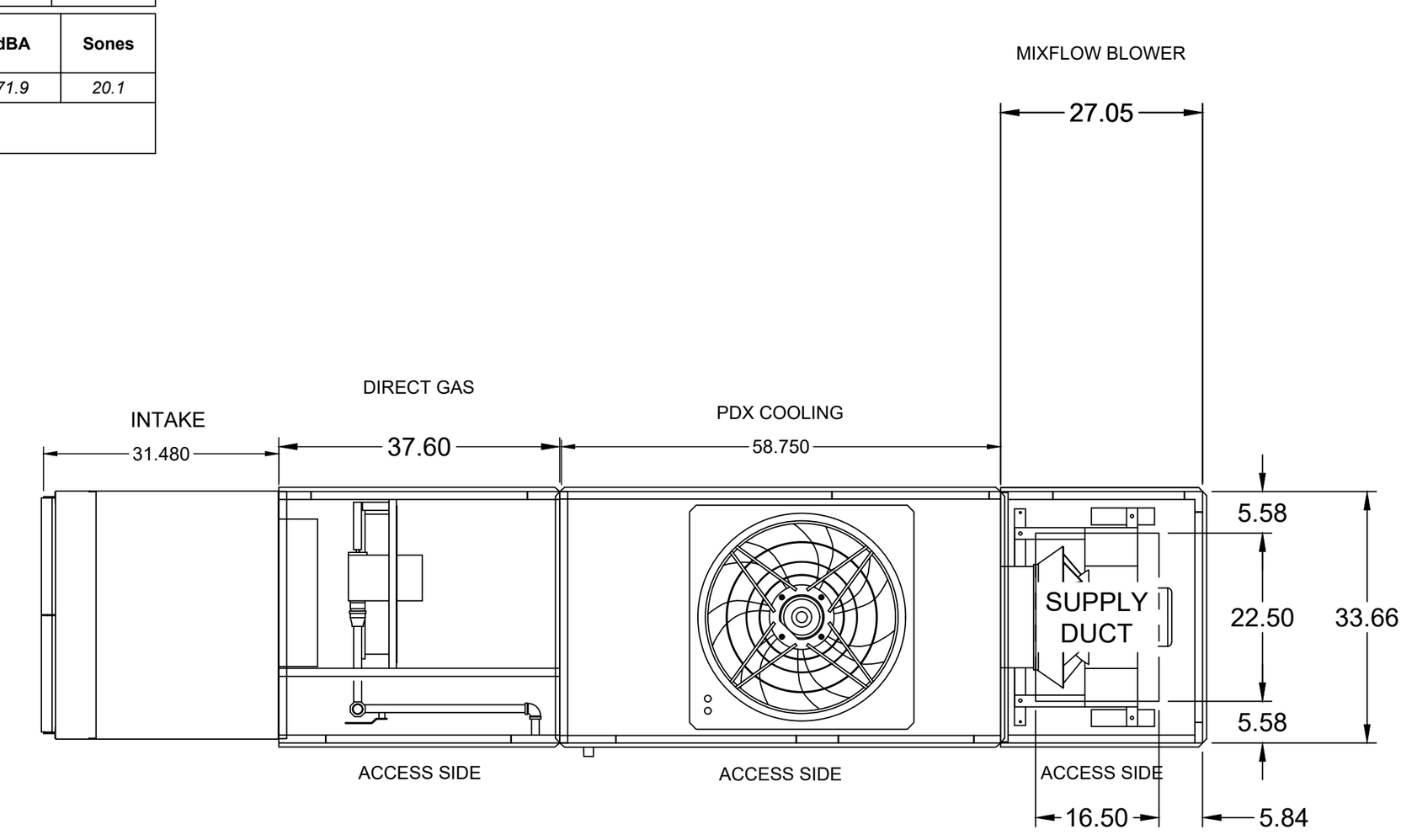
Outlet Sound Power By Octave Band

62.5	125	250	500	1000	2000	4000	8000	LwA	dBA	Sones
83.1	*78.4*	*77.2*	*78.4*	*78.2*	*75.1*	*73.9*	*71.7*	*82.9*	*71.9*	*20.1*

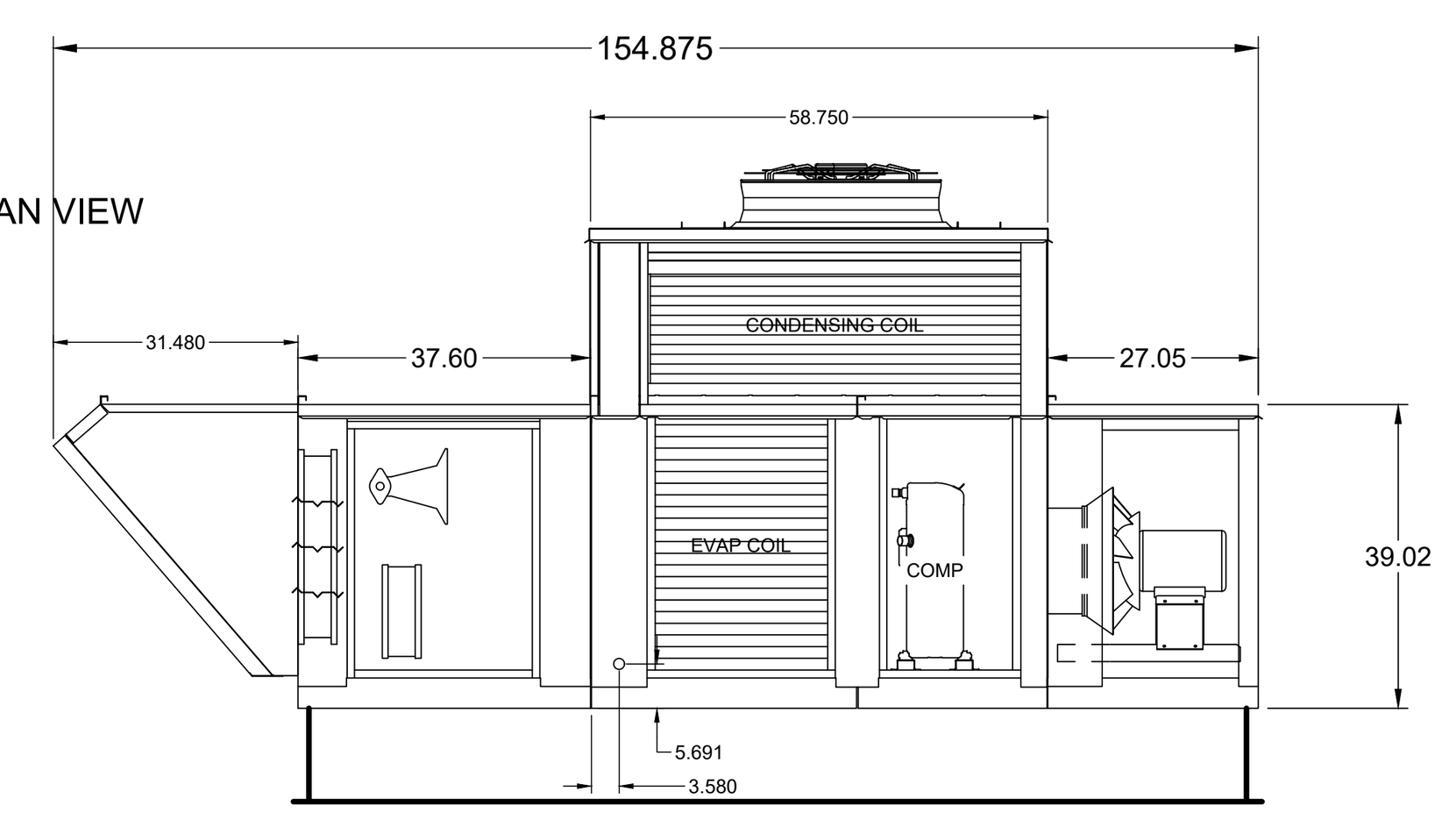
- LwA - A weighted sound power level based on ANSI S1.4
- dBA - A weighted sound pressure level base on 11.f dB attenuation per octabe band at 5.0 ft.
- Noise Criteria (NC) based on an average attenuation of 11.5 dB per octabe band at 5.0 ft.

OPTIONS AND ACCESSORIES

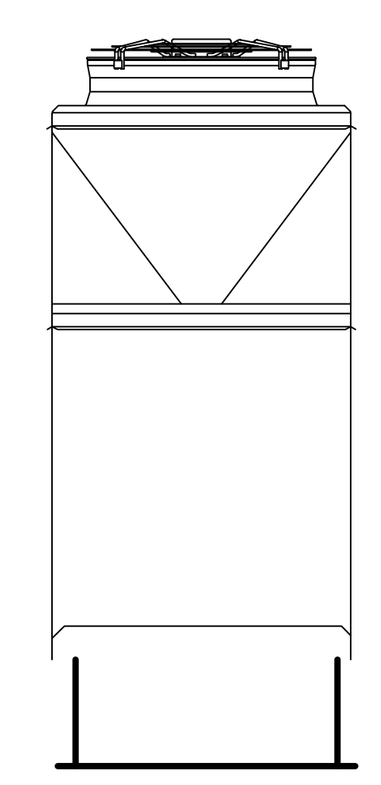
Make Up Air
Hot Gas Bypass
Air Flow Arrangement: Variable Volume
Weatherhood: Aluminum Mesh, 16x20x2 - (4)
Damper: Inlet
Outdoor Air Intake Position: End
Discharge Position: Bottom
Coating: Galvanized
Cooling Coil Coating - None
Insulation: Double Wall - Tempering On
Supply Fan Control: VFD
VFD Control: External 0-10 VDC
Hinged Access
Access Side: Right-Hand
Unit Weight: 1425 lb
Control Center
Freeze Protection
Heat Inlet Air Sensor
Cool Inlet Air Sensor
Unit Controls: Microprocessor
Temperature Control: Discharge



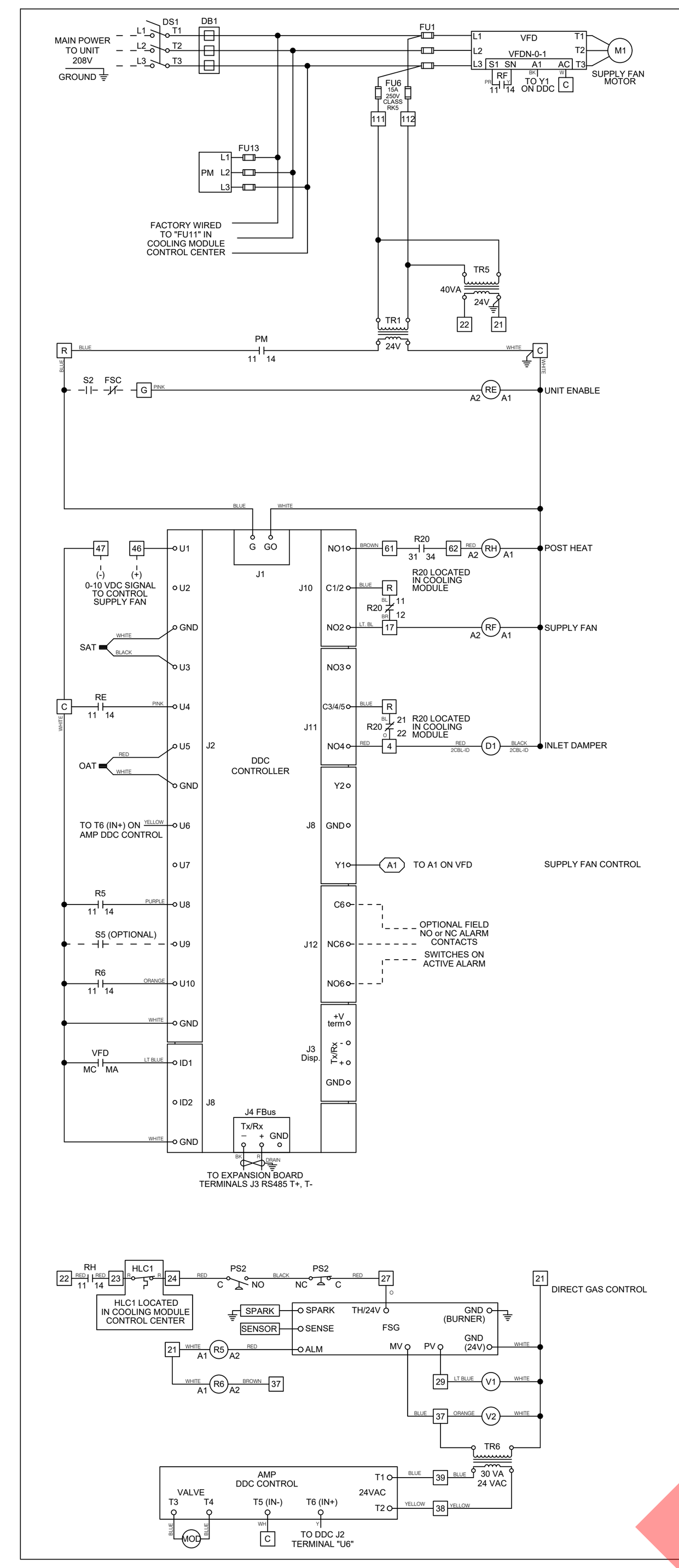
PLAN VIEW



ELEVATION VIEW



END VIEW



ACCUREX

Wiring Diagram Code:
AQ61N404R313AX0NQ20

CAUTION
UNIT SHALL BE GROUNDED IN ACCORDANCE WITH N.E.C.
POWER MUST BE OFF WHILE SERVICING.

NOTES
USE COPPER CONDUCTORS ONLY.
60° C FOR TERMINALS RATED LESS THAN 100 AMPS.
75° C FOR TERMINALS RATED 100 AMPS OR MORE.
FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM.
FIELD WIRED — — — — —
FACTORY SUPPLIED AND WIRED ————

WIRE COLOR CODE

BK	BLACK	BL	BLUE	BR	BROWN
GY	GRAY	LT BL	LIGHT BLUE	O	ORANGE
PK	PINK	PR	PURPLE	R	RED
W	WHITE	Y	YELLOW		

LEGEND
AMP AMPLIFIER
D1 INLET DAMPER
DS1 MAIN DISCONNECT SWITCH
FSC FIRE SYSTEM CONTACT
FSG FLAME SAFE GUARD
FU# FUSE
HLC HIGH LIMIT CONTROL
HPS HIGH PRESSURE SWITCH
LPS LOW PRESSURE SWITCH
M# MOTOR
MOD MODULATING VALVE
OAT OUTDOOR AIR TEMP
PM PHASE MONITOR
PS2 AIR PROVING SWITCH
R6 GAS VALVE STATUS RELAY
R20 A2L SUPPLY FAN, DAMPER, AND HEAT LOCKOUT RELAY RELAY LOCATED IN COOLING MODULE CONTROL CENTER
R21 A2L COMPRESSOR LOCKOUT AND ALARM RELAY RELAY LOCATED IN COOLING MODULE CONTROL CENTER
RC1 COOLING STAGE 1 RELAY
RE UNIT ENABLE RELAY
RF SUPPLY FAN RELAY
RH HEAT RELAY
S2 FAN SWITCH
S5 OCCUPIED/UNOCCUPIED SWITCH (OPTIONAL - REF. IOM) CLOSED=UNOCCUPIED - OPEN=OCCUPIED
S6 BUILDING FIRE ALARM NORMALLY CLOSED SWITCH OPENS ON ALARM. INSTALL JUMPER FROM TERMINAL 75 TO 76 IF NO FIRE DEVICES ARE INSTALLED.
SAT SUPPLY AIR TEMP
SG SPARK GENERATOR
TR# TRANSFORMER
V1 PILOT VALVE
V2 MAIN VALVE
VFD VARIABLE FREQUENCY DRIVE

USER INTERFACE A2L BUILDING FIRE ALARM CONNECTION: NORMAL CLOSE SWITCH OPENS ON ALARM. INSTALL JUMPER FROM TERMINALS "R" TO "70" IF NO FIRE DEVICES ARE INSTALLED.
REFERENCE PDX WIRING DIAGRAM IN COOLING MODULE FOR MORE DETAILED WIRING.
R — S6 FIRE ALARM — 70

USER INTERFACE A2L LEAK ALARM CONNECTION: ALARM STATE SHOWN, SWITCHES ON UNIT POWER UP RELAY LOCATED IN COOLING MODULE CONTROL CENTER
71 R21 72 R21 73
MITIGATION SEQUENCE ENABLED

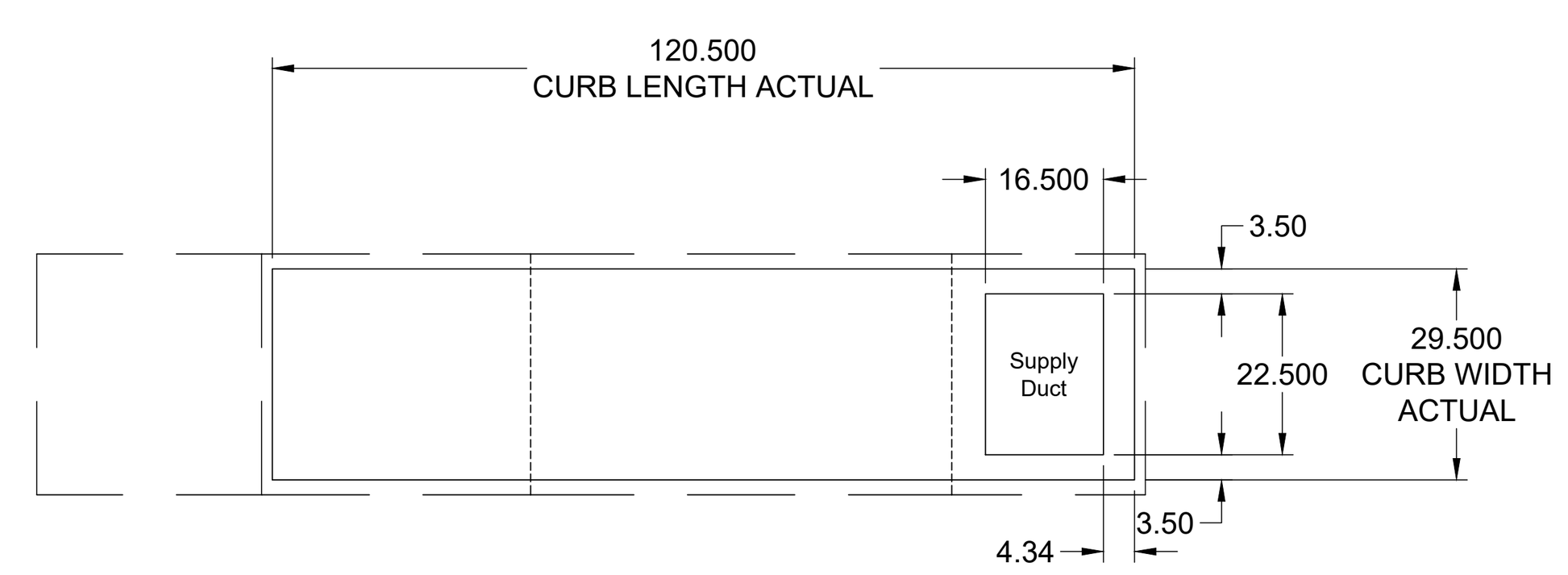
Wiring Template: Q20 DOC NUMBER: #### REV: ####

NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides.
For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

Maximum Roof Opening: There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb.
For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

NOTE: The weatherhood and filter sections of the make-up air unit are not supported by the curb.
This is by design, in order to help alleviate water infiltration issues.



FOOTPRINT

PROJECT
10/29/2025
THE GOOD GREEK - BROWNSVILLE, TX
MARK
#A1.4 - KSF-1

ACCUREX MIAMI
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ACCUREX

Property of NY Engineers

project name:
The Great Greek

sheet name:
HOOD DATA SHEET (3 OF 4)

sheet no.:
H703

CONTROL INFORMATION

MARK	MAIN ELECTRICAL CONTROL PACKAGE		MAIN USER INTERFACE		FANS CONTROLLED										
	MODEL	LOCATION	TYPE	LOCATION	FAN #	TYPE	FAN	FAN MARK	ZONE	CFM	MOTOR HP	MOTOR VOLT	CYCLE	MOTOR PHASE	MOTOR STARTER IN PANEL	VFD IN PANEL
#A1.5 - CTRL-1	XKC-DCV-S-21-2-1-0	RIGHT CABINET ON #A1 - KH-1	FULL COLOR TOUCHSCREEN	CABINET – RIGHT CABINET ON #A1 - KH-1	1	EXHAUST	E1	#A1.2 - KEF-1.1	1	2271	1	208	60	1	NO	NO
					2	EXHAUST	E2	#A1.3 - KEF-1.2	1	2271	1	208	60	1	NO	NO
					3	SUPPLY	S1	#A1.4 - KSF-1	1	4000	3	208	60	3	NO	NO

CONTROL FEATURES

- HOOD LIGHT CONTROL
- TEMP SENSORS (FACTORY INSTALLED) - QTY. 2
- DRY FIRE CONTACTS - QTY. 1
- LIGHTS OFF DURING FIRE
- EXHAUST MAX DURING FIRE
- SUPPLY OFF DURING FIRE

ACCUREX

DOC NUMBER: ####

REV: ####

CAUTION

UNIT MUST BE GROUNDED IN ACCORDANCE WITH N.E.C. POWER MUST BE OFF WHILE SERVICING.

ATTENTION

L'APPAREIL DOIT ÊTRE MIS À LA TERRE CONFORMÉMENT AU CODE C.E. L'ALIMENTATION DOIT ÊTRE COUPÉE DURANT L'ENTRETIEN.

COMMERCIAL APPLIANCE OUTLET CENTER

ELECTRICAL RATINGS: 110-240V,1PHASE, 50-60HZ,15A

BASE FILE #E200616, ML FILE #E313951

43BM

THESE DRAWINGS SHALL NOT BE REMOVED FROM THIS EQUIPMENT. USE COPPER CONDUCTORS RATED TO 90°C UNLESS SPECIFIED. TORQUE CONTROL & GROUND BLOCKS TO 8 LBS. IN. TORQUE ALL FIELD WIRING TERMINATIONS (UNLESS NOTED OTHERWISE LISTED). TORQUE CONTROL BOARD SCREW TERMINALS TO 3.5 LBS. IN. FIELD CONTROL WIRING RESISTANCE SHOULD NOT EXCEED 0.75 OHM. SEE IOM FOR ADDITIONAL INFORMATION, OR CALL ACCUREX AT 800-371-6856.

PRG VERSION: V5

FIELD WIRED (CÂBLE LOCALEMENT) ——

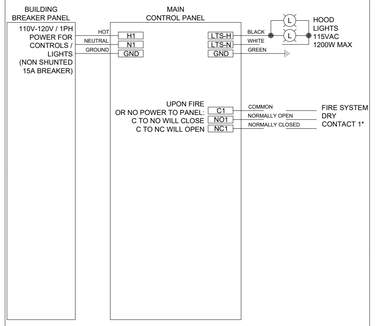
FACTORY WIRED (CÂBLE À L'USINE) - - - -

NE PAS RETIRER CES DESSINS DE CET ÉQUIPEMENT. SAUF INDICATION CONTRAIRE, UTILISER DES CONDUCTEURS EN CUIVRE CLASSÉS 90 °C. SERRER LES BORNES DE COMMANDE ET DE MISE À LA TERRE À 8 LBS. IN. COUPLE. (SAUF INDICATION CONTRAIRE). SERRER LES BORNES À VIS DE LA CARTE DE COMMANDE À 3,5 LB-PO. LA RÉSISTANCE DU CÂBLAGE DE COMMANDE LOCAL NE DOIT PAS DÉPASSER 0,75 OHM. POUR PLUS D'INFORMATION, CONSULTER LE MANUEL OU APPELER 1-800-371-6856

WIRING DIAGRAM CODE:	####
JOB NAME:	THE GOOD GREEK - BROWNSVILLE, TX
MODEL:	XKC-DCV-S-21-2-1-0
SERIAL NUMBER:	WDSN#
MARK:	#A1.5 - CTRL-1

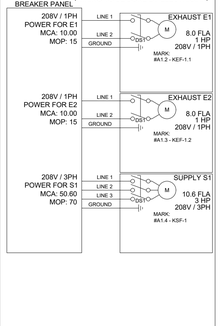
POWER WIRING FOR KITCHEN CONTROLS

(WIRING TO BE DONE BY ELECTRICIAN)



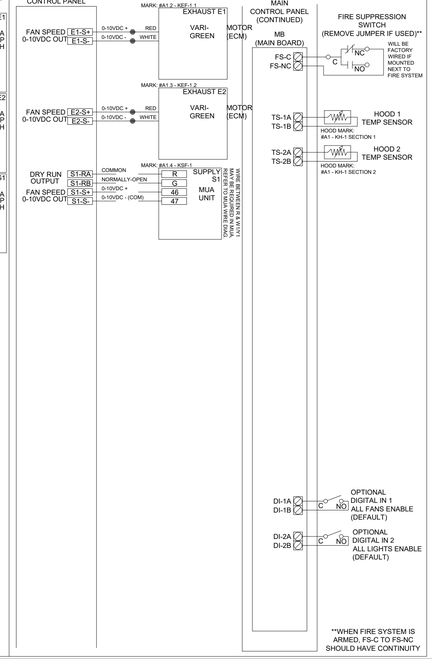
POWER WIRING FROM BREAKER PANEL DIRECT TO FANS

(WIRING TO BE DONE BY ELECTRICIAN)



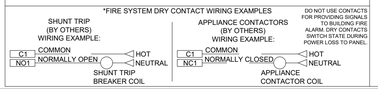
CONTROL WIRING FOR KITCHEN CONTROLS

(WIRING TO BE DONE BY ELECTRICIAN, IF NO CONTROLS CONTRACTOR. USE 18-22GA WIRE UNLESS SPECIFIED.)



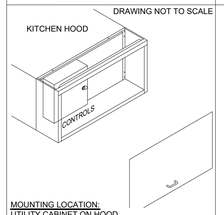
*FIRE SYSTEM DRY CONTACT WIRING EXAMPLES

DO NOT USE CONTACTS FOR PROVIDING SIGNALS TO BUILDING FIRE ALARM. DRY CONTACTS SWITCH STATE DURING POWER LOSS TO PANEL.



CABINET DETAILS

DRAWING NOT TO SCALE



MOUNTING LOCATION:
UTILITY CABINET ON HOOD

(INNER CONTROL BOX: 12 X 20 X 6)

NOTES:
1) WHEN CONTROLS ARE MOUNTED IN HOOD-MOUNTED OR WALL-MOUNTED UTILITY CABINET, FOR HOOD OR WALL CABINET DIMENSIONS SEE HOOD SUBMITTAL.
2) MINIMUM OF 36" OF CLEARANCE RECOMMENDED IN FRONT OF CONTROL CABINET

MAIN USER INTERFACE DETAILS

MOUNTING TYPE
FACTORY MOUNTED:
UTILITY CABINET - RIGHT END OF HOOD

USER INTERFACE CONTROL
FANS AND LIGHTS

INTERFACE CABLE LENGTH
7FT (FACTORY PROVIDED)

DEFAULT SETTINGS

FACTORY SETTINGS
TYPE: VAV
CONFIGURATION: STANDARD
ZONES: 1
HOODS: 2
EXHAUST FANS: 2
SUPPLY FANS: 1
MB ROOM SENSOR: NO
MB TEMP SENSORS: 2
HIGH TEMP FAULT: NO
FREEZE PROTECTION: YES
MB GAS RESET: NO
FAN PROVING: NO
BMS: NONE

ZONE SETTINGS
SEE ZONE CONFIGURATION TABLE BELOW

HOOD SETTINGS
SEE HOOD CONFIGURATION TABLE BELOW

EXHAUST FAN SETTINGS
SEE FAN CONFIGURATION TABLE BELOW

SUPPLY FAN SETTINGS
SEE FAN CONFIGURATION TABLE BELOW

SENSOR SETTINGS
SEE HOOD CONFIGURATION TABLE BELOW

USER INTERFACE SETTINGS (MB)
FAN & LIGHT BUTTONS: SHOW BOTH (SEPERATE)

GENERAL SETTINGS
TIME ZONE: CENTRAL DAYLIGHT (DEFAULT)

MB FIREFAULT SETTINGS
EXHAUST DURING FIRE: MAX
SUPPLY DURING FIRE: OFF
LIGHTS DURING FIRE: OFF

WIRING DIAGRAM CODE:	####
JOB NAME:	THE GOOD GREEK - BROWNSVILLE, TX
MODEL:	XKC-DCV-S-21-2-1-0
SERIAL NUMBER:	WDSN#
MARK:	#A1.5 - CTRL-1
DOC NUMBER:	####
REV:	####
PRG VERSION:	V5

ZONE CONFIGURATION

ZONE #	ZONE	ROOM TEMP
1	Z1	PRESET

HOOD CONFIGURATION

HOOD #	HOOD	HOOD MARK	ZONE	EXH A	EXH B	SUPPLY		MB: TEMP SENSORS
1	H1	#A1 - KH-1 SECTION 1	Z1	E1	-	S1		TS1
2	H2	#A1 - KH-1 SECTION 2	Z1	E2	-	S1		TS2

FAN CONFIGURATION

FAN #	TYPE	FAN	FAN MARK	ZONE	MIN CFM	MAX CFM	MODBUS VFD	VFD ADDRESS	MIN FREQ.	MAX FREQ.	MIN VDC	MAX VDC
1	EXHAUST	E1	#A1.2 - KEF-1.1	Z1	1136	2271	NO	-	-	-	5.0	10.0
2	EXHAUST	E2	#A1.3 - KEF-1.2	Z1	1136	2271	NO	-	-	-	5.0	10.0
3	SUPPLY	S1	#A1.4 - KSF-1	Z1	2000	4000	NO	-	-	-	5.0	10.0

THE GOOD GREEK - BROWNSVILLE, TX

#A1.5 - CTRL-1

PROJECT 10/29/2025

MARK

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(305)900-7650

ACCUREX

project name:
The Great Greek

sheet name:
HOOD DATA SHEET (4 OF 4)

sheet no.:
H704

Property of NTX Engineers

PLUMBING SYMBOL LIST

—SAN—	SANITARY SEWER PIPING (ABOVE FLOOR)
—SAN—	SANITARY SEWER PIPING (UNDERGROUND)
—GSAN—	GREASE SANITARY PIPING (UNDERGROUND)
— —V— — —	VENT PIPING
—CW—	COLD WATER PIPING
—HW—	HOT WATER PIPING
—HWR—	HOT WATER RETURN PIPING
—G—	GAS PIPING
	GAS SHUTOFF VALVE
	P–TRAP
	PIPE UP
	PIPE DROP
	CLEANOUT
	PLUGGED OUTLET/CLEANOUT
	SHUT–OFF VALVE
	POINT OF CONNECTION

PLUMBING ABBREVIATIONS

FCO / WCO	FLOOR AND WALL CLEANOUT
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
V	VENT
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
FD/FS	FLOOR DRAIN / FLOOR SINK
WH	WATER HEATER
ET	EXPANSION TANK
RCP	RECIRCULTION PUMP
BFP	BACK FLOW PREVENTER

PLUMBING DRAWING LIST

P001	PLUMBING SYMBOLS LIST, ABBREVIATION, GENERAL NOTES & SPECIFICATION
P002	PLUMBING SPECIFICATION
P101	PLUMBING SANITARY FLOOR PLAN & RISER
P102	PLUMBING WATER SUPPLY FLOOR PLAN & RISER
P103	PLUMBING GAS FLOOR PLAN & RISER
P104	PLUMBING GAS ROOF PLAN
P201	PLUMBING DETAILS (1 OF 2)
P202	PLUMBING DETAILS (2 OF 2)
P301	PLUMBING SCHEDULES

APPLICABLE CODES

a.	2018 INTERNATIONAL BUILDING CODE
b.	2018 INTERNATIONAL FIRE CODE
c.	2018 INTERNATIONAL MECHANICAL CODE
d.	2018 INTERNATIONAL PLUMBING CODE
e.	2018 INTERNATIONAL FUEL GAS CODE
f.	2009 INTERNATIONAL ENERGY CONSERVATION CODE
g.	2017 NATIONAL ELECTRICAL CODE

BUILDING DEPARTMENT PLUMBING NOTES

1. ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, GAS, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE.
2. INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTER 7.
3. PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER 2018 INTERNATIONAL PLUMBING CODE CHAPTER 3.
4. TRENCHING, EXCAVATION AND BACKFILL AS PER 2018 INTERNATIONAL PLUMBING CODE SECTION 306.
5. RODENT PROOFING AS PER 2018 INTERNATIONAL PLUMBING CODE SECTION 304.
6. MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE SECTIONS 303, 605, 702, 902.
7. EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS 2018 INTERNATIONAL PLUMBING CODE CHAPTERS 4, 5, 6, 7, 8 AND 9.
8. DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER 2018 INTERNATIONAL PLUMBING CODE SECTION 1002, AND CLEAN–OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE SECTION 708.
9. VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE SECTION 308.
10. WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTER 6 SECTION 601, 602, 603, 604, 606, 607, 608, 610, 611 AND 613.
11. THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTER 7 SECTION 701, 704, 705, 706, 707, 708, 709 AND 710.
12. VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 INTERNATIONAL PLUMBING CODE CHAPTER 9 SECTIONS 901 THROUGH 2023 FLORIDA BUILDING CODE, PLUMBING, 8TH EDITION SECTION 919.
13. INSPECTION AND TESTING OF PLUMBING PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH 2018 INTERNATIONAL PLUMBING CODE SECTION 107 AND 312.
14. INSTALLATION, INSPECTION AND TESTING OF GAS PIPING SYSTEMS SHALL BE IN ACCORDANCE WITH 2018 INTERNATIONAL FUEL GAS CODE SECTION PC 404 AND 406.

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. MIXING VALVES
8. ALL SCHEDULED PLUMBING EQUIPMENT
9. WATER HEATER
10. GREASE INTERCEPTOR

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.

1.04 DEFINITIONS

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

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

C. PROVIDE: TO FURNISH AND INSTALL.

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

1.05 DRAWINGS

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

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

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

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

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

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

1.06 PRODUCTS

A. SANITARY AND VENT PIPING:

1. GRAVITY SEWERS SHALL BE REINFORCED CONCRETE PIPE.
2. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 3" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.

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 COPPER OR COPPER ALLOY
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. ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE RETARDANT, FACTORY APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH 2009 INTERNATIONAL ENERGY CONSERVATION CODE SECTION 503.2 BELOW TABLE.

MINIMUM PIPE INSULATION (THICKNESS IN INCHES)		
	NOMINAL PIPE DIAMETER	
FLUID	≤1.5"	>1.5"
STEAM	1–1/2	3
HOT WATER	1–1/2	2
CHILLED WATER, BRINE OR REFRIGERANT	1–1/2	1–1/2

7. AS PER 2009 INTERNATIONAL ENERGY CONSERVATION CODE SECTION C504.6 SYSTEM DESIGNED TO MAINTAIN USAGE TEMPERATURE IN HOT WATER PIPES SUCH AS RE–CIRCULATING HOT WATER SYSTEMS OR HEAT TRACE, SHALL BE EQUIPPED WITH AUTOMATIC TIME SWITCHES OR OTHER CONTROLS THAT CAN BE USED TO SWITCH THE USAGE TEMPERATURE MAINTENANCE SYSTEM DURING EXTENDED PERIOD WHEN HOT WATER IS NOT REQUIRED.
8. AS PER 2009 INTERNATIONAL ENERGY CONSERVATION CODE SECTION 504.3, TEMPERATURE CONTROLLING MEANS SHALL BE PROVIDED TO LIMIT THE MAXIMUM TEMPERATURE OF WATER DELIVERED FROM LAVATORY FAUCETS IN PUBLIC FACILITY RESTROOMS TO 110'F.

C. TANKLESS GAS WATER HEATER (WH)

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

D. HOT WATER RE–CIRCULATING PUMP

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

E. HANGERS AND SUPPORTS:

1. HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.
2. SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
3. ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS.
4. PROVIDE SEISMIC RESTRAINTS IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL CODES AND STANDARDS AND THE REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
5. UNLESS OTHERWISE INDICATED OR REQUIRED BY AUTHORITIES HAVING JURISDICTION, THE FOLLOWING SHALL BE PROVIDED WITH SEISMIC RESTRAINTS AS REQUIRED BY THE BOCA NATIONAL BUILDING CODE, SECTION 1610.6.4: ALL EQUIPMENT AND MACHINERY, ALL NEW PIPING 2–1/2" AND LARGER (1–1/4" AND LARGER INBOILER/MECHANICAL ROOMS) WITH HANGERS GREATER THAN 12" IN LENGTH FROM THE TOP OF PIPE TO THE STRUCTURE.
6. SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

F. VALVES:

1. PROVIDE GATE VALVES, BUTTERFLY OR BALL VALVES FOR SHUT–OFF DUTY ON MAIN AND BRANCH SUPPLY LINES. FOR ALL PIPE RUNS 2" AND SMALLER, PROVIDE BALL FOR ALL PIPE RUNS LARGER THAN 2" AND SMALLER THAN 4", PROVIDE GATE VALVES. PIPING 4" AND LARGER, PROVIDE BUTTERFLY VALVES FOR SHUT–OFF DUTY.
2. ALL FIXTURES WITH THE EXCEPTION O FLUSHOMETER–EQUIPPED WATER CLOSETS AND URINALS SHALL HAVE STOP VALVES TO CONTROL SUPPLY TO THE FIXTURE. WHERE SUPPLIES ARE EXPOSED PROVIDE CHROME–PLATED STOPS WITH CHROME–PLATED ESCUTCHEONS ON PIPING PENETRATIONS.
3. ALL PLUMBING FIXTURES AND EQUIPMENT TO HAVE SHUT–OFF VALVES ON SUPPLY LINES.
4. ALL BRANCH LINES TO HAVE SHUT–OFF VALVES.
5. ALL VALVES SHALL BE ACCESSIBLE. PROVIDE ACCESS DOORS WHERE REQUIRED FOR VALVE ACCESS.
6. PROVIDE GLOBE VALVES FOR THROTTLING/BALANCING OF THE HOT WATER CIRCULATING SYSTEM.

G. SLEEVES AND ESCUTCHEONS:

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

H. DRAINAGE ACCESSORIES

1.GENERAL:

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

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

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

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

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

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

M. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

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

O. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

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

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

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

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

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

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

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

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

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

1.07 DEMOLITION

A. VISIT THE SITE, EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTING AND REROUTING OF PLUMBING EQUIPMENT AND PIPING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.

B. REVIEW AND CONFIRM WITH THE ARCHITECT/DESIGNER'S DRAWINGS FOR THE COMPLETE EXTENT OF DEMOLITION AND ALTERATION.

C. ENSURE THAT ALL EXISTING PLUMBING PIPING OR SYSTEMS, IN AREAS OUTSIDE THE AREAS OF THIS WORK, THAT ARE REQUIRED TO REMAIN IN SERVICE, SHALL DO SO.

D. RELOCATE ANY PLUMBING PIPING OR EQUIPMENT THAT IS REQUIRED TO REMAIN IN SERVICE, THAT IS SECURED TO EXISTING WALLS, FLOORS OR CEILINGS TO BE DEMOLISHED.

E. ALL EXISTING PLUMBING EQUIPMENT OR PIPING WHICH IS NO LONGER REQUIRED SHALL BE REMOVED AND DISPOSED OF, OFF SITE.

F. BE RESPONSIBLE AND PAY FOR ANY DAMAGE TO THE BASE BUILDING INCURRED BY WORK OF THIS DIVISION, OR REPAIR TO THE SATISFACTION OF THE CONSULTANT.

G. CARRY OUT THE WORK WITH MINIMUM OF NOISE, DUST AND DISTURBANCE

2. INSTALLATION

2.01 GENERAL

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

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

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

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

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

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

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

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

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

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

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

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

2.02 ABOVE GRADE

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

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project name:
The Great Greek

sheet name:
PLUMBING SYMBOLS LIST, ABBREVIATIONS, GENERAL NOTES AND SPECIFICATION

sheet no.:
P001

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

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

J. DRAINAGE ACCESSORIES

1. GENERAL:

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

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

K. DEVICES:

a. CLEANOUT & CLEANOUT PLUG

- THREADED PIPE FITTING OR CAST IRON FERRULE WITH GAS TIGHT CLEANOUT PLUG
- PLUG SHOULD BE CAST BRASS OR BRONZE, WITH THREADED END, AND RAISED OR COUNTERSUNK HEAD.
- LUBRICATE THREADS OF CLEANOUT PLUG WITH ANTI–SEIZE LUBRICANT BEFORE FINAL INSTALLATION.

b. CLEANOUT WALL PLATE

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

c. CLEANOUT DECK PLATE

- IT SHOULD BE STANDARD DUTY FLOOR CLEANOUT FITTING WITH COATED CAST IRON BODY; ROUND, POLISHED NICKEL BRONZE SCORIATED TOP SECURED TO CLEANOUT PLUG WITH STAINLESS STEEL VANDAL RESISTANT FASTENER; THREADED HEIGHT ADJUSTMENT, CAST IRON HEAD, GAS TIGHT CLEANOUT PLUG, AND CONNECTION TO MATCH PIPING OPTION SELECTED.
- GRILLE FREE AREA SHOULD BE AT LEAST EQUAL TO CROSS–SECTION AREA OF PIPE TO WHICH CONNECTION MADE AND MADE OF POLISHED NICKEL BRONZE, WITH REMOVABLE GRATE, EITHER PERFORATED OR BAR TYPE. GRATE ATTACHED TO GRILLE BODY WITH VANDAL RESISTANT FASTENER.
- MAINTAIN MINIMUM 10'–0" CLEARANCE BETWEEN ALL PLUMBING V.T.R.S AND ALL OUTDOOR AIR INTAKES. OFFSET VENT STACKS AND STACK VENTS IF AND AS REQUIRED BELOW ROOF TO MAINTAIN SUCH CLEARANCE WHETHER OR NOT SUCH OFFSET IS INDICATED ON THE DRAWINGS. PROVIDE ALL REQUIRED SEISMIC SUPPORTS.

2.03 LEAK DETECTION

A. VISIT THE SITE, EXAMINE THE EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE EXTENT OF THE NECESSARY REMOVAL, RELOCATION, RECONNECTING AND REROUTING OF PLUMBING EQUIPMENT AND PIPING AS NECESSARY FOR THE COMPLETION OF THE PROJECT.

B. FURNISH AND INSTALL A FLOODMASTER RS–094–1 WATER HEATER LEAK DETECTION AND AUTOMATIC SHUT– OFF KIT, INCLUDING FULL–PORT SHUT–OFF VALVE, ACTUATOR, WATER SENSING PUCK, PLUG FOR A STANDARD 120 V AC OUTLET. RELAYS FOR CONNECTION TO BMS, THE KIT SHALL INCLUDE ALL SYSTEM COMPONENTS FOR A TYPICAL INSTALLATION. CONTACT RELIANCE DETECTION TECHNOLOGIES 888–771–4929.

3. TESTING

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

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

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

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

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

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

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

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

I. ALL EQUIPMENT WILL BE FACTORY TESTED.

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

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

L. TESTING REQUIREMENTS

a. TEST ALL DOMESTIC WATER PIPING AS PER 2018 INTERNATIONAL BUILDING CODE– PLUMBING.
b. TESTS SHALL BE WITNESSED BY THE BUILDING ENGINEER.
c. THE PLUMBING CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE DUE TO TEST FAILURES AND LEAKAGE IN THE TEST AREA AND ADJACENT TENANT OR ESB SPACES.

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

N. INSPECTION & TESTING SHALL BE AS PER 2018 INTERNATIONAL BUILDING CODE– PLUMBING.

4. WARRANTY

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

5 FACILITY NATURAL GAS SYSTEM PIPING

1.1 PIPING

1. BELOW–GROUND PIPE 5 FEET FROM THE BUILDING TO ABOVE–GROUND AT THE BUILDING SHALL BE SCHEDULE 40 WELDED–JOINT STEEL PIPE WITH FACTORY–APPLIED PROTECTIVE COATING, SUCH AS X–TRUCOTE. JOINTS SHALL BE FIELD–COATED WITH THE SAME MATERIAL APPLIED AS RECOMMENDED BY THE MANUFACTURER. IF UNDER GROUND GAS DISTRIBUTION PIPE IS STEEL, PROVIDE A DIELECTRIC UNION AT POINT OF CONNECTION. INSTALL A 17–POUND ANODE PACK BETWEEN THE BUILDING AND 5 FEET OUTSIDE THE BUILDING NEXT TO THE CONNECTION TO THE MAIN SERVICE PIPE. ATTACH THE ANODE LEAD WIRE TO THE PIPING BY MEANS OF AN EXOTHERMIC WELD, FOLLOWING THE INSTRUCTIONS OF THE MANUFACTURER.

2. ABOVE–GROUND GAS PIPING: STANDARD WEIGHT, SCHEDULE 40, WELDED OR B. SCREWED, BLACK CARBON STEEL PIPE, ANSI/ASTM A53.

a) 1–1/2 INCHES AND SMALLER: 150 LB. SCREWED MALLEABLE BLACK IRON FITTINGS.

b) 1–1/2 INCHES AND SMALLER IN CONCEALED SPACES: SCHEDULE 40 BLACK STEEL WITH SOCKET WELDED FITTINGS.

c) 2 INCHES TO 2–1/2 INCHES: WELDED OR FORGED STEEL FITTING, SOCKET WELDED AND THREADED.

d) 3 INCHES AND LARGER: FORGED STEEL BUTT WELDED, FLANGED, 150 SWP. PROVIDE GASKETS SUITABLE FOR NATURAL GAS.

3. ALL CONCEALED PIPING SHALL BE WELDED.

4. ALL GAS PIPING EXPOSED TO OUTSIDE WEATHER ENVIRONMENT SHALL BE PROTECTED FROM CORROSION BY APPLICATION OF A NON–METALLIC–BASED PAINTING SYSTEM SPECIFICALLY DESIGNED AND MANUFACTURED FOR PROTECTION OF STEEL STRUCTURES. COLOR AS SELECTED BY OWNER. THE UNION OF THE UNDERGROUND COATING AND ABOVE–GROUND PAINT SHALL BE AT LEAST 2 INCHES ABOVE FINISHED GRADE AND SHALL BE WELL–BONDED BY APPLICATION OF THE COATING MATERIALS.

5. GAS PIPING WITHIN THE BUILDING SHALL BE ELECTRICALLY CONTINUOUS AND BONDED TO A GROUNDING ELECTRODE.

1.2 ACCESSORIES

1. GAS COCKS SHALL BE ROCKWELL NORDSTROM LUBRICATED PLUG, FIG. 114 OR 115 A. (REGULAR PATTERN), OR FIG. 142 OR 143 (SHORT PATTERN).

2. GAS PRESSURE REGULATORS SHALL BE AS MANUFACTURED BY EQUIMETER, B. SPENCE OR FISHER. REGULATOR SHALL HAVE CAST IRON BODY, DIE–CAST ALUMINUM ALLOY DIAPHRAGM CASE AND ALUMINUM OR BRASS ORIFICES. SPRING SHALL BE ADJUSTABLE AND SELECTED FOR AN OUTLET PRESSURE OF 7–INCH TO 14–INCH W.C. PROPERLY VENT GAS PRESSURE REGULATORS TO THE OUTDOOR ATMOSPHERE WITH SCREENED VENT CAPS.

3. PROVIDE GRINNELL FIGURE 13 OR FIGURE 2, FEE AND MASON OR CRANE C. NICKEL–PLATED STEEL PLATES ON EXPOSED PIPES PASSING THROUGH WALLS, CEILINGS, FLOORS, AND PARTITIONS.

1.3 INSTALLATION

1. GAS PIPING SYSTEM INSTALLATION SHALL CONFORM TO THE STANDARD FOR THE INSTALLATION OF GAS APPLIANCES AND GAS PIPING USA Z21.30, ANSI Z106.1, NFPA

2. 54 AND NO. 58, THE RULES OF LOCAL AND STATE REGULATORY AGENCIES GOVERNING THE INSTALLATION OF GAS PIPING, THE GAS UTILITY ENERGY CODE FOR INDIRECT GAS SERVICE, AND LOCAL GAS UTILITY COMPANY.

3. LOCATIONS AND ARRANGEMENTS: DRAWINGS (PLANS, SCHEMATICS, AND B. DIAGRAMS) INDICATE THE GENERAL LOCATION AND ARRANGEMENT OF PIPING SYSTEMS. DESIGN LOCATIONS AND ARRANGEMENTS OF PIPING TAKE INTO CONSIDERATION PIPE SIZING, FLOW DIRECTION, SLOPE OF PIPE, EXPANSION, AND OTHER DESIGN CONSIDERATIONS. SO FAR AS PRACTICAL, INSTALL PIPING AS INDICATED.

4. CONCEALED LOCATIONS: EXCEPT AS SPECIFIED BELOW, INSTALL GAS PIPING (IN C. MASONRY WALLS) IN AN AIRTIGHT CONDUIT CONSTRUCTED OF SCHEDULE 40 SEAMLESS BLACK STEEL WITH WELDED JOINTS. VENT CONDUIT TO THE OUTSIDE AND TERMINATE WITH A SCREENED VENT CAP.

5. ABOVE–CEILING LOCATIONS: GAS PIPING MAY BE INSTALLED IN ACCESSIBLE 1. ABOVE–CEILING SPACES (SUBJECT TO THE APPROVAL OF THE AUTHORITY HAVING JURISDICTION), WHETHER OR NOT SUCH SPACES ARE USED AS A PLENUM. VALVES SHALL NOT BE LOCATED IN SUCH SPACES. PIPING IN PLENUMS SHALL BE WELDED.

6. IN FLOORS: PIPING INSTALLED IN FLOORS SHALL HAVE PROTECTIVE WRAPPING SPECIFIED IN PART 2 ABOVE. PIPING CAST IN CONCRETE SLABS SHALL BE SURROUNDED WITH A MINIMUM OF 1–1/2 INCHES OF CONCRETE AND SHALL NOT BE IN PHYSICAL CONTACT WITH OTHER METALLIC STRUCTURES SUCH AS REINFORCING RODS OR ELECTRICALLY NEUTRAL CONDUCTORS. PIPING SHALL NOT BE EMBEDDED IN CONCRETE SLABS CONTAINING QUICK–SET ADDITIVES OR CINDER AGGREGATE. PIPING SHALL BE WELDED.

7. PIPING IN PARTITIONS: CONCEALED PIPING SHALL NOT BE LOCATED IN SOLID PARTITIONS.

8. PROHIBITED LOCATIONS: DO NOT INSTALL GAS PIPING IN OR THROUGH A CIRCULATING AIR DUCT, CLOTHES CHUTE, CHIMNEY OR GAS VENT, VENTILATING DUCT, DUMBWAITER OR ELEVATOR SHAFT. THIS DOES NOT APPLY TO ACCESSIBLE ABOVE–CEILING SPACE SPECIFIED ABOVE.

9. DRIPS AND SEDIMENT TRAPS: INSTALL A DRIP LEG AT POINTS WHERE CONDENSATE MAY COLLECT, AT THE OUTLET OF THE GAS METER, AND IN A LOCATION READILY ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL DRIPS WHERE CONDENSATE IS LIKELY TO FREEZE. CONSTRUCT DRIPS AND SEDIMENT TRAPS USING A TEE FITTING WITH THE BOTTOM OUTLET PLUGGED OR CAPPED. USE A MINIMUM OF 3 PIPE DIAMETERS IN LENGTH FOR THE DRIP LEG. USE SAME SIZE PIPE FOR DRIP LEG AS THE CONNECTED PIPE. DRIP LEGS AT EQUIPMENT CONNECTIONS SHALL BE DOWN STREAM OF VALVE.

10. USE FITTINGS FOR ALL CHANGES IN DIRECTION AND ALL BRANCH CONNECTIONS.

11. INSTALL EXPOSED PIPING AT RIGHT ANGLES OR PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE NOT PERMITTED, UNLESS EXPRESSLY INDICATED.

12. INSTALL PIPING FREE OF SAGS OR BENDS AND WITH AMPLE SPACE BETWEEN PIPING TO PERMIT PROPER INSULATION APPLICATIONS.

13. CONCEAL ALL PIPE INSTALLATIONS IN WALLS, PIPE CHASES, UTILITY SPACES. ABOVE CEILINGS, BELOW GRADE OR FLOORS, UNLESS INDICATED TO BE EXPOSED TO VIEW.

14. INSTALL PIPING TIGHT TO SLABS, BEAMS, JOISTS, COLUMNS, WALLS, AND OTHER. PERMANENT ELEMENTS OF THE BUILDING. PROVIDE SPACE TO PERMIT INSULATION APPLICATIONS, WITH 1–INCH CLEARANCE OUTSIDE THE INSULATION. ALLOW SUFFICIENT SPACE ABOVE REMOVABLE CEILING PANELS TO ALLOW FOR PANEL REMOVAL.

15. LOCATE GROUPS OF PIPES PARALLEL TO EACH OTHER, SPACED TO PERMIT APPLYING INSULATION AND SERVICING OF VALVES.

16. INSTALL GAS PIPING AT A UNIFORM GRADE OF 1/4 INCH IN 15 FEET, UPWARD TO K. RISERS, AND FROM THE RISERS TO THE METER, OR SERVICE REGULATOR WHEN METER IS NOT PROVIDED, OR THE EQUIPMENT.

17. MAKE REDUCTIONS IN PIPE SIZES USING ECCENTRIC REDUCER FITTINGS INSTALLED WITH THE LEVEL SIDE DOWN.

18. CONNECT BRANCH OUTLET PIPES FROM THE TOP OR SIDES OF HORIZONTAL LINES, M. NOT FROM THE BOTTOM.

19. NSTALL UNIONS IN THREADED PIPES, ADJACENT TO EACH VALVE, AT FINAL N. CONNECTIONS TO EACH PIECE OF EQUIPMENT, AND ELSEWHERE AS INDICATED. UNIONS ARE NOT REQUIRED ON FLANGED DEVICES.

20. INSTALL DIELECTRIC UNIONS WHERE PIPING OF DISSIMILAR METALS ARE JOINED.

21. INSTALL FLANGES IN WELDED PIPING, ON VALVES, APPARATUS, AND FINAL P. CONNECTIONS TO EACH PIECE OF EQUIPMENT.

22. INSTALL STRAINERS ON THE SUPPLY SIDE OF EACH CONTROL VALVE, PRESSURE Q. REDUCING VALVE, PRESSURE REGULATING VALVE, SOLENOID VALVE, AND ELSEWHERE AS INDICATED.

1.4 PIPE JOINT CONSTRUCTION

1. WELDED JOINTS: COMPLY WITH THE REQUIREMENTS IN ASME BOILER AND PRESSURE VESSEL CODE, SECTION IX.

2. THREADED JOINTS: CONFORM TO ANSI B1.20.1, TAPERED PIPE THREADS FOR B. FIELD–CUT THREADS. JOIN PIPE, FITTINGS, AND VALVES AS FOLLOWS:

a) NOTE THE INTERNAL LENGTH OF THREADS IN FITTINGS OR VALVE ENDS, AND PROXIMITY OF INTERNAL SEAT OR WALL, TO DETERMINE HOW FAR PIPE SHOULD BE THREADED INTO JOINT. REFER TO NFPA 54, FOR GUIDE FOR NUMBER AND LENGTH OF THREADS FOR FIELD THREADING STEEL PIPE.

b) ALIGN THREADS AT POINT OF ASSEMBLY.

c) APPLY APPROPRIATE TAPE TO THREAD COMPOUND TO THE EXTERNAL PIPE THREADS.

3. ASSEMBLE JOINT TO APPROPRIATE THREAD DEPTH. WHEN USING A WRENCH ON VALVES PLACE THE WRENCH ON THE VALVE END INTO WHICH THE PIPE IS BEING THREADED.

d) DAMAGED THREADS: DO NOT USE PIPE WITH THREADS WHICH ARE CORRODED OR DAMAGED. IF A WELD OPENS DURING CUTTING OR THREADING OPERATIONS, THAT PORTION OF PIPE SHALL NOT BE USED.

4. FLANGED JOINTS: ALIGN FLANGES SURFACES PARALLEL. ASSEMBLE JOINTS BY SEQUENCING BOLT TIGHTENING TO MAKE INITIAL CONTACT OF FLANGES AND GASKETS AS FLAT AND PARALLEL AS POSSIBLE. USE SUITABLE LUBRICANTS ON BOLT THREADS. TIGHTEN BOLTS GRADUALLY AND UNIFORMLY TO APPROPRIATE TORQUE SPECIFIED BY THE BOLT MANUFACTURER.

1.5 VALVE APPLICATIONS

1. GENERAL: THE DRAWINGS INDICATE VALVE TYPES, LOCATIONS, AND A. ARRANGEMENTS.

2. SHUT–OFF DUTY: USE GAS COCKS SPECIFIED IN ABOVE.

1.6 VALVE INSTALLATIONS

1. INSTALL VALVES IN ACCESSIBLE LOCATIONS, PROTECTED FROM PHYSICAL

2. A. DAMAGE. TAG VALVES WITH A METAL TAG ATTACHED WITH A METAL CHAIN INDICATING THE PIPING SYSTEMS SUPPLIED.

3. B. INSTALL A GAS COCK UPSTREAM OF EACH GAS PRESSURE REGULATOR. WHERE TWO GAS PRESSURE REGULATORS ARE INSTALLED IN SERIES IN A SINGLE GAS LINE, A MANUAL VALVE IS NOT REQUIRED AT THE SECOND REGULATOR.

4. C. INSTALL PRESSURE RELIEF OR PRESSURE LIMITING DEVICES SO THEY CAN BE READILY OPERATED TO DETERMINE IF THE VALVE IS FREE; SO THEY CAN BE TESTED TO DETERMINE THE PRESSURE AT WHICH THEY WILL OPERATE; AND EXAMINED FOR LEAKAGE WHEN IN THE CLOSED POSITION.

1.7 ELECTRICAL BONDING AND GROUNDING

1. INSTALL ABOVE–GROUND PORTIONS OF GAS PIPING SYSTEMS, UPSTREAM FROM EQUIPMENT SHUT–OFF VALVES ELECTRICALLY CONTINUOUS AND BONDED TO A CODE."

2. DO NOT USE GAS PIPING AS A GROUNDING ELECTRODE.

3. CONFORM TO NFPA 70, INTERNATIONAL ELECTRICAL CODE, FOR ELECTRICAL CONNECTIONS BETWEEN WIRING AND ELECTRICALLY–OPERATED CONTROL DEVICES.

1.8 FIELD QUALITY CONTROL

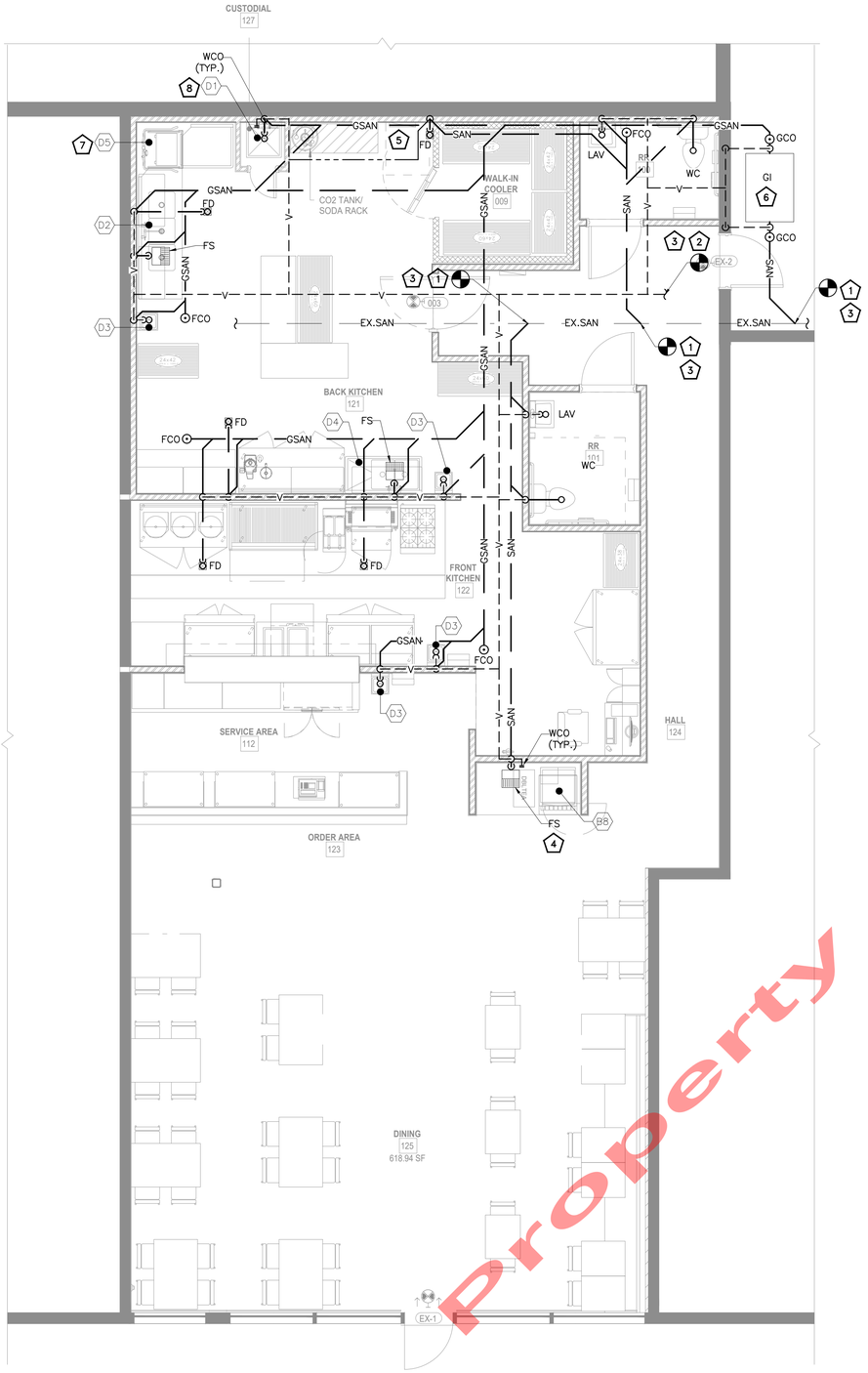
1. PIPING TESTS: INSPECT, TEST, AND PURGE NATURAL GAS SYSTEMS IN A. ACCORDANCE WITH NFPA 54 AND LOCAL UTILITY REQUIREMENTS.

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project name:
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sheet name:
PLUMBING SPECIFICATION

sheet no.:
P002



1 P101 **SANITARY FLOOR PLAN**
1/4" = 1'-0"

PROJECT NORTH

GENERAL NOTES:

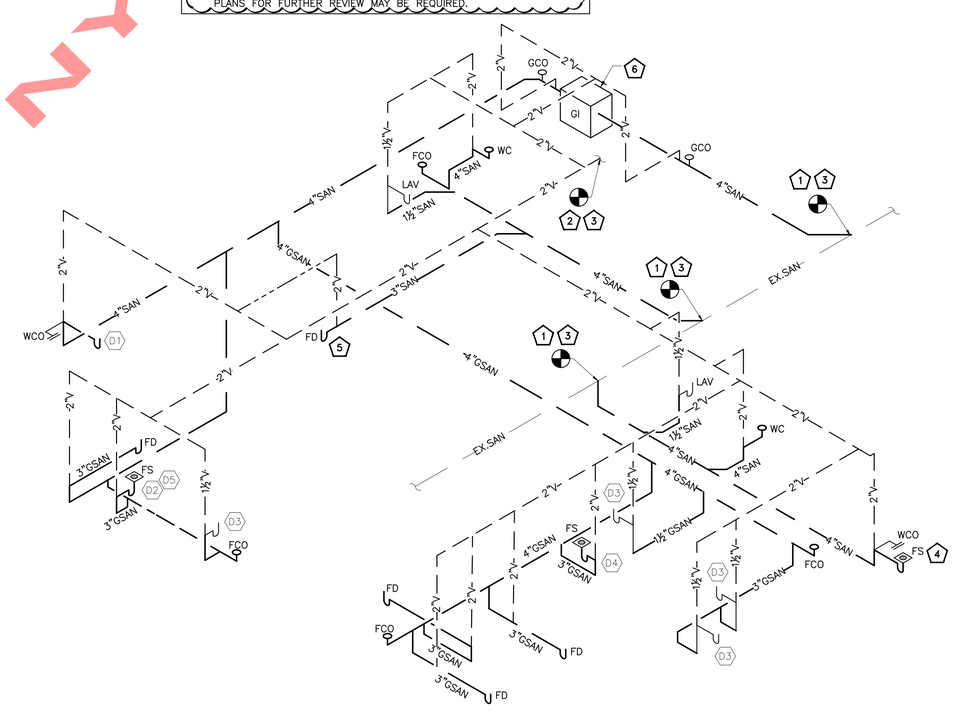
1. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
2. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT-OFF VALVES AS REQUIRED.
3. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
4. ALL CLEANOUTS TO BE ACCESSIBLE.
5. PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.
6. ANY UNUSED EXISTING FLOOR SINK/DRAIN AND PIPING MUST BE COMPLETELY REMOVED OR CAPPED. DO NOT ABANDON IN PLACE.
7. UNLESS OTHERWISE SPECIFIED, SLOPE OF DRAINAGE SYSTEM TO BE ⅛" PER FOOT OF RUN FOR PIPE 4" OR LARGER AND ¼" PER FOOT FOR PIPE SMALLER THAN 4".
8. ALL FLOOR SINKS TO BE MOUNTED IN FLOOR SUCH THAT THE TOP OF THE RIM WILL BE FLUSH WITH FINISHED FLOOR ELEVATION. FLOOR SINKS ALSO TO SERVE AS AREA FLOOR DRAINS IF NEED BE.
9. THIS DRAWING HAS BEEN PREPARED FROM THE ACTUAL ARCHITECTURAL WALL LAYOUT DRAWINGS. PLUMBING CONTRACTOR SHALL ALERT THE GENERAL CONTRACTOR ON SITE OF ANY DISCREPANCIES FOUND BETWEEN THIS DRAWING AND THE ACTUAL FIELD CONDITIONS.
10. PLUMBING CONTRACTOR TO PERFORM ALL WORK ACCORDING TO PREVAILING HEALTH AND BUILDING CODES. ALL FOOD SERVICE PLUMBING COMPONENTS AND EQUIPMENT SHALL BE IN STRICT ACCORDANCE WITH THE NATIONAL SANITATION FOUNDATION (N.S.F.) AND IN COMPLIANCE WITH STATE & LOCAL CODES.
11. PLUMBING CONTRACTOR TO PROVIDE AND INSTALL FLOOR DRAINS, FLOOR SINKS, TAILPIECES, TRAPS, SHUT-OFFS, LOOP VENTS AS REQUIRED AND TO COORDINATE ALL OF THESE ITEMS WITH THE FOOD SERVICE EQUIPMENT CONTRACTOR.
12. FLOORS IN KITCHEN AND SERVING AREAS TO BE "TRANSIT LEVEL". DO NOT SLOPE FLOOR TO FLOOR DRAINS IN KITCHEN AND SERVING AREAS.
13. CONTRACTOR TO REFER KITCHEN EQUIPMENT PLANS FOR THE ALL REQUIRED PLUMBING ROUGH IN LOCATIONS.

1

14. PROVIDE A MINIMUM EIGHT-INCH (8") SAMPLE PORT IN SITE PLAN ON THE OUTFLOW SIDE BEFORE SANITARY CONNECTIONS OF THE PROPOSED PRETREATMENT SYSTEM.
15. FACILITY TO INSTALL A SCHIER PRODUCTS MODEL GB-75 HYDROMECHANICAL GREASE INTERCEPTOR MEETING ALL BPUB PRETREATMENT REQUIREMENTS.
16. TAKE INTO CONSIDERATION SIZE AND SPACE REQUIRED FOR INSTALLATION AND ANY NECESSARY PLUMBING OR STRUCTURAL MODIFICATIONS TO ENSURE COMPLIANCE WITH CITY ORDINANCE.
17. A BPUB APPROVAL INSPECTION WILL BE REQUIRED ONCE INSTALLED.
18. SHOULD PLUMBING MODIFICATIONS TAKE PLACE THAT AFFECT COMPLIANCE WITH THE FOG ORDINANCE, RESUBMITTAL OF SITE PLANS FOR FURTHER REVIEW MAY BE REQUIRED.

KEYED NOTES:

1. EXTEND AND CONNECT NEW 3" & 4" SAN PIPING TO THE EXISTING SANITARY PIPING OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, SIZE, INVERT AND FLOW DIRECTION OF EXISTING SANITARY PIPING AND UPGRADE IF REQUIRED.
2. EXTEND AND CONNECT NEW 3" VENT PIPING TO THE EXISTING VENT PIPING OF ADEQUATE SIZE IN SPACE. CONTRACTOR TO FIELD VERIFY THE EXACT LOCATION, SIZE OF EXISTING VENT LINE IN SPACE AND UPGRADE IF REQUIRED.
3. CONTRACTOR TO FIELD VERIFY ALL EXISTING PLUMBING UTILITY SERVICES PRIOR TO BID, NOTIFY AN ENGINEER OF RECORD IF THERE IS ANY DISCREPANCY WHILE BIDDING & CONTRACTOR SHALL BID ACCORDINGLY.
4. BFP RELIEF VALVE SHALL DISCHARGE TO NEARBY FLOOR SINK WITH AN APPROVED AIR GAP IN ACCORDANCE WITH LOCAL CODES AND STANDARDS.
5. THE CONDENSATE DRAIN FROM WALKIN COOLER TO BE DRAINED INDIRECTLY TO NEARBY FLOOR DRAIN WITH APPROVED AIR GAP AS PER LOCAL CODES AND STANDARDS.
6. PROVIDE AND INSTALL GB-75 GREASE INTERCEPTOR WITH SV-10 SAMPLING PORT OR APPROVED EQUIVALENT WITH A MINIMUM CAPACITY 75 GPM, LOCATED OUTDOORS. CONTRACTOR TO INSTALL GREASE INTERCEPTOR AS PER THE MANUFACTURER'S RECOMMENDATION. CONTRACTOR TO COORDINATE WITH LAND LORD FOR FINAL LOCATION. THE SIZE AND CONFIGURATION OF THE GREASE INTERCEPTOR SHALL COMPLY WITH ALL APPLICABLE LOCAL JURISDICTION REQUIREMENTS, AND BASE BID ACCORDINGLY. IF REQUIRED, A SAMPLING PORT SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODES AND STANDARDS.
7. DISHWASHER WASTE SHALL BE DISCHARGE INDIRECTLY THROUGH THE NEAREST FLOOR SINK.
8. CONDENSATE DRAIN FROM THE GAS FIRED TANKLESS WATER HEATER SHALL DISCHARGE INDIRECTLY THROUGH AIR GAP INTO THE MOP SINK.



2 P101 **SANITARY RISER DIAGRAM**
N.T.S

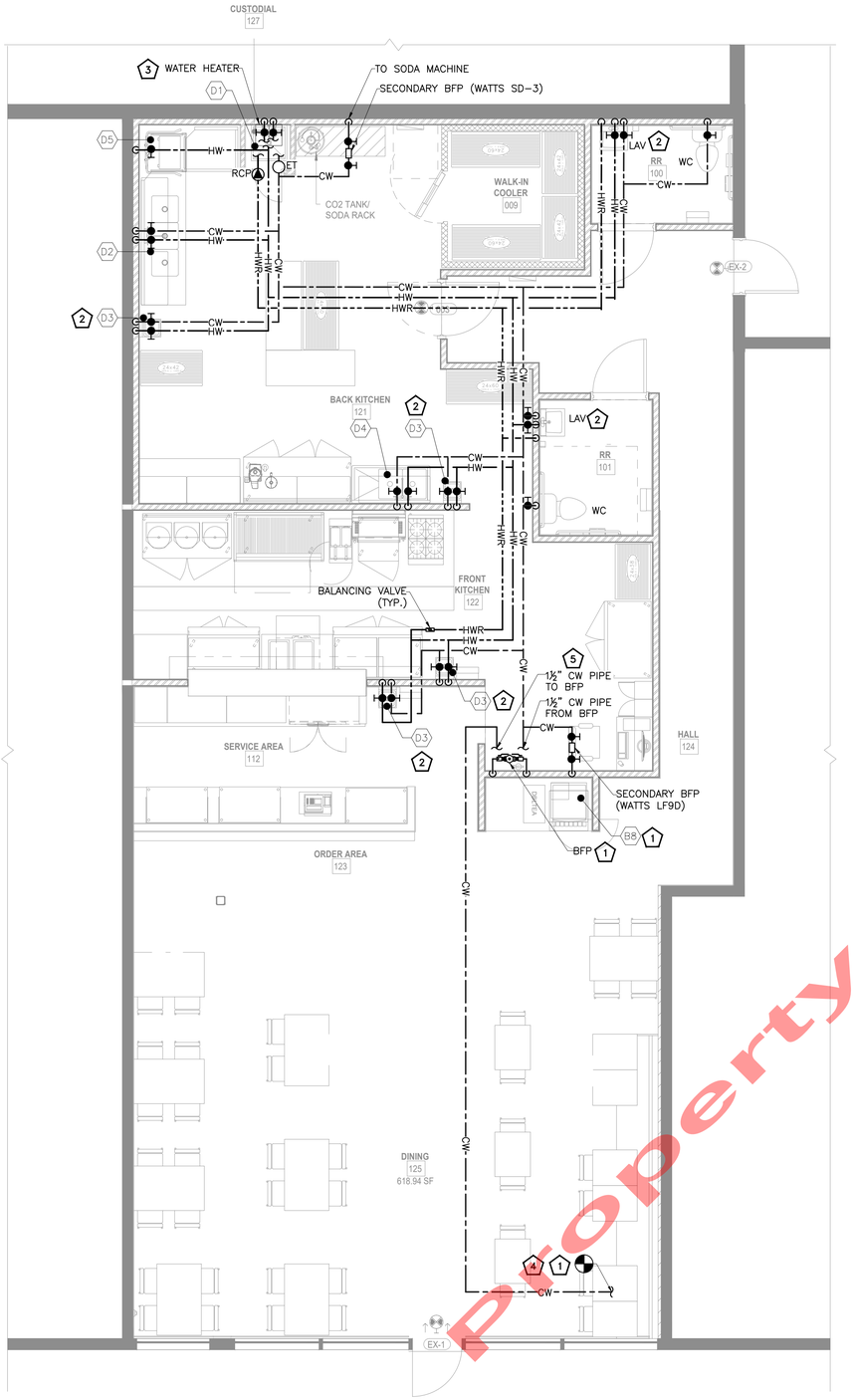
PROJECT NORTH

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project name:
The Great Greek

sheet name:
PLUMBING SANITARY FLOOR PLAN AND RISER

sheet no.:
P101



1 P102 **WATER SUPPLY FLOOR PLAN**
1/4" = 1'-0"

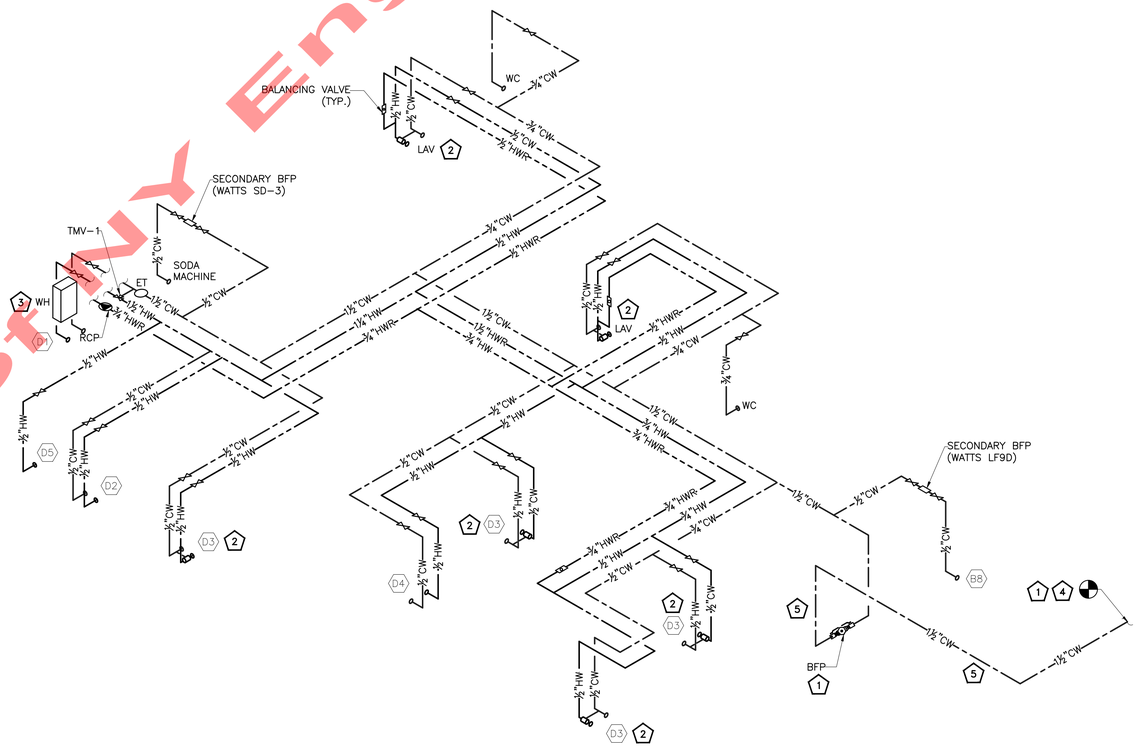
PROJECT NORTH

GENERAL NOTES:

1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER IECC 2009.
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.
5. PROVIDE TRAP PRIMER/ SEAL IN FLOOR DRAIN AS PER LOCAL JURISDICTION.
6. PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY CONTROLS, VALVES, REGULATORS, TRIM, TRAPS, TAILPIECES, STRAINERS, BACK-FLOW PREVENTION DEVICES AND ANY OTHER DEVICES REQUIRED FOR A PROPER INSTALLATION. P.C. SHALL COORDINATE AND MAKE ALLOWANCES SO NOT TO INTERFERE WITH THE OPERATION OF THE FOOD SERVICE EQUIPMENT PROVIDED.
7. PLUMBING CONTRACTOR SHALL INSTALL AND INTERCONNECT ALL PLUMBING COMPONENTS, ACCESSORIES AND SYSTEMS PROVIDED BY THE FOOD SERVICE EQUIPMENT CONTRACTOR. P.C. TO FLUSH OUT ALL FOREIGN MATTER FROM LINE STRAINERS, FAUCET AERATORS, ETC. PRIOR TO FINAL CONNECTIONS.
8. PLUMBING CONTRACTOR TO CONCEAL WATER LINES WHENEVER POSSIBLE. EXTERNAL WALLS WATER LINES SHALL BE STUBBED UP ALONG THE INTERIOR FACE OF THE WALL TO AVOID POTENTIAL FREEZING UNLESS OTHERWISE NOTED.
9. PLUMBING CONTRACTOR TO VERIFY ALL REQUIREMENTS FOR ITEMS THAT ARE EXISTING, BY OWNER, BY VENDOR, N.I.C., AND BY OTHERS. P.C. TO PROVIDE ALL P.V.C. LINES WITH SWEEP ELS FOR BEVERAGE LINES AND TO VERIFY SIZE AND LOCATIONS WITH THE GENERAL CONTRACTOR.
10. CONTRACTOR TO REFER KITCHEN EQUIPMENT PLANS FOR THE ALL REQUIRED PLUMBING ROUGH IN LOCATIONS.

KEYED NOTES:

1. EXTEND AND CONNECT NEW 1½" CW LINE TO THE EXISTING CW PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY THE LOCATION, PRESSURE AND SIZE OF THE EXISTING DOMESTIC WATER LINE ALONG WITH EXISTING WATER SUBMETER AND UPGRADE IF REQUIRED. PROVIDE NEW 1½" BACK FLOW PREVENTER (WATTS LF009M2-QT-FS-1) AS SHOWN ON PLAN.
2. PROVIDE A THERMOSTATIC MIXING VALVE FOR ALL LAVATORIES AND HAND SINKS. SET TEMPERATURE TO A MAXIMUM OF 110° F.
3. PROVIDE NEW GAS FIRED TANKLESS TYPE WATER HEATER (WH) WITH NEW EXPANSION TANK (ET), RECIRCULATION PUMP (RCP), MASTER THERMOSTATIC MIXING VALVE (TMV-1) REFER EQUIPMENT SCHEDULE FOR THE SPECS. ROUTE CONDENSATE DRAIN TO MOP SINK IN ACCORDANCE WITH LOCAL CODES AND STANDARDS.
4. CONTRACTOR TO FIELD VERIFY ALL EXISTING PLUMBING UTILITY SERVICES PRIOR TO BID, NOTIFY AN ENGINEER OF RECORD IF THERE IS ANY DISCREPANCY WHILE BIDDING & CONTRACTOR SHALL BID ACCORDINGLY.
5. NO CW TAP-OFF SHOULD BE TAKEN BEFORE BFP.



2 P102 **WATER SUPPLY RISER DIAGRAM**
N.T.S

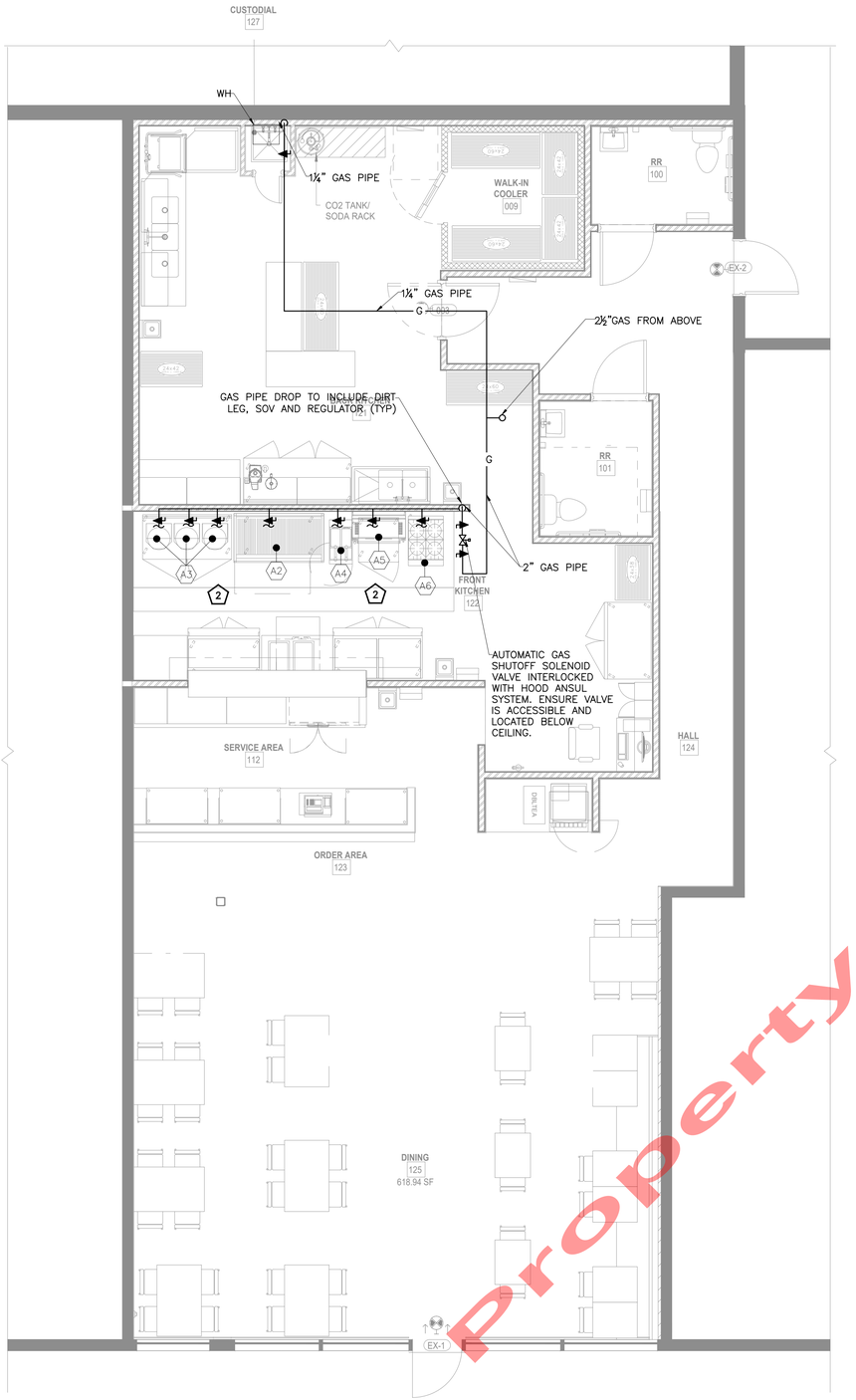
PROJECT NORTH

Property of NY Engineers

project name:
The Great Greek

sheet name:
PLUMBING WATER SUPPLY FLOOR PLAN AND RISER

sheet no.:
P102



1 P103 **GAS FLOOR PLAN**
1/4" = 1'-0"

PROJECT NORTH

NATURAL GAS DEMAND SCHEDULE						
TAG	ITEM	QTY	CONNECTION SIZE	AFF	EQUIP.DEMAND C.F.H.	DEMAND C.F.H.
A6	RANGE	1	1¼"	16"	142	142 C.F.H.
A5	CHEESE MELTER	1	¾"	56"	43	43 C.F.H.
A4	FRYER	1	1"	16"	90	90 C.F.H.
A2	CHARBOILER	1	1½"	16"	187	187 C.F.H.
A3	GYRO BOILER	3	¾"	16"	30	90 C.F.H.
WH	WATER HEATER	1	1½"	70"	199.9	199.9 C.F.H.
MAU-1	MAKEUP AIR UNIT	1	1¼"	36"	157	157 C.F.H.
					TOTAL SYSTEM DEMAND	= 908.9 C.F.H.

GAS PIPING SIZED PER 2018 INTERNATIONAL FUEL GAS CODE TABLE #402.4(2):
FOR GAS PRESSURE LESS THAN 2 PSI.
PRESSURE DROP: 0.5" W.C., SPECIFIC GRAVITY: 0.60
TOTAL NEW GAS LOAD: 909 C.F.H, MAXIMUM DISTANCE: 250'-0" (V.I.F.)

KEYED NOTES:

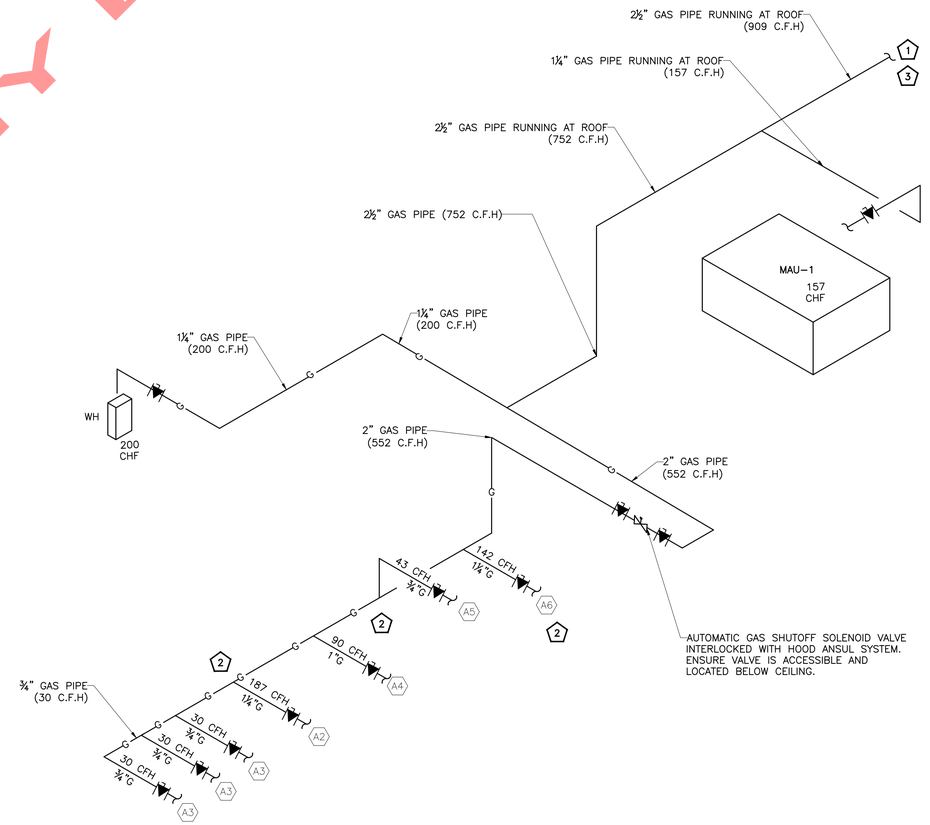
1. CONTRACTOR SHALL EXTEND AND CONNECT A NEW 2½" GAS PIPE WITH A NEW GAS METER OF 752 CFH CAPACITY AND PRESSURE REGULATOR TO THE EXISTING GAS CONNECTION OF ADEQUATE CAPACITY WITHIN THE BUILDING PREMISES. CONTRACTOR SHALL COORDINATE WITH THE UTILITY PROVIDER/BUILDING ENGINEER TO VERIFY THE AVAILABLE SERVICE PRESSURE AND SHALL PROVIDE THE GAS METER AND SET THE PRESSURE REGULATOR ACCORDINGLY.
2. CONTRACTOR TO MAKE SURE THAT ADEQUATE INLET PRESSURE IS PROVIDED FOR ALL GAS FIRED EQUIPMENTS AS PER MANUFACTURER RECOMMENDATIONS.
3. CONTRACTOR TO VERIFY IN FIELD THE EXACT LOCATION & SIZE OF EXISTING GAS CONNECTION & UPDATE THE GAS PIPE SIZE ACCORDINGLY BASED ON THE ACTUAL LENGTH OF GAS PIPE RUN.

NATURAL GAS PIPING SYSTEM

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

NOTES:

1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWED FITTINGS
2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
3. VERIFY EQUIPMENT BTU PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING TO 2023 FLORIDA BUILDING CODE, FUEL GAS 8TH EDITION.
4. CONTRACTOR TO FIELD VERIFY THE INCOMING PRESSURE BEFORE START OF THE WORK.
5. NEW GAS METER LOCATION SHALL BE 5 FT AWAY FROM THE FRONT OF THE PROPERTY, 5FT AWAY FROM ELECTRICAL SERVICE & 3 FT AWAY FROM THE DRIVE WAY.
6. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ACTUAL DISTANCE FROM METER TO GAS APPLIANCES AND TO RESIZE GAS LINE AS REQUIRED.
7. GAS PIPING SHALL NOT PENETRATE BUILDING FOUNDATION WALLS AT ANY POINT BELOW GRADE. GAS PIPING SHALL ENTER AND EXIT A BUILDING AT A POINT ABOVE GRADE AND THE ANNULAR SPACE BETWEEN THE PIPE AND THE WALL SHALL BE SEALED.



2 P103 **GAS RISER DIAGRAM**
N.T.S

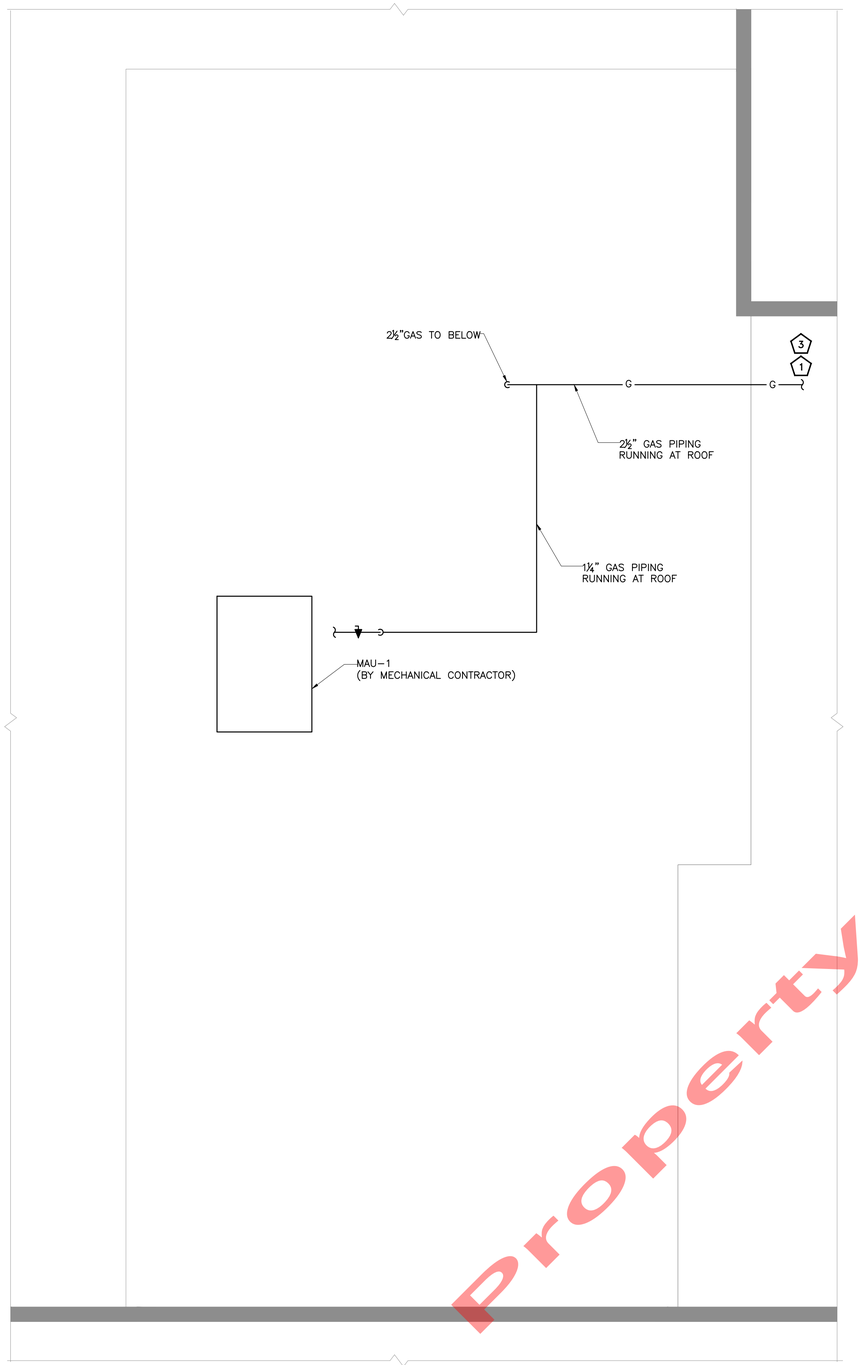
PROJECT NORTH

Property of NY Engineers

project name:
The Great Greek

sheet name:
PLUMBING GAS FLOOR PLAN & RISER

sheet no.:
P103



1 P104 **GAS ROOF PLAN**
1/4" = 1'-0"

NATURAL GAS DEMAND SCHEDULE

TAG	ITEM	QTY	CONNECTION SIZE	AFF	EQUIP.DEMAND C.F.H.	DEMAND C.F.H.
A6	RANGE	1	1¼"	16"	142	142 C.F.H.
A5	CHEESE MELTER	1	¾"	56"	43	43 C.F.H.
A4	FRYER	1	1"	16"	90	90 C.F.H.
A2	CHARBOILER	1	1¼"	16"	187	187 C.F.H.
A3	GYRO BOILER	3	¾"	16"	30	90 C.F.H.
WH	WATER HEATER	1	1¼"	70"	199.9	199.9 C.F.H.
MAU-1	MAKEUP AIR UNIT	1	1¼"	36"	157	157 C.F.H.
					TOTAL SYSTEM DEMAND	= 908.9 C.F.H.

GAS PIPING SIZED PER 2018 INTERNATIONAL FUEL GAS CODE TABLE #402.4(2):
FOR GAS PRESSURE LESS THAN 2 PSI.
PRESSURE DROP: 0.5" W.C., SPECIFIC GRAVITY: 0.60
TOTAL NEW GAS LOAD: 909 C.F.H, MAXIMUM DISTANCE: 250'-0" (V.I.F.)

KEYED NOTES:

1. CONTRACTOR SHALL EXTEND AND CONNECT A NEW 2½" GAS PIPE WITH A NEW GAS METER OF 752 CFH CAPACITY AND PRESSURE REGULATOR TO THE EXISTING GAS CONNECTION OF ADEQUATE CAPACITY WITHIN THE BUILDING PREMISES. CONTRACTOR SHALL COORDINATE WITH THE UTILITY PROVIDER/BUILDING ENGINEER TO VERIFY THE AVAILABLE SERVICE PRESSURE AND SHALL PROVIDE THE GAS METER AND SET THE PRESSURE REGULATOR ACCORDINGLY.
2. CONTRACTOR TO MAKE SURE THAT ADEQUATE INLET PRESSURE IS PROVIDED FOR ALL GAS FIRED EQUIPMENTS AS PER MANUFACTURER RECOMMENDATIONS.
3. CONTRACTOR TO VERIFY IN FIELD THE EXACT LOCATION & SIZE OF EXISTING GAS CONNECTION & UPDATE THE GAS PIPE SIZE ACCORDINGLY BASED ON THE ACTUAL LENGTH OF GAS PIPE RUN.

NATURAL GAS PIPING SYSTEM

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

NOTES:

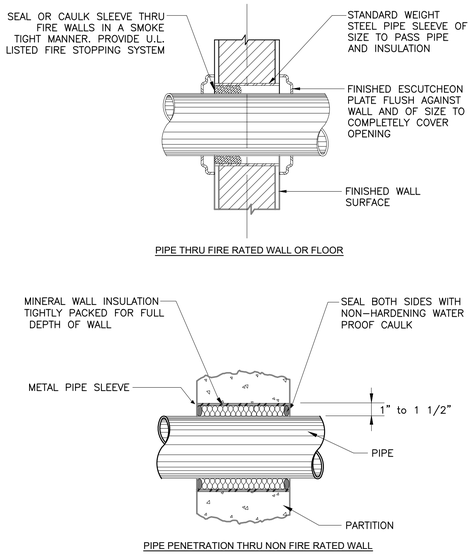
1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWED FITTINGS
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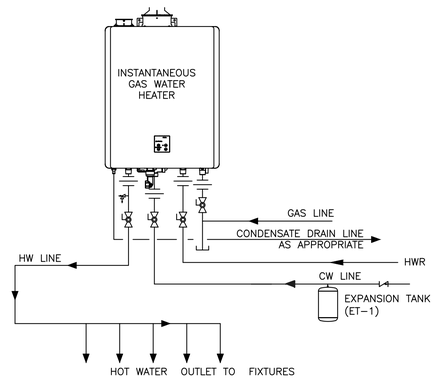
project name:
The Great Greek

sheet name:
PLUMBING GAS ROOF PLAN

sheet no.:
P104

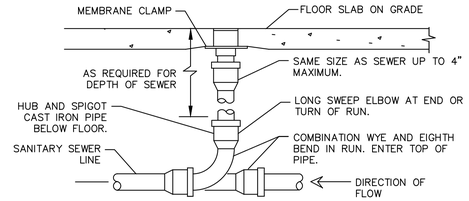


1 P201 PIPE SLEEVE THRU WALL SECTION N.T.S



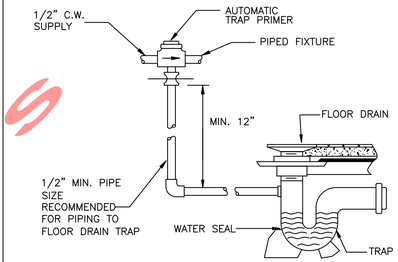
REFER TO SPECIFICATION AND PLUMBING FIXTURE SCHEDULE. PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUITE FIELD CONDITIONS. REFER TO FLOOR PLAN FOR PIPE SIZES.

2 P201 INSTANTANEOUS GAS WATER HEATER DETAIL N.T.S

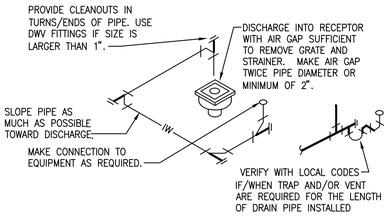


COMMENTS:
1. LOCATE AT BUILDING EXIT, AT ENDS OF RUNS, AT TURNS OF PIPE GREATER THAN 45 DEGREES, AT 50' INTERVALS ON STRAIGHT RUNS, AND/OR WHERE SHOWN ON PLANS. PROVIDE BACKFILL PER ARCHITECTURAL SPECIFICATIONS. LOCATE CLEANOUTS WHERE THERE IS 18" CLEAR AROUND. CONSULT LOCAL CODES FOR OTHER FCO REQUIREMENTS.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

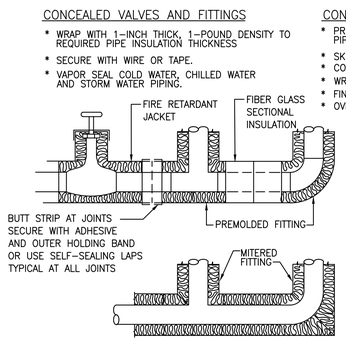
3 P201 FLOOR CLEANOUT DETAIL N.T.S



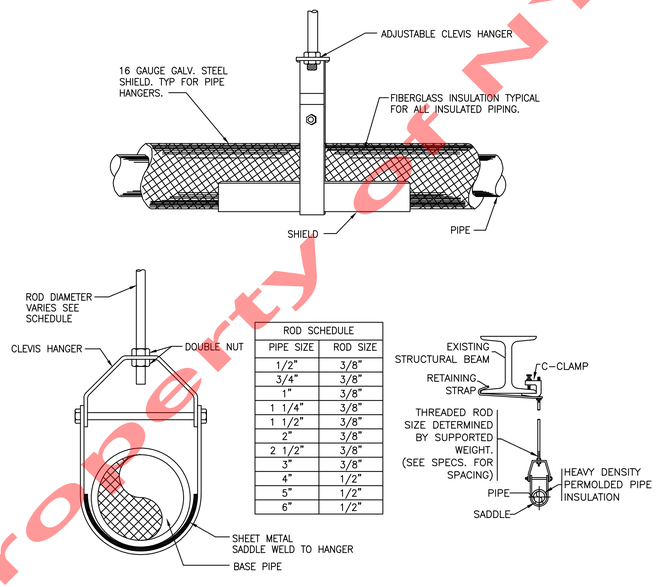
4 P201 TRAP PRIMER DETAIL N.T.S



5 P201 INDIRECT WASTE CONNECTION DETAIL N.T.S



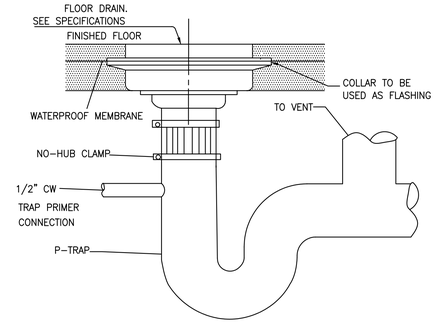
6 P201 INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATIONS N.T.S



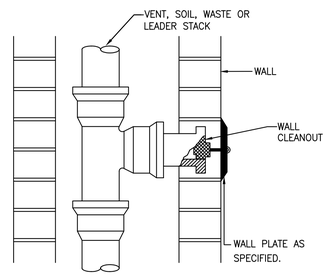
ROD SCHEDULE

PIPE SIZE	ROD SIZE
1/2"	3/8"
3/4"	3/8"
1"	3/8"
1 1/4"	3/8"
1 1/2"	3/8"
2"	3/8"
2 1/2"	3/8"
3"	3/8"
4"	1/2"
5"	1/2"
6"	1/2"

7 P201 HANGER DETAIL N.T.S



8 P201 FLOOR DRAIN DETAIL N.T.S



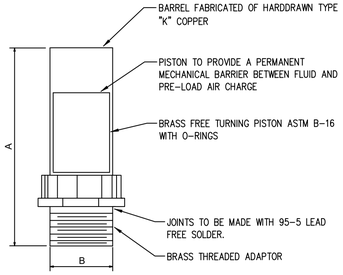
9 P201 WALL CLEANOUT DETAIL N.T.S

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sheet name:
PLUMBING DETAILS (1 OF 2)

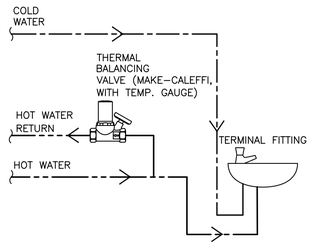
sheet no.:
P201



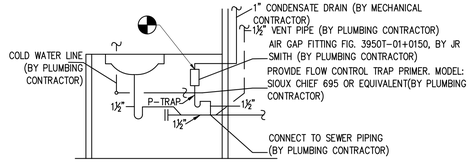
PIPE SIZE	P.D.I. SYMBOL	FIXTURE UNIT RATINGS	A SIZE	B SIZE
1/2"	A	1 - 11	5"	1/2"
3/4"	B	12 - 32	5"	3/4"
1"	C	33 - 60	7"	1"
1-1/4"	D	61 - 113	7"	1-1/4"
1-1/2"	E	114 - 154	9"	1-1/2"
2"	F	155 - 330	9"	2"

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

1 P202 WATER HAMMER ARRESTOR DETAIL N.T.S

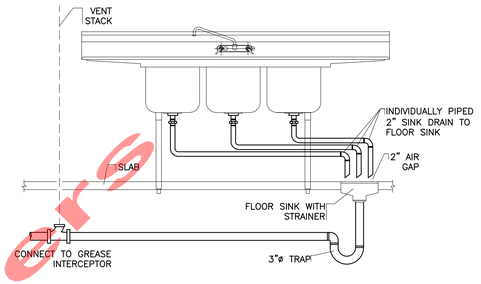


2 P202 BALANCING VALVE DETAIL N.T.S



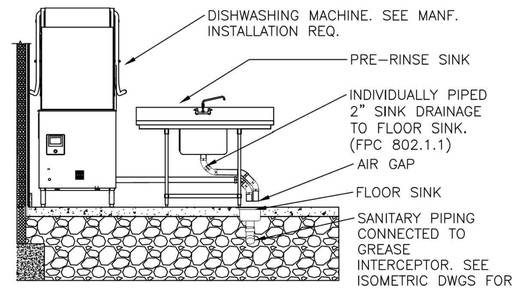
NOTE:
LOCATE AIR GAP FITTING AND PIPING WITHIN SINK/LAVATORY ENCLOSURE.

3 P202 AIRGAP FITTING DETAIL N.T.S

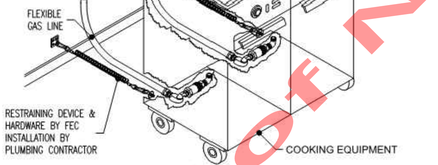


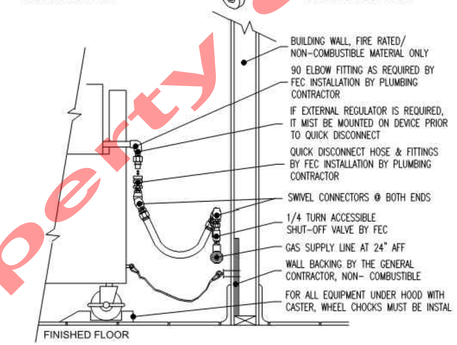
4 P202 3 COMPARTMENT SINK DETAIL N.T.S

ACTUAL CONFIGURATION MAY DIFFER THAN SHOWN. THE DETAIL IS TO SHOW INTENTION AND MAY NEED MODIFICATION IN THE FIELD.



5 P5.1 DOUBLE SINK TO FLOOR SINK DETAIL N.T.S

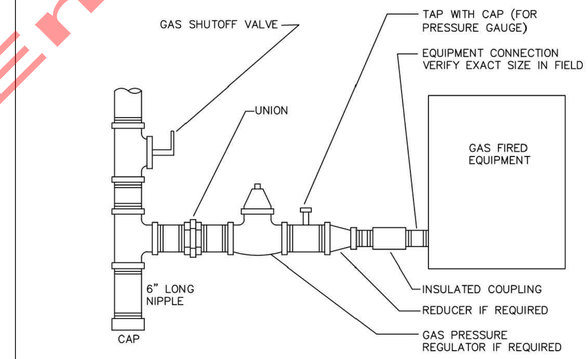




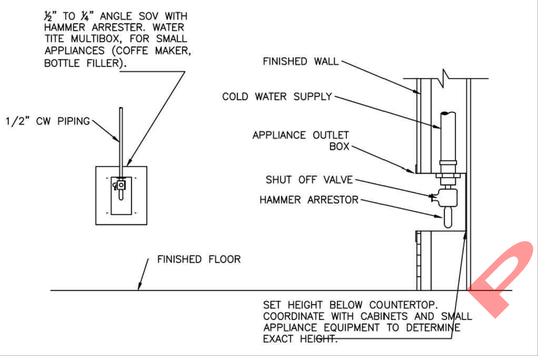
RESTRAINING DEVICE & HARDWARE BY FEC INSTALLATION BY PLUMBING CONTRACTOR

AS CLOSE TO THE WALL AS POSSIBLE

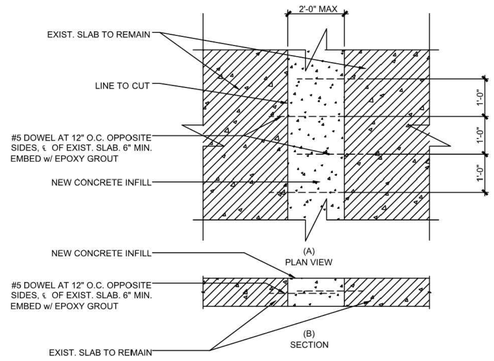
7 P202 GAS LINE QUICK CONNECTION DETAIL N.T.S



8 P202 GAS EQUIPMENT ENDLINE DETAIL N.T.S



6 P202 SMALL APPLIANCE OUTLET BOX DETAIL N.T.S



9 P202 TRENCH / SLAB CUT AND REPAIR DETAIL N.T.S

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sheet name:
PLUMBING DETAILS (2 OF 2)

sheet no.:
P202

PLUMBING ROUGH-IN SCHEDULE

ITEM	DESCRIPTION	QUANTITY	MANUFACTURER	MODEL	WATER			WASTE			NOTES
					HW	CW	AFF	CONNECTION TYPE	SIZE	AFF	
B1	WALK-IN COOLER	1	KOLPAK	CUSTOM				INDIRECT	1"	FD	
B8	ICE MAKER	1	MANITOWOC	IYT0620A		⅜"	16"				THRU WATER FILTER BELOW COUNTER
								INDIRECT	1"	FD	
D1	MOP SINK	1	BY OTHERS	NIKEC	½"	½"	36"				NIKEC; VERIFY REQUIREMENTS
								DIRECT	2"	0"	
D2	3-COMPARTMENT SINK	1	X	X	½"	½"	20"				
								INDIRECT	2"	FS	MANIFOLD DRAIN LINES AND EXTEND TO FLOOR SINK
D3	HAND SINK	4	X	X	½"	½"	20"				
								DIRECT	1½"	24"	
D4	2-COMPARTMENT SINK	1	JOHN BOOS	E2S8-1620-12R18	½"	½"	20"				
								INDIRECT	2"	FS	MANIFOLD DRAIN LINES AND EXTEND TO FLOOR SINK
D5	DISHMACHINE	1	ECOLAB	ES-2000	¾"		20"				120" MIN. NIKEC; VERIFY REQUIREMENTS
								INDIRECT	2"	FS	NIKEC; VERIFY REQUIREMENTS
D6	SOILED DISHTABLE	1	ADVANCE TABCO	DTC-S70-60	½"	½"	20"				
								INDIRECT	2"	FS	
LAV	LAVATORY	2	X	X	½"	½"	X	DIRECT	1½"	X	PROVIDE TMV SET TEMPERATURE TO 110° F
WC	WATER CLOSET	2	X	X	X	¾"	X		4"	X	

DOMESTIC WATER & WASTE CALCULATION

FIXTURE DESCRIPTION	QTY	WATER		WASTE	
		WSFU	TOTAL	DFU	TOTAL
MOP SINK	1	3	3	2	2
LAVATORY	2	2	8	1	2
WATER CLOSET	2	5.0	10	4	8
THREE COMP. SINK	1	3.0	3	–	–
ONE COMP. SINK	1	3.0	3	–	–
TWO COMP. SINK	1	3.0	3	–	–
DISH WASHER	1	1.4	1.4	–	–
HAND SINK	4	2	8	2	8
ICE MACHINE	1	0.5	0.5	–	–
FS	3	–	–	5	15
FD	5	–	–	5	25
TOTAL		WSFU= 40		DFU= 60	

DFU AND WSFU VALUES AS PER 2018 INTERNATIONAL PLUMBING CODE

PER 2018 INTERNATIONAL PLUMBING CODE, 40 WSFU EQUALS 26.3 GPM AND FOR 26.3 GPM CALCULATED PIPE SIZE IS 1½".

PER 2018 INTERNATIONAL PLUMBING CODE, CALCULATED PIPE SIZE FOR 60 DFU IS 4".

GREASE INTERCEPTOR SIZING

SR. NO	Description	Quantity	Length (Inches)	Width (Inches)	Height (Inches)	Volume		Filling Factor	Actual Usage	Flow Rate 1 Min	Flow Rate 2 Min
						Cubic Inches	Gallons				
1	3 Comp. Sink	1	21	21	14	18522	80.2	0.75	60.1	60.1	30.068
2	2 Comp. Sink	1	20	16	12	7680	33.2	0.75	24.9	24.9	12.468
3	Mop Sink	1	24	24	10	5760	24.9	0.75	18.7	18.7	9.351
4	Dishwasher	1				2310	10.0	1	10.0	10.0	5.000
5	Hand Sink	4	10	14	5	2800	12.1	0.75	9.1	9.1	4.545
6	Floor Drain	3	N/A						0	0	0
								Total Flow Gpm		**122.9**	**61.43**

GREASE PRODUCTION

Number of Seats x 4 turns per seat x Grease Production Value x Days between pump-out = Grease output
Number of seats in facility: 44
Grease production value: 0.0455 lbs per serving (Greek: High / Flatware)
Days between pump-outs: 90 days
44 x 4 x 0.0455 x 90 = 720.72 lbs of FOG

MASTER THERMOSTATIC MIXING VALVE

ITEM	QUANTITY	CAPACITY (GPM)	PRESSURE DROP (PSI)	MINIMUM FLOW (GPM)	MAKE	CW INLET	HIGH TEMP. INLET	LOW TEMP. OUTLET	REMARKS
TMV-1	1	17	5	1	LAWLER 801	¾"	¾"(140°F)	1"(120°F)	-BRONZE BODY AND LEAD FREE CONSTRUCTION -ASSE 1017/CSA B125.3 CERTIFIED

GREASE INTERCEPTOR SCHEDULE

ITEM	QUANTITY	LOCATION	FLOW RATE (GPM)	GREASE HOLDING CAPACITY (LBS.)	INLET /OUTLET CONENCTIONS	MAKE/MODEL	REMARK
GI	1	OUTSIDE (BURIED)	75	861 LBS	4"NPT	SCHIER/ GB-75	-PROVIDE SV10 SAMPLING PORT -PROVIDE ALL MANUFACTURER RECOMMENDED ACCESSORIES FOR THE INSTALLATION

NOTE:

1. INSTALLATION OF GREASE INTERCEPTOR SHALL BE IN ACCORDANCE WITH LOCAL CODES & REGULATIONS.
2. FINAL LOCATION OF THE OUTDOOR GREASE INTERCEPTOR SHALL BE COORDINATED ON SITE WITH LANDLORD /ARCHITECT.

GAS FIRED TANKLESS WATER HEATER SCHEDULE

UNIT TAG	LOCATION	QTY.	FUEL TYPE	GAS CONSUMPTION (BTU/HR)	RECOVERY (GPH)	ENERGY FACTOR	WATER CONNECTION SIZE (IN)	GAS CONNECTION SIZE (IN)	MAKE/ MODEL	SHIPPING WEIGHT (lbs)	REMARKS
WH	REFER PLANS	01	GAS	200,000	8.7 GPM @ 45°F ΔT	0.98	3/4"	3/4"	RHEEM RTGH-CS11i	77.6	- DIMENSIONS 28-9/16"(H)X 17-5/16""(W)X 13-11/16"(D)

HOT WATER RECIRCULATION PUMP SCHEDULE

TAG	QTY	SERVICE	PERFORMANCE DATA			PUMP CONSTRUCTION DATA	MOTOR DATA					MFGR MODEL	REMARKS
			GPM PER PUMP	TDH PER PUMP (FT)	WATER TEMP. (°F)	PUMP TYPE	MHP PER PUMP	STARTER TYPE	V/PH/HZ	RPM	ROTATION		
RCP	1	HWR	2	15	120	INLINE, NORYL	39 WATTS	AQUA STAT	115/1/60	2800	PER MFG	BELL & GOSSETT NBF 8U/LW	- INLINE ON HW RETURN LINE AT WATER HEATER NEMA 1 RATED MOTOR - UL LISTED & NSF CERTIFIED

EXPANSION TANK SCHEDULE

ITEM	QUANTITY	LOCATION	SERVICE	GALLONS	MAKE	REMARKS
EXPANSION TANK (ET)	01	REFER PLAN	HOT WATER	2	AMTROL ST-5	DIMENSIONS- 13"(H) X 8"(DIA.)

Property of NY Engineers

project name:
The Great Greek

sheet name:
PLUMBING SCHEDULES

sheet no.:
P301

ELECTRICAL SYMBOLS LIST

LIGHTING

	FLUORESCENT LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.
A a 2	LUMINAIRE TYPE : INDICATE BY LIPPERCASE LETTER SEE LIGHTING EXTURE SCHEDULE. CIRCUIT NUMBER : INDICATED BY NUMBER SWITCHING INDICATED BY LOWER CASE LETTERS.
EM	DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.
NL	DENOTES FIXTURES DESIGNATED AS NIGHTLIGHT, WIRED TO 24 HOURS UNSWITCHED CIRCUIT.
	RECESSED
	SAME AS ABOVE, EXCEPT WALLWASHER.
	FLUORESCENT STRIP LIGHTING FIXTURE AND OUTLET BOX.
	CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONALARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN
	EMERGENCY BATTERY UNIT WITH ATTACHED EMERGENCY FIXTURES AND OUTLET BOX.

SWITCHES AND CONTROLS

$a	20A SWITCH U.O.N. "a" DENOTES LIGHTING FIXTURE CONTROLLED.
OS A	CEILING OCCUPANCY SENSOR, NUMBER INDICATES TYPE; SEE OCCUPANCY SENSOR SCHEDULE. 'A' LETTER REFERES TO WIRING DIAGRAM.

WIRING SYSTEMS

3 UP–	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.
3 5 UP–	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.
3 5 7 UP–	POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 ø, 1#12 N. & 3#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.
	CONDUIT TURNING UP, SEE FLOOR PLANS FOR CONDITIONS.
	CONDUIT TUIRNING DOWN, SEE FLOOR PLANS FOR CONDITION.
	CONDUIT AND WIRE TO BUILDING GROUND.
	UNDERGROUND
	EXISTING
	NEW

ELECTRICAL DRAWING LIST

E001	ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES
E002	ELECTRICAL SPECIFICATIONS SHEET 1 OF 2
E003	ELECTRICAL SPECIFICATIONS SHEET 2 OF 2
E201	ELECTRICAL FLOOR POWER PLAN
E202	ELECTRICAL ROOF POWER PLAN
E203	ELECTRICAL FLOOR LIGHTING PLAN
E400	ELECTRICAL DETAILS SHEET 1 OF 2
E401	ELECTRICAL DETAILS SHEET 2 OF 2
E500	ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES

POWER AND TELECOMMUNICATION

J	JUNCTION BOX WITH BLANK COVER PLATE, WALL MOUNTE, +18" AFF OR AS NOTED.
J	JUNCTION BOX WITH BLANK COVER PLATE, CEILING MOUNTED..
	DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.
	DUPLEX CONVENIENCE RECEPTACLE, +18" AFF OR AS NOTED.
CL	DUPLEX CONVENIENCE RECEPTACLE – 20A–1P, 125V, NEMA 5–20R MOUNTED FLUSH IN CELING.
	DOUBLE DUPLEX RECEPTACLE – 20A–1P, 125V, NEMA 5–20R.
	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.
	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.
	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.

MOTORS AND CONTROLS

M	AC INDOOR UNIT MOTOR AS NOTED WITH LIQUID TIGHT FLEXIBLE CONNECTION WITH JUNCTION BOX AND MOTOR SWITCH.
M WP	AC OUTDOOR UNIT MOTOR AS NOTED WITH CONTROLLER AND DISCONNECT SWITCH WITH WEATHER PROOF.
	120/208V NON FUSED DISCONNECT SWITCH AMPERAGE, AND NUMBER OF POLES AS NOTED.

ANNOTATION

+24"	INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.
X	KEYED NOTE REFERENCE
1 E/2–7	DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM

POWER DISTRIBUTION

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

CODE COMPLIANCE

A.	2018 INTERNATIONAL BUILDING CODE
B.	2018 INTERNATIONAL MECHANICAL CODE
C.	2018 INTERNATIONAL PLUMBING CODE
D.	2017 NATIONAL ELECTRICAL CODE (NFPA 70)
E.	2018 INTERNATIONAL FUEL GAS CODE
F.	2009 INTERNATIONAL ENERGY CONSERVATION CODE

ELECTRICAL ABBREVIATIONS

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

GENERAL NOTES

(APPLY TO ALL "E" DRAWINGS)

1. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE CURRENT VERSION OF THE NYC ELECTRICAL CODE, 2008 NEC WITH NYC AMENDMENTS, LOCAL JURISDICTION REQUIREMENTS, AND ALL GOVERNING LOCAL CODES, LAWS, AND REGULATIONS.
2. CONTRACTOR SHALL VISIT THE SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY AFFECT THE WORK. NO ADDITIONAL COMPENSATION WILL BE CONSIDERED FOR FAILURE TO DO SO.
3. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.
4. FIRE STOP ALL PENETRATIONS OF FIRE RATED CONSTRUCTION IN A CODE APPROVED MANNER IN ORDER TO MAINTAIN FIRE RATING. ALL PENETRATIONS SHALL BE SLEEVED AND SEALED WATERTIGHT.
5. SECURE ALL SUPPORTS TO BUILDING STRUCTURE UTILIZING TOGGLE BOLTS (HOLLOW MASONRY), EXPANSION SHIELDS OR INSERTS (CONCRETE AND BRICK), MACHINE SCREWS (METAL), BEAM CLAMPS (FRAMEWORK), WOOD SCREWS (WOOD) OR PAN THRU STRAPS (METAL DECK). NAILS, RAWL PLUGS AND WOOD PLUGS ARE NOT PERMITTED. WHERE REQUIRED BY STRUCTURE, PROVIDE THRU BOLTS AND FISH PLATES. SUPPORT HORIZONTAL RUNS OF METALLIC RACEWAYS NOT MORE THAN 10 FT APART. SUPPORT RACEWAY RISERS AT EACH FLOOR LEVEL. RUN EXPOSED RACEWAYS PARALLEL WITH OR AT RIGHT ANGLES TO WALLS.
6. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.
7. VERIFY LOCATIONS OF OUTLETS AND SWITCHES IN FINISHED ROOMS WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISH. IN CENTERING OUTLETS AND LOCATING BOXES AND OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS AND MECHANICAL EQUIPMENT, EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILINGS AND THE LIKE. CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
8. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.
9. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.
10. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE–EXISTING CONDITIONS OR BETTER.
11. MINIMUM SIZE OF CONDUIT SHALL BE ¾", AND TYPE SHALL BE ELECTRICAL METALLIC TUBING (EMT), UNLESS OTHERWISE NOTED. PROVIDE NYLON DRAG LINE AND CONDUIT CAP FOR ALL EMPTY CONDUITS.
12. CONNECT CONDUIT TO MOTOR CONDUIT TERMINAL BOXES WITH FLEXIBLE CONDUIT (MINIMUM 18 IN. LENGTH AND 50% SLACK). DO NOT TERMINATE IN OR FASTEN RACEWAYS TO MOTOR FOUNDATION.
13. PULL AND JUNCTION BOXES WHERE INDICATED ON THE DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THEM AS FIELD CONDITIONS DICTATE. ADDITIONAL PULL AND JUNCTION BOXES NOT SHOWN ON DRAWINGS SHALL BE PROVDED WHERE REQUIRED BY APPLICABLE CODE PROVISIONS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED AREAS AND INSTALLED CANCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.
14. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
15. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.
16. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAINTIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
17. ALL ACCESS PANEL LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.
18. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENERAL CONTRACTOR AND OTHER ASSOCIATED TRADES IN A TIMELY MANNER. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL DIMENSIONS AND CONDITIONS PRIOR TO CONSTRUCTION. REFER TO ALL GENERAL, MECHANICAL, AND ELECTRICAL, DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
19. ALL CONDUITS AND EQUIPMENT TO BE CONCEAL ED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.
20. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.
21. OUTLET BOXES AND JUNCTION BOXES ON OPPOSITE SIDES OF FIRE–RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24 INCHES, UNLESS FIRE–RATED BOXES OR PUTTY PADS ARE UTILIZED.
22. COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITRH THE ENGINEER AND OWNER BEFORE INSTALLATION.
23. COORDINATE THE MOUNTING HEIGHT AND LOCATION OF RACEWAYS, COMMUNICATIONS OUTLETS, AND RECEPTACLES WITH THE ARCHITECTURAL CASEWORK DRAWINGS AND DETAILS. COORDINATE LOCATIONS OF LIGHT FIXTURES, SWITCHES, AND RELATED DEVICES WITH THE ARCHITECTURAL DRAWINGS AND DETAILS.
24. REFER TO ARCHITECTURAL PLANS FOR FINAL LOACTIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.
25. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.
26. LIGHTING FIXTURES PROVIDED WITH EMERGENCY BATTERY PACKS AND INDICATED WITH SWITCH CONTROL SHALL BE WIRED WITH BATTERY CHARGING/SENSING CIRCUIT WIRED AHEAD OF SWITCH CONTROL.
27. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANELBOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANELBOARD.
28. LUMINAIRES IN EACH ELEVATOR CAB: THE SUM OF ALL LUMENS/SUM OF ALL WATTS SHALL NOT BE <35 LUMENS/WATT. VENTILATION FANS IN ELEVATORS THAT DO NOT HAVE THEIR OWN AIR CONDITIONING SYSTEM SHALL NOT CONSUME >0.33WATT/CFM AT THE MAXIMUM RATED SPEED OF THE FAN. ELEVATOR CONTROLS SHALL DE–ENERGISE FANS AND LIGHTING WHEN THE ELEVATOR IS STOPPED, UNOCCUPIED, WITH DOORS CLOSED.

Property of NY Engineers

project name:
The Great Greek

sheet name:
ELECTRICAL SYMBOL LIST, ABBREVIATIONS & GENERAL NOTES

sheet no.:
E001

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.

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 ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

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

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 CERTIFICATED OF INSPECTION AND APPROVAL.

2. GENERAL PROVISIONS FOR ELECTRICAL WORK:

A. DEFINITIONS:

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

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

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

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

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

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

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

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

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

C. QUALITY ASSURANCE

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

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

3) CURRENT CHARACTERISTICS:

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

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

4) HEIGHTS OF OUTLETS:

a. FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:

– RECEPTACLES AND TELEPHONES: 1 FT–6 IN.

– WALL SWITCHES: 4 FT–0 IN.

– WALL FIXTURES: 7 FT–0 IN.

– MOTOR CONTROLLERS: 5 FT–0 IN.

– CLOCKS: 7 FT 6 IN

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

D. PRODUCT DELIVERY, STORAGE AND HANDLING

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

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

E. MATERIALS

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

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

3) INSERTS AND SUPPORTS:

a. INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

– SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.

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

– CLIP FORM NAILS FLUSH WITH INSERTS.

– MAXIMUM LOADING 75 PERCENT OF RATING.

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

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

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

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

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

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

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

3. SCOPE OF WORK:

A. SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH THE 2008 NATIONAL ELECTRICAL CODE (NEC) NYC AMENDMENTS, 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 WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER, THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR

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

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

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

4. SHOP DRAWINGS

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

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1) PROJECT NAME AND LOCATION

2) NAME OF ARCHITECT AND ENGINEER

3) ITEM IDENTIFICATION

4) APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

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

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

D. SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1) SAFETY/DISCONNECT SWITCHES

2) FUSES

3) CIRCUIT BREAKERS

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

5) RACEWAYS

6) WIRE AND CABLE

7) WALL SWITCHES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES.

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

5. AS–BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

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

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

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

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

6. LOW–VOLTAGE DISTRIBUTION EQUIPMENT:

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

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

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

7. FUSES:

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

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

C. ALL FUSES SHALL BE PROVIDED BY SAME MANUFACTURER.

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

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

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

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

8. DISTRIBUTION PANELBOARDS, CIRCUIT BREAKER TYPE:

A. THREE PHASE, 4 OR 5 WIRE, COPPER BUS BARS, WITH 2, 3, OR 4 WIRE BRANCHES, AS NOTED. CAPACITY OF PANEL AND CIRCUITS, AS NOTED BELOW. PANELBOARD TO HAVE GROUND BUS SAME SIZE AS PHASE BUSES.

B. CABINETS: CODE GAUGE GALVANIZED SHEET STEEL PRIMED AND PAINTED WITH TRIM AND DOOR, TYPE AS NOTED, LAP AND RIVET CORNERS OR FORM AS APPROVED.

C. TRIM: ONE PIECE FULL FINISH PRIMED AND PAINTED SHEET STEEL. TRIM SHALL BE MOUNTED WITH A CONTINUOUS PIANO HINGE CONFIGURED IN SUCH A MANNER THAT IT SHALL BE POSSIBLE TO GAIN FULL ACCESS TO CIRCUIT BREAKERS AND WIRING GUTTERS WITHOUT REMOVING THE TRIM. PROVIDE A MULTI–PIN CYLINDER LOCK (YALE, CORBIN OR EQUAL) TO LATCH THE TRIM. KEYS SHALL BE MILLED.

D. HARDWARE: MULTI–PIN, CYLINDER LOCKS WITH MILLED KEYS. ALL PANELS SHALL BE KEYED ALIKE. DOOR OVER 48" HIGH SHALL BE EQUIPPED WITH A CHROME PLATED VAULT HANDLE, BUILT–IN LOCK AND 3–POINT CATCH FASTENING DOOR AT TOP, BOTTOM AND CENTER.

E. HINGES: CONCEALED, CONTINUOUS PIANO HINGE AS DESCRIBED ABOVE.

F. DIRECTORY HOLDER: MEAL FRAME WITH NONBREAKABLE TRANSPARENT COVER AND DIRECTORY CARD. ENTRIES TO BE TYPEWRITTEN BY ELECTRICAL CONTRACTOR. PROVIDE AN ENGRAVED LAMINATED NAMEPLATE ADJACENT TO EACH BRANCH BREAKER. MOUNT WITH SELF TAPPING MACHINE SCREWS.

G. FURNISH MULTI–CABLE LUGS WHERE REQUIRED. DOUBLE LUGGING NOT PERMITTED. SECURE LUGS TO BUS BY STUD BOLTS.

H. PANELBOARD CONSTRUCTION FOR BOLTED TYPE BREAKERS. MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, RMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. INDIVIDUAL CIRCUIT BREAKERS SHALL HAVE MINIMUM 100A FRAME, TRIPS SIZED AS SHOW ON THE PLANS.

I. MINIMUM GUTTER SPACES: PANELS WITH 225 AMPERE MAINS, 5–¾" MINIMUM, 400 AMPERES AND OVER, MINIMUM GUTTERS 8". FOR PANELS WITH THROUGH FEEDERS, INCREASE GUTTER WIDTH BY 2" MINIMUM AND PROVIDE A SHEET STEEL BARRIER BETWEEN THE PANEL GUTTER AND THE THROUGH FEEDER PORTION OF THE BACK BOX. BRANCH CIRCUIT BREAKERS SHALL BE MECHANICALLY INTERLOCKED WHEN SHOWN ON DRAWINGS.

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

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

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

8. DISTRIBUTION PANELBOARDS, SWITCH AND FUSE:

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

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

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

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

E. DISTRIBUTION PANELBOARD CONSTRUCTION MINIMUM SHORT CIRCUIT RATING 25,000 AMPERES, REMS SYMMETRICAL FOR ALL 120/208V APPLICATIONS. APPLICATIONS.

F. DISCONNECTS

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

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

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

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

G. INSTALLATION

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

H. IDENTIFICATION

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

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

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The Great Greek

sheet name:
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ELECTRICAL SPECIFICATIONS (CONT.)

3) BOXES:

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

b. JUNCTION AND PULL BOXES: GALVANIZED SHEET STEEL WITH SCREW-ON COVERS, EXCEPT AS NOTED. FURNISH WITH INSULATED SUPPORTS FOR CABLES. LOCATIONS SHALL BE AS NOTED OR REQUIRED AND ACCESSIBLE. PROVIDE BARRIERS IN NEW AND RENOVATED BOXES BETWEEN 120/208 VOLT AND 265/460 VOLT WIRING AND BETWEEN EMERGENCY AND NORMAL WIRING. FLOOR BOXES SHALL BE SUITABLE FOR CONDUIT AND DEVICES NOTED. RAISED OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH ABOVE FLOOR FITTING. TELEPHONE: BUSHED HOLE. POWER: DUPLEX RECEPTACLE OR OTHER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY. FLUSH OUTLETS SHALL BE HUBBELL #B2414 SERIES WITH FLUSH FLOOR FITTING FOR TELEPHONE AND FLUSH DUAL FLAP COVER WITH DUPLEX RECEPTACLE FOR POWER AS NOTED. INCREASE SIZE TO SUIT AS NECESSARY.

C. PROVIDE RACEWAYS ONLY AS HEREIN SPECIFIED, EXCEPT AS NOTED. RACEWAYS SHALL BE RUN CONCEALED, EXCEPT AS NOTED.

PROVIDE RACEWAY SUPPORT UTILIZING CEILING TRAPEZE, STRAP HANGERS, OR WALL BRACKETS. PROVIDE U-BOLTS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND CONNECTED TO ACCEPTABLE SUPPORTS. PROVIDE RISER CLAMPS AT EACH FLOOR LEVEL OF RISER RACEWAYS AND RESTING ON SLAB. FOR THROUGH-THE-FLOOR SYSTEMS, UTILIZE AN ASSEMBLY SIMILAR TO HUBBELL FIRE RATED POKE-THROUGH-FLOOR BOX SYSTEM. FOR ABOVE FLOOR FITTINGS TELEPHONE SHALL BE BUSHED HOLE AND POWER SHALL BE DUPLEX RECEPTACLE OR OTHER AS NOTED. PROVIDE SEPARATION BARRIER BETWEEN POWER AND TELEPHONE COMPARTMENTS. PROVIDE JUNCTION BOX ON UNDERSIDE OF FLOOR. PACK FITTING TO RESTORE FIRE RATING OF FLOOR.

SECURE ALL RACEWAYS TO SUPPORTS WITH PIPE STRAPS OR U-BOLTS. SPACING OF SUPPORTS SHALL BE A MINIMUM OF 10 FT ON CENTER FOR METALLIC RACEWAY AND AS REQUIRED FOR NONMETALLIC RACEWAY. SPACING SHALL BE 5 FT ON CENTER FOR WIREWAYS AND PER CODE AND AS NOTED FOR OTHERS. MOUNT SUPPORTS TO STRUCTURE MASONRY WITH TOGGLE BOLTS ON HOLLOW MASONRY, EXPANSION SHIELDS OR INSERTS IN CONCRETE AND BRICK, MACHINE SCREWS ON METAL, BEAM CLAMPS ON FRAMEWORK, WOOD SCREWS ON WOOD, AND PAN THROUGH STRAPS IN METAL DECK. NAILS, RAWL PLUGS OR WOOD PLUGS SHALL NOT BE PERMITTED. WHERE REQUIRED BY STRUCTURE, FURNISH THROUGH BOLTS AND FISHPLATES.

EXPOSED RACEWAYS SHALL BE RUN PARALLEL WITH OR AT RIGHT ANGLES TO WALLS. PROVIDE CLEARANCE WITH WATER, STEAM OR OTHER PIPING (MINIMUM 3 IN. SEPARATION FROM STEAM AND HOT WATER PIPES, EXCEPT 1 IN. FROM PIPE COVER AT CROSSINGS AND 18 IN. FOR PARALLEL RUNS). FOR HUNG CEILING OUTLETS, RUN IN HUNG CEILING AND CONNECT TO CEILING SUPPORT CHANNELS. IN MASONRY AND POURED CONCRETE, RUN VERTICALLY ONLY.

MAINTAIN GROUNDING CONTINUITY OF INTERRUPTED METALLIC RACEWAYS WITH GROUND CONDUCTOR, AND IN FLEXIBLE CONDUIT FOR FEEDERS AND MOTOR TERMINAL CONNECTIONS.

EMPTY RACEWAYS OVER 10 FT LONG: PROVIDE FISH OR PULL WIRE, GALVANIZED OR NYLON ROPE.

RIGID STEEL CONDUIT SHALL BE PERMITTED FOR FEEDERS AND BRANCH CIRCUITS. PAINT MALE THREADS OF FIELD-THREADED CONDUIT WITH GRAPHITE-BASE PIPE COMPOUND AND BUTT CONDUIT ENDS. TOUCH UP MARRED SURFACES AND FIELD-CUT THREADS, CRC-COLD GALVANIZED. EMT SHALL BE PERMITTED FOR BRANCH CIRCUITS ONLY, IN DRY LOCATIONS, DRY WALLS, HUNG CEILINGS, HOLLOW BLOCK WALLS AND FURRED SPACES. EMT SHALL NOT BE PERMITTED IN RAISED FLOORS. FLEXIBLE STEEL CONDUIT SHALL BE UTILIZED FOR SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICAL. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: PROVIDE MINIMUM 4 FT AND MAXIMUM 6 FT LENGTHS. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX, TRANSFORMER AND OTHER VIBRATING EQUIPMENT: PROVIDE WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH: 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.

CUT CONDUIT ENDS SQUARE. REAM SMOOTH. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE COMPOUND. DRAW UP TIGHT WITH RACEWAY COUPLING.

ALL COUPLINGS SHALL BE COMPRESSION TYPE. NO SET SCREW FITTINGS.

EXPANSION FITTINGS SHALL BE INSTALLED AT RIGHT ANGLES WITH CLIP JOINT CENTERED IN EXPANSION JOINT. PROVIDE A LENGTH OF RUN IN ACCORDANCE MANUFACTURER'S RECOMMENDATIONS. PRESET FITTINGS SHALL ALLOW FOR TEMPERATURE VARIATION.

RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT.

D. PROVIDE CABLE SUPPORTS IN ACCORDANCE WITH NATIONAL ELECTRIC CODE ARTICLE 300.19. CABLE SUPPORTS SHALL UTILIZE A ONE-PIECE PLUG WITH POZI-GRIP WEDGING PLUG AS MANUFACTIURED BY OZ-GEDNEY. TYPE SF SHALL BE USED FOR ARMORED CABLE.

INSTALL CABLE SUPPORTS AT THE TOP OF A VERTICAL RISE AND PROVIDE INTERMEDIATE ADDITIONAL SUPPORTS AS REQUIRED TO LIMIT SUPPORTED CONDUCTOR LENGTHS TO NOT GREATER THAN THOSE SPECIFIED IN TABLE 300.19(A).

A. ERECT WALL AND SWITCH OUTLETS IN ADVANCE OF FURRING AND FIREPROOFING. OUTLET BOXES SHALL BE SET SQUARE AND TRUE WITH BUILDING FINISH. SECURE TO BUILDING STRUCTURE BY ADJUSTABLE STRAP IRON OR GROUT IN WITH MASONRY. VERIFY OUTLET LOCATIONS IN FINISHED SPACES WITH ARCHITECTURAL DRAWINGS OF INTERIOR DETAILS AND FINISHES. PROVIDE BARRIERS BETWEEN SWITCHES CONNECTED TO DIFFERENT PHASES FOR VOLTAGES EXCEEDING 150 VOLTS TO GROUND.

D. PANEL, JUNCTION AND PULL BOXES SHALL BE LOCATED CLEAR OF OTHER TRADES. CONCEAL JUNCTION AND PULL BOXES IN FINISHED SPACES. WHERE NECESSARY, REROUTE RACEWAYS OR MAKE OTHER ARRANGEMENTS FOR CONCEALMENT. BOXES SHALL BE ACCESSIBLE. SUPPORT BOXES FROM BUILDING STRUCTURE, INDEPENDENT OF CONDUIT. PROVIDE FLOOR-TO-CEILING CHANNELS FOR MOUNTING ON DRYWALL AND LIGHTWEIGHT CONSTRUCTION. OUTLET BOXES FOR FIXTURES RECESSED IN HUNG CEILINGS SHALL BE ACCESSIBLE THROUGH OPENING CREATED BY REMOVAL OF FIXTURE. SECURE TO BLACK IRON SUPPORT. MOTOR TERMINAL BOXES: COORDINATE WITH MOTOR BRANCH CIRCUIT CONDUIT AND WIRING; ADD BOX VOLUME WHERE REQUIRED.

E. FIRE SEALANTS: PROVIDE FOR RACEWAYS AND WIRE PASSING THROUGH FLOOR SLOTS, SLEEVES OR OPENINGS IN FIRE-PARTITIONS ROOMS.

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

9. WIRE AND CABLE:

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

B. CONDUCTORS SHALL BE COPPER, ASTM STANDARD SOLID (NO. 10 AND SMALLER) OR STRANDED (NO. 8 AND LARGER). GENERAL USE CABLING SHALL BE NO. 12 MINIMUM. AT 120 VOLTS AND OVER 100 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM. AT 265 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 10 MINIMUM.

C. CONTROL AND ALARM CABLING, EXCEPT AS NOTED, SHALL BE NO. 14 MINIMUM. AT 120 VOLTS AND OVER 200 FT CIRCUIT LENGTH PROVIDE NO. 12 MINIMUM. OTHER VOLTAGES AND PHASES: ADJUST CABLE SIZING AS REQUIRED TO MAINTAIN VOLTAGE DROP. INCREASE RACEWAY SIZES FOR LARGER WIRE AS REQUIRED.

D. INSULATION SHALL BE RUBBER AND THERMOPLASTIC MEETING ASTM AND IPCEA STANDARDS. TYPE THW OR THWN SHALL BE UTILIZED FOR FEEDERS AND BRANCH CIRCUITS EXCEPT AS NOTED. TYPE SFF-2 SHALL BE UTILIZED FOR BRANCH CIRCUITS LOCATED IN WIRING CHANNELS OF CONTINUOUS FLUORESCENT FIXTURES AND IN AMBIENT TEMPERATURES OVER 90 DEG C. FOR UNGROUNDED ISOLATED BRANCH CIRCUITS PROVIDE CROSS-LINKED POLYETHYLENE INSULATION (TYPE XHHW).

E. 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 POINTS OF ORIGIN AND TERMINATIONS. FOR CONTROL AND ALARM WIRING INDICATE TYPE (CONTROL OR ALARM), SIZE OF WIRE, AND POINTS OF ORIGIN AND TERMINATIONS.

H. TERMINATIONS, SPLICES AND TAPS UNDER 600 VOLTS: COPPER CONDUCTORS NO. 10 AND SMALLER SHALL UTILIZE COMPRESSION-TYPE OF TWIST-ON SPRING-LOADED CONNECTORS AND CLEAR NYLON-INSULATED COVERING. COPPER CONDUCTORS NO. 8 AND LARGER SHALL UTILIZE MECHANICAL BOLTED PRESSURE OR HYDRAULIC COMPRESSION TYPE USING MANUFACTURER'S RECOMMENDED TOOLING. CABLE LUGS AND CONNECTORS SHALL UTILIZE COMPRESSION TYPE OF SAME METAL AS CONDUCTOR. PROVIDE TO MATCH CABLE, WITH MARKING INDICATING SIZE AND TYPE. COPPER LUG CONNECTIONS TO BUS BARS: USE ANTISEIZE COMPOUND ON TANG.

I. NOT MORE THAN 3 LIGHTING OR CONVENIENCE OUTLET CIRCUITS SHALL BE INSTALLED IN ONE CONDUIT UNLESS OTHERWISE INDICATED. PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32 DEG F. PROVIDE SEPARATE RACEWAYS FOR CONDUCTORS OF 120/208 AND 265/460 VOLT SYSTEMS, EXCEPT 460 VOLT MOTOR BRANCH CIRCUIT WIRING AND RELATED 120 VOLT CONTROL WIRING. THERMOPLASTIC WIRES SHALL NOT BE INSTALLED IN COMPUTER AREA RAISED FLOORS.

J. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS.

K. PERFORM CONTINUITY AND INSULATION TESTS. MEGGER TEST 100 PERCENT OF FEEDERS, 10 PERCENT OF BRANCH CIRCUITS AND ALL MOTOR BRANCH CIRCUITS OVER 25 HP.

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

11. WIRING DEVICES:

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

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

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

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

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 VOLT, 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 FACTORY ASSEMBLED, WIRED AND EQUIPPED WITH ALL NECESSARY SOCKETS, BALLASTS, SUPPORTING HARDWARE AND ACCESSORIES. REFER TO DRAWINGS FOR INDIVIDUAL FIXTURE DESCRIPTIONS.

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

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

D. LED DRIVERS SHALL BE ELECTRONIC TYPE, LABELED AS COMPLIANT WITH RADIO FREQUENCY INTERFERENCE (RFI) REQUIREMENTS OF FCC TITLE 47, PART 15 AND COMPLY WITH NEMA SSL 1 "ELECTRONIC DRIVERS FOR LED DEVICES, ARRAYS OR SYSTEMS". LED DRIVERS SHALL HAVE A SOUND RATING OF "A", HAVE A MINIMUM EFFICIENCY OF 85% AND BE RATED FOR A THD OF LESS THAN 20% AT ALL INPUT VOLTAGES.

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

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

G. FLUORESCENT LIGHTING FIXTURES, INCLUDING GENERAL CONSTRUCTION, LAMPS AND BALLASTS SHALL CONFORM TO THE ENERGY EFFICIENCY REQUIREMENTS OF CONSOLIDATED 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 ARRANGE FOR 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 STANDARD UL LISTED 3-HOUR RUN TIME. PROVIDE WITH INTEGRAL AUTOMATIC CHARGER IN A SELF-CONTAINED POWER PACK. LED INDICATOR WITH PUSH TO TEST SWITCH.

13. TELEPHONE CONDUIT SYSTEM:

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

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF TELEPHONE COMPANY.

C. OUTLETS SHALL BE:

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

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

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

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

14. GROUNDING AND BONDING:

A. PROVIDE GROUNDING SYSTEM IN ACCORDANCE WITH (2011 NATIONAL ELECTRICAL CODE WITH NYC AMENDMENTS), AND THESE SPECIFICATIONS. THE WIRING SYSTEM SHALL BE INSTALLED AS REQUIRED TO PROVIDE A CONTINUOUSLY GROUNDED SYSTEM. WHERE FLEXIBLE CONDUIT IS USED FOR PART OF A CONDUIT RUN, EXCEPT LIGHTING BRANCH CIRCUITS, AN INSULATED GROUNDING CONDUCTOR SHALL BE PROVIDED IN THE CONDUIT AND CONNECTED TO GROUNDING BUSHINGS AT EACH END OF THE RUN.

B. USE EXOTHERMIC WELDING PROCESS FOR INACCESSIBLE CONNECTIONS.

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

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

E. IN ADDITION, FURNISH A SEPARATE INSULATED GREEN EQUIPMENT GROUND CONDUCTOR WHERE INDICATED ON DRAWINGS AND FOR THE FOLLOWING BRANCH CIRCUITS:
1) CIRCUITS SERVING ANY WALL BOX DIMMER.

2) CIRCUITS SERVING ANY ISOLATED GROUND RECEPTACLES. TERMINATE GROUND DIRECTLY AT AN EQUIPMENT GROUNDING CONDUCTOR TERMINAL OF THE SOURCE AT THE SOURCE , OR AS OTHER WISE NOTED ON DRAWINGS.

3) CIRCUITS SERVING ANY DUPLEX OR SIMPLEX COMPUTER RECEPTACLES

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

15. PANELBOARDS:

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

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

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

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

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

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

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

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

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

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

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

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

M. SHORT CIRCUIT RATING OF PANELBOARDS SHALL NOT BE LESS THAN AS INDICATED ON THE CONTRACT DRAWINGS OR SPECIFIED HEREIN. WHERE NOT INDICATED OR SPECIFIED THE MINIMUM SHORT CIRCUIT RATING SHALL BE EQUAL TO THE INTERRUPTING CAPACITY OF THE LOWEST RATED CIRCUIT BREAKER IN THE PANELBOARD, BUT IN NO CASE LESS THAN 10,000 AMPERES R.M.S. SYMMETRICAL FOR 208Y/120 VOLT SYSTEM AND 14,000 AMPERES R.M.S. SYMMETRICAL FOR 480Y/277 VOLT SYSTEM. SERIES RATED PANELBOARDS SHALL BE USED TO ACHIEVE REQUIRED SHORT CIRCUIT RATINGS.

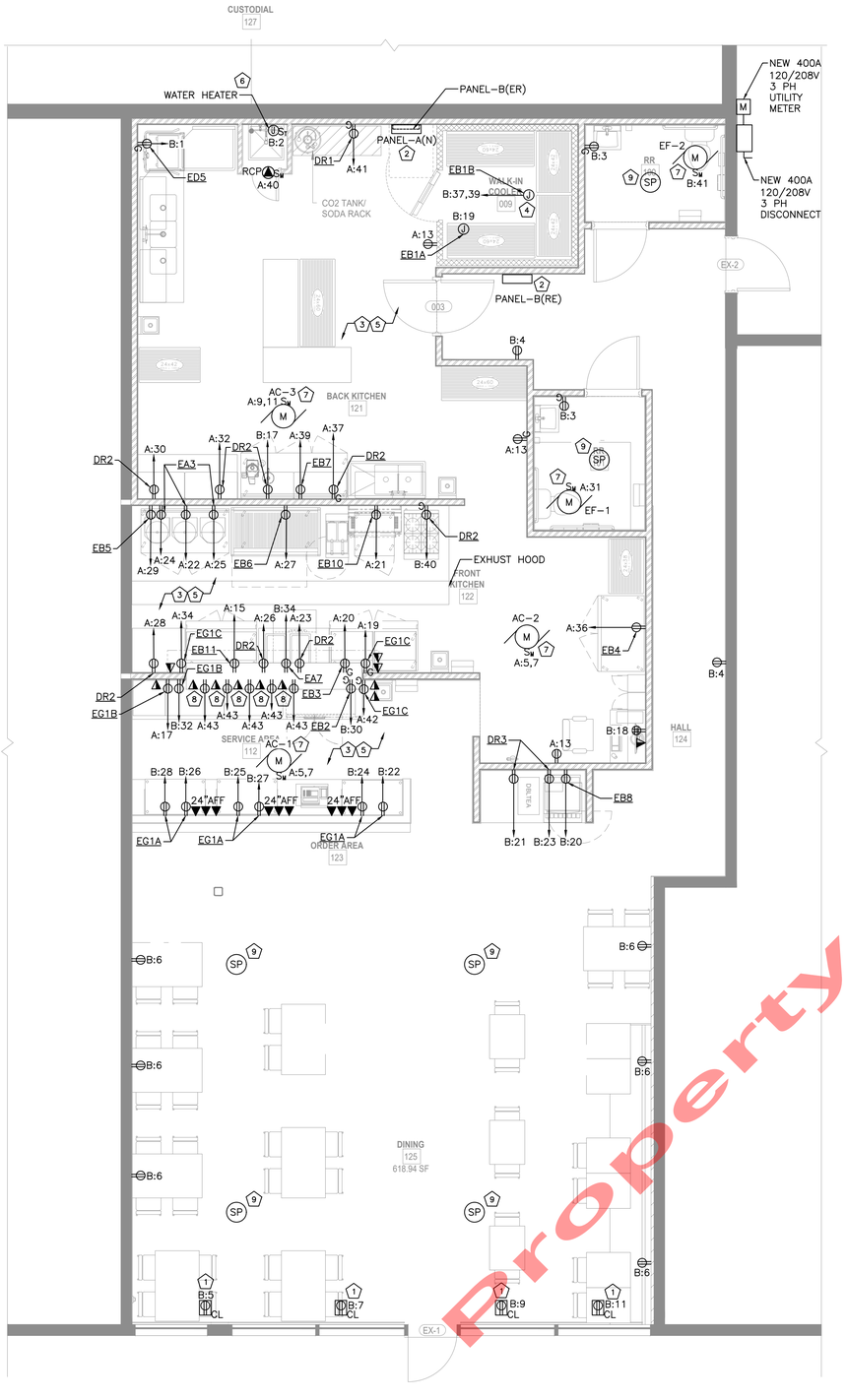
N. FOR ALL EXISTING PANELBOARDS, CONTRACTOR SHALL PROVIDE NEW CIRCUIT BREAKERS TO REPLACE EXISTING AS REQUIRED AS INDICATED ON DRAWINGS.

Property of Energ-e-s

project name:
The Great Greek

sheet name:
ELECTRICAL SPECIFICATIONS SHEET 2 OF 2

sheet no.:
E003



1 E201 **ELECTRICAL FLOOR POWER PLAN**

1/4" = 1'-0"

KEY NOTES:

1. EC TO PROVIDE RECEPTACLE MOUNTED ABOVE WINDOW ON WALL OR CEILING AS REQUIRED TO MEET THE N.E.C.210.62 SHOW WINDOW REQUIREMENTS.
2. EC SHALL VERIFY WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT PER NEC 110.26. ENSURE A MINIMUM CLEARANCE OF 3 FEET IN DEPTH, 30 INCHES IN WIDTH, AND 6 FEET 6 INCHES IN HEIGHT FOR SAFE OPERATION AND MAINTENANCE.
3. GFCI PROTECTION IS REQUIRED FOR ALL 125V THROUGH 250V RECEPTACLES SUPPLIED BY SINGLE–PHASE BRANCH CIRCUITS RATED 150V OR LESS TO GROUND IN COMMERCIAL KITCHENS PER NEC ART. 210.8(B). ELECTRICAL CONTRACTOR SHALL PROVIDE GFCI RECEPTACLES FOR ALL KITCHEN EQUIPMENT OUTLETS. WHERE RECEPTACLES ARE NOT READILY ACCESSIBLE, PROVIDE GFCI PROTECTION VIA CIRCUIT BREAKERS.
4. ELECTRICAL CONTRACTOR (E.C.) SHALL COORDINATE WITH THE WALK–IN FREEZER AND COOLER MANUFACTURER TO VERIFY EXACT POWER REQUIREMENTS, POINT OF CONNECTION, AND REQUIRED BREAKER SIZES. E.C. SHALL ALSO COORDINATE THE FINAL LOCATION OF CONNECTION POINTS AND PROVIDE ALL REQUIRED CIRCUITS FOR LIGHTING AND AUXILIARY COMPONENTS PER MANUFACTURER'S RECOMMENDATIONS. BASE BID ACCORDINGLY.
5. E.C TO COORDINATE WITH MANUFACTURER/VENDOR FOR EXACT BREAKER SIZE AND POWER REQUIREMENT FOR THE EQUIPMENT.
6. NEW GAS FIRED WATER HEATER. EC TO COORDINATE WITH VENDOR/ARCHITECT FOR THE EXACT LOCATION AND POINT OF CONNECTION.
7. NEW MECHANICAL EQUIPMENTS. EC TO COORDINATE WITH HVAC CONTRACTOR/MANUFACTURER FOR THE EXACT LOCATION AND POINT OF CONNECTION. BASE BID ACCORDINGLY.
8. DUPLEX RECEPTACLES AND DATA OUTLETS FOR MENU BOARDS. E.C. SHALL COORDINATE WITH ARCHITECTURE/OWNER FOR EXACT LOCATION.
9. FOR SPEAKERS. E.C TO COORDINATE WITH ARCHITECT/VENDOR/LANDLORD FOR EXACT LOCATION, MOUNTING HEIGHT, SPECIFICATIONS AND ASSOCIATED ACCESSORIES. BASE BID ACCORDINGLY.

ABBREVIATIONS:

E: EXISTING EQUIPMENT
RE: RELOCATED EQUIPMENT
ER: EXISTING EQUIPMENT TO BE RELOCATED
N: NEW EQUIPMENT

GENERAL NOTES:

1. THE ARCHITECTURAL PLAN SHALL TAKE PRECEDENCE OVER THE ELECTRICAL DRAWING FOR EQUIPMENT LOCATION AND MOUNTING. THE LOCATION OF ALL ELECTRICAL EQUIPMENT NOT PROVIDED IN THE ARCHITECTURAL PLAN SHALL BE VERIFIED WITH THE ARCHITECT/OWNER BEFORE BID.
2. POWER AND LOCATION OF ALL THE MECHANICAL AND PLUMBING UNITS SHALL BE COORDINATED WITH THE RESPECTIVE CONTACTORS BEFORE BID.
3. ELECTRICAL OUTLETS PLACED ON BOTH SIDES OF THE WALL PARTITION TO BE LOCATED OFFSET OF EACH OTHER.
4. ELECTRICAL OUTLETS AND DEVICES LOCATED IN DEMISING WALLS TO HAVE FIRE PUTTY AROUND THE BOX TO MAINTAIN PARTITION FIRE RATING.
5. ALL PENETRATIONS TO THE WALK–IN FREEZER AND COOLER NEED TO BE SEALED INSIDE AND OUT.
6. THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER TO BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.
7. ALL 125V–250V RECEPTACLES SUPPLIED BY SINGLE–PHASE CIRCUITS RATED 150V OR LESS TO GROUND, 50A OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE–PHASE BRANCH CIRCUITS RATED 150V OR LESS TO GROUND, 100A OR LESS INSTALLED IN THE LOCATIONS SPECIFIED IN NEC 210.8(B)(1) THROUGH (12) SHALL HAVE GFCI PROTECTION.
8. 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 A GFI BREAKER IN THE PANEL IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE WHEN INSTALLED IN THE DESIRED LOCATION.
9. ALL ELECTRICAL COOKING EQUIPMENT UNDER THE HOOD SHALL BE FED FROM THE SHUNT TRIP BREAKERS.
10. COORDINATE THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS OF THE DUCT SMOKE DETECTORS, FIRE DAMPERS, FIRE SMOKE DAMPERS, MOTORIZED DAMPERS, AND THERMOSTATS IN THE FIELD WITH THE MECHANICAL DRAWING. PROVIDE WIRING AS REQUIRED.
11. WHEN WIRING TYPE AND INSULATION ARE NOT SPECIFIED IN THE DRAWING, THE CONTRACTOR SHALL PROVIDE ANY WIRING THAT IS APPROVED BY CODE AND SUITABLE FOR THE AREA OF USE. THE AREA INCLUDES BUT IS NOT LIMITED TO UNDERGROUND, OVERHEAD, WET LOCATION, PLANUM SPACE, SHAFTS, FIRE PUMP, EMERGENCY SYSTEM, OFFICES, AND HEALTH CARE FACILITIES.
12. MINIMUM CONDUCTOR SIZE FOR 120V BRANCH CIRCUITS SHALL BE 12–AWG. FOR 120V BRANCH CIRCUITS WITH HOME–RUN OVER 100 LINEAR FEET, A MINIMUM WIRE SIZE OF 10–AWG SHALL BE PROVIDED FROM THE FIRST JUNCTION/OUTLET BOX TO THE BRANCH CIRCUIT PANEL BOARD. FOR 120V BRANCH CIRCUITS WITH HOME RUN OVER 150 LINEAR FEET, A MINIMUM OF 8–AWG SHALL BE PROVIDED FROM THE FIRST JUNCTION/OUTLET BOX TO THE BRANCH CIRCUIT PANEL BOARD.
A QUAD AND DATA/TELEPHONE OUTLETS ARE TO BE PROVIDED ON THE PLYWOOD BACKING DESIGNED FOR THE L.V. RACK. EXTEND THE CONDUIT FROM THE L.V. RACKUP TO THE LOCATION DECIDED BY THE LANDLORD/OWNER/L.V. VENDOR OR SERVICE PROVIDER

ELECTRICAL EQUIPMENT SCHEDULE

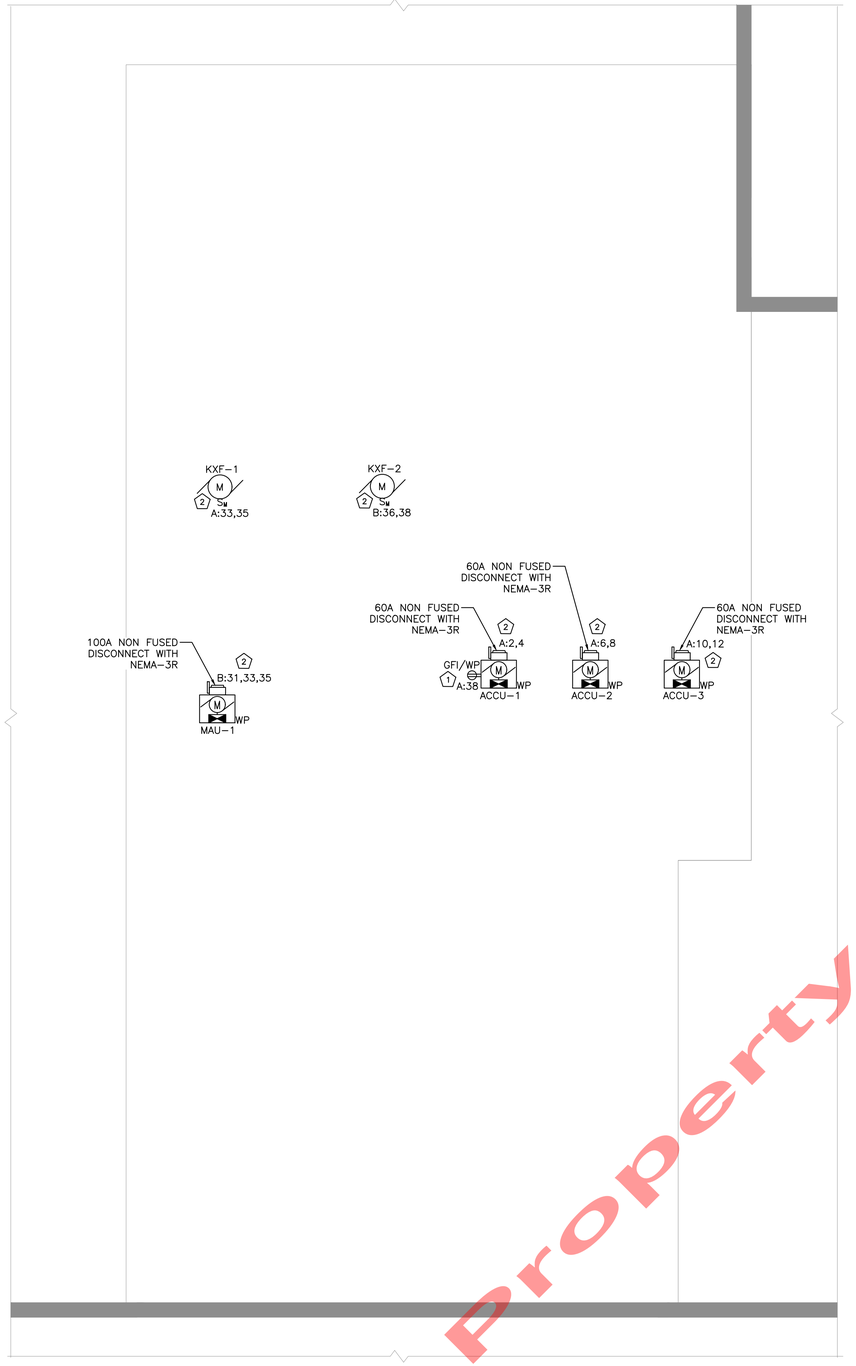
ITEM	DESCRIPTION	VOLTS	PHASE	AMP	KW	HP	CONNECTION TYPE	AFF	NOTES
EA1	EXHAUST HOOD SYSTEM						DIRECT	DFA	SEE MANUFACTURER'S DRAWINGS; NIKEC
EA3	GYRO BROILER	120	1				PLUG	36"	NIKEC; VERIFY REQUIREMENTS
EA7	WARMING DRAWER	120	1	8	.950		PLUG	16"	NEMA 5–15P
EB1A	WALK–IN LIGHTS	120	1	16			DIRECT	DFA	SEE MANUFACTURER'S DRAWINGS
EB1B	WALK–IN COOLER (REFRIGERATION)	208–230	1	10.6		¾	DIRECT	DFA	
EB2	U/C BEVERAGE REFRIGERATOR	120	1	6			PLUG	16"	NEMA 5–15P
EB3	SANDWICH/SALAD PREP REFRIGERATOR	120	1	5.1		½	PLUG	16"	NEMA 5–15P
EB4	REACH–IN FREEZER	120	1	10.3		¾	PLUG	48"	NEMA 5–15P
EB5	REACH–IN U/C FREEZER	120	1	6.5		½	PLUG	16"	NEMA 5–15P
EB6	EQUIPMENT STAND, REFRIGERATED	120	1	2.3		⅛	PLUG	16"	NEMA 5–15P
EB7	REFRIGERATED WORKTOP	120	1	3.6		½	PLUG	16"	NEMA 5–15P
EB8	ICE CUBER	120	1	12.2			DIRECT	16"	CONNECTION IN WALL BELOW COUNTER. PROVIDE SECOND CONNECTION FOR SODA DISPENSER. NIKEC; VERIFY REQUIREMENTS
EB10	U/C FREEZER	120	1	4.4		¼	PLUG	16"	NEMA 5–15P
EB11	SANDWICH/SALAD PREP REFRIGERATOR	120	1	5.1		⅓	PLUG	16"	NEMA 5–15P
ED5	DISHWASHER	120	1	12			DIRECT	16"	NIKEC; VERIFY REQUIREMENTS
EG1A	POS SYSTEM/PRINTER	120	1	16			PLUG	16"	NIKEC; VERIFY REQUIREMENTS; CAT5
EG1B	KDS/PRINTER	120	1	16			PLUG	48"	NIKEC; VERIFY REQUIREMENTS; CAT5 (HORIZONTAL RECEPT)
EG1C	KDS	120	1	16			PLUG	48"	NIKEC; VERIFY REQUIREMENTS; CAT5 (HORIZONTAL RECEPT)
EG2	IMMERSION BLENDER	120	1		.35	½	PLUG	–	CONVENIENCE RECEPTACLE
EG3	FOOD PROCESSOR	120	1	7		2	PLUG	–	CONVENIENCE RECEPTACLE
DR1	DUPLEX CONVENIENCE RECEPTACLE	120	1	16				64"	
DR2	DUPLEX CONVENIENCE RECEPTACLE	120	1	16				48"	HORIZONTAL RECEPTACLE
DR3	DUPLEX CONVENIENCE RECEPTACLE	120	1	16				16"	CONNECTION IN WALL BELOW COUNTER

Property of NY Engineers

project name:
The Great Greek

sheet name:
ELECTRICAL FLOOR POWER PLAN

sheet no.:
E201



1 E202 **ELECTRICAL ROOF POWER PLAN**

1/4" = 1'-0"

PROJECT NORTH

KEY NOTES:

1. PROVIDE GFCI/WP RECEPTCALE WITHIN 25FT OF THE MECHANICAL UNITS ACCORDING TO NEC 210.63.
2. NEW MECHANICAL UNITS. EC SHALL COORDINATE WITH HVAC CONTRACTOR/MANUFACTURER FOR THE EXACT LOCATION AND POINT OF CONNECTION FOR THE UNITS. BASE BID ACCORDINGLY.

GENERAL NOTES:

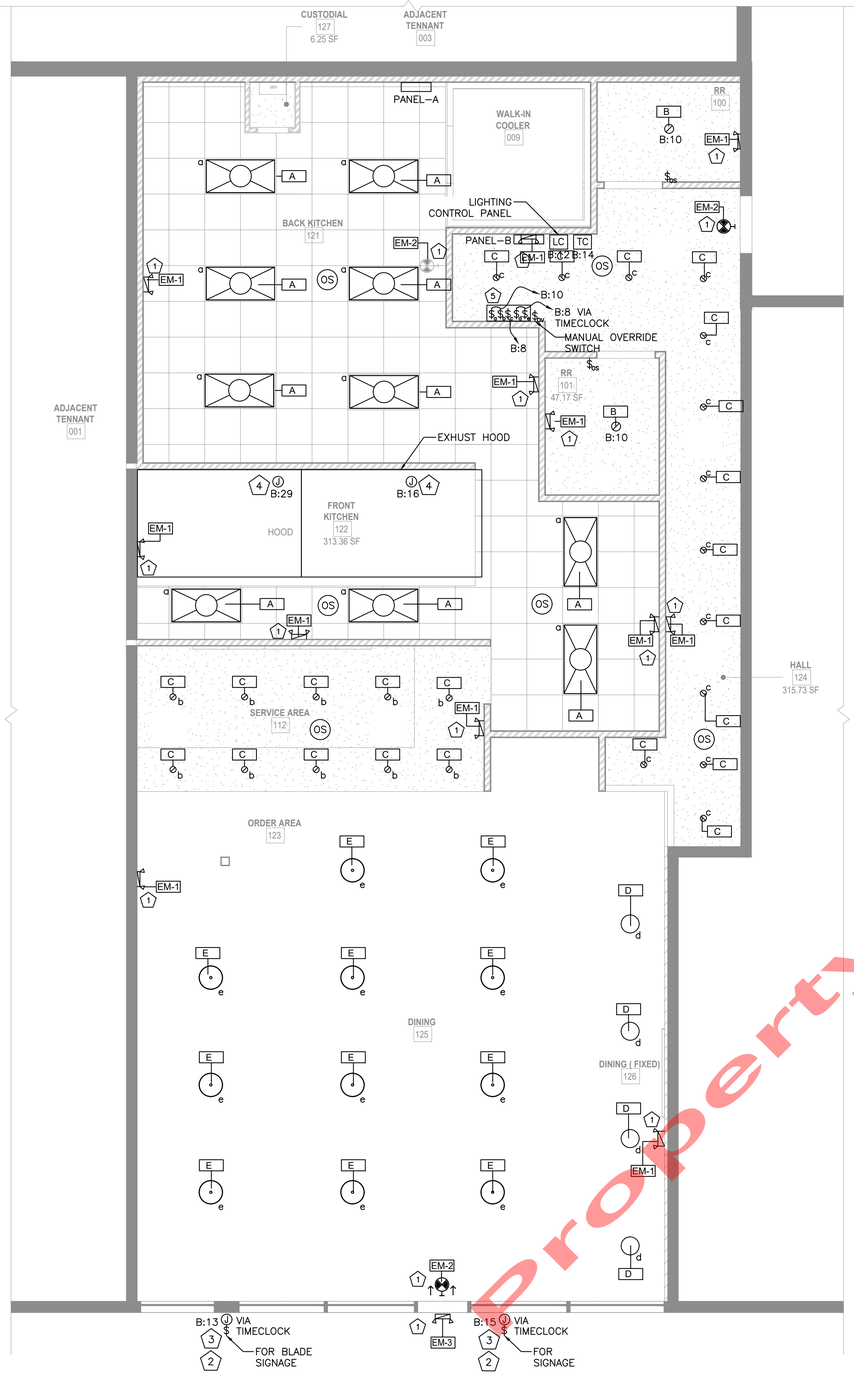
1. THE ARCHITECTURAL PLAN SHALL TAKE PRECEDENCE OVER THE ELECTRICAL DRAWING FOR EQUIPMENT LOCATION AND MOUNTING. THE LOCATION OF ALL ELECTRICAL EQUIPMENT NOT PROVIDED IN THE ARCHITECTURAL PLAN SHALL BE VERIFIED WITH THE ARCHITECT/OWNER BEFORE BID.
2. POWER AND LOCATION OF ALL THE MECHANICAL AND PLUMBING UNITS SHALL BE COORDINATED WITH THE RESPECTIVE CONTACTORS BEFORE BID.
3. ELECTRICAL OUTLETS PLACED ON BOTH SIDES OF THE WALL PARTITION TO BE LOCATED OFFSET OF EACH OTHER.
4. ELECTRICAL OUTLETS AND DEVICES LOCATED IN DEMISING WALLS TO HAVE FIRE PUTTY AROUND THE BOX TO MAINTAIN PARTITION FIRE RATING.
5. ALL PENETRATIONS TO THE WALK-IN FREEZER AND COOLER NEED TO BE SEALED INSIDE AND OUT.
6. THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER TO BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.
7. ALL 125V-250V RECEPTACLES SUPPLIED BY SINGLE-PHASE CIRCUITS RATED 150V OR LESS TO GROUND, 50A OR LESS, AND ALL RECEPTACLES SUPPLIED BY THREE-PHASE BRANCH CIRCUITS RATED 150V OR LESS TO GROUND, 100A OR LESS INSTALLED IN THE LOCATIONS SPECIFIED IN NEC 210.8(B)(1) THROUGH (12) SHALL HAVE GFCI PROTECTION.
8. 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 A GFI BREAKER IN THE PANEL IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT ACCESSIBLE WHEN INSTALLED IN THE DESIRED LOCATION.
9. COORDINATE THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS OF THE DUCT SMOKE DETECTORS, FIRE DAMPERS, FIRE SMOKE DAMPERS, MOTORIZED DAMPERS, AND THERMOSTATS IN THE FIELD WITH THE MECHANICAL DRAWING. PROVIDE WIRING AS REQUIRED.
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11. MINIMUM CONDUCTOR SIZE FOR 120V BRANCH CIRCUITS SHALL BE 12-AWG. FOR 120V BRANCH CIRCUITS WITH HOME-RUN OVER 100 LINEAR FEET, A MINIMUM WIRE SIZE OF 10-AWG SHALL BE PROVIDED FROM THE FIRST JUNCTION/OUTLET BOX TO THE BRANCH CIRCUIT PANEL BOARD. FOR 120V BRANCH CIRCUITS WITH HOME RUN OVER 150 LINEAR FEET, A MINIMUM OF 8-AWG SHALL BE PROVIDED FROM THE FIRST JUNCTION/OUTLET BOX TO THE BRANCH CIRCUIT PANEL BOARD.
A QUAD AND DATA/TELEPHONE OUTLETS ARE TO BE PROVIDED ON THE PLYWOOD BACKING DESIGNED FOR THE L.V. RACK. EXTEND THE CONDUIT FROM THE L.V. RACKUP TO THE LOCATION DECIDED BY THE LANDLORD/OWNER/L.V. VENDOR OR SERVICE PROVIDER

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project name:
The Great Greek

sheet name:
ELECTRICAL ROOF POWER PLAN

sheet no.:
E202



PROJECT NORTH

1 E203 **ELECTRICAL FLOOR LIGHTING PLAN**

1/4" = 1'-0"

GENERAL NOTES:

1. LIGHTING CONTROLS (SENSORS AND SWITCHES) SHALL BE RATED FOR LINE VOLTAGE (UON); ELSE PROVIDE POWER BASE.
2. THE PROPOSED LOCATION OF THE SWITCHES AND SENSORS IS SHOWN ON THE PLAN. FOR CONTROLS WITH DIFFERENT CAPABILITIES, THE CONTRACTOR SHALL ADJUST THE QUANTITY, LOCATION, AND MOUNTING HEIGHT ACCORDINGLY.
3. THE OCCUPANCY SENSOR, TIMERS, AND OTHER APPROVED LIGHTING CONTROLS SHALL MATCH THE CONTROL FUNCTION REQUIREMENT SPECIFIED IN THE IECC C405.2.
4. OCCUPANT SENSOR CONTROLS IN CORRIDORS SHALL UNIFORMLY REDUCE LIGHTING POWER TO AN UNOCCUPIED SETPOINT NOT MORE THAN 50 PERCENT OF FULL POWER WITHIN 15 MINUTES AFTER ALL OCCUPANTS HAVE LEFT THE SPACE.
5. OCCUPANCY SENSORS IN THE RESTROOMS, LOBBIES, STAIRCASE, AND LOCKER ROOMS SHALL BE SET TO TURN ON ALL THE LIGHTING FIXTURES AUTOMATICALLY AND TURN OFF WITHIN 15 MINUTES AFTER ALL OCCUPANTS HAVE LEFT THE SPACE.
6. OCCUPANCY SENSORS IN OTHER AREAS SHALL BE SET TO TURN ON A MAXIMUM OF 50% OF ALL THE LIGHTING FIXTURES AUTOMATICALLY AND AND REST MANUALLY. THE FIXTURES SHOULD TURN OFF WITHIN 15 MINUTES AFTER ALL OCCUPANTS HAVE LEFT THE SPACE.
7. ALL LIGHT FIXTURES NOT ON THE OCCUPANCY SENSOR/OTHER AUTOMATIC CONTROL SHALL BE CONTROLLED BY TIMER-CONTROLLED LIGHTING CONTACTOR(S). UON.
8. THE LIGHTING FIXTURES IN THE DAYLIGHT ZONE SHALL BE CONTROLLED THROUGH THE DAYLIGHT SENSOR. THE DAYLIGHT SENSOR SHALL MATCH THE CONTROL FUNCTION REQUIREMENT OF THE IECC.
9. THE TIME CLOCK (MIN. 2 CHANNEL) SHALL BE SCHEDULED AS PER THE REQUIREMENT OF THE PROJECT SPACE. COORDINATE EXACT LOCATION IN THE FIELD.
10. THE MANUAL OVERRIDE SWITCH SHALL TURN OFF THE INTENDED LIGHTING (TIME CLOCK AND CONTACTORS) BEFORE 2 HOURS. WHEN IT IS INITIATED.
11. A PHOTOCELLSHALL BE LOCATED INSTALLED IN ANY LOCATION EXPOSED TO THE SUNLIGHT BUT CONCEALED FROM PUBLIC VIEW. COORDINATE EXACT LOCATION IN FIELD.
12. REFER TO THE LIGHTING CONTACTOR DETAIL FOR TYPICAL CONNECTION OF THE TIME CLOCK, MANUAL OVERRIDE SWITCH, CONTACTORS AND PHOTOCELL.
13. INSTALL A DISCONNECT SWITCH FOR THE SIGNAGE IN AN ACCESSIBLE LOCATION. CONNECT THE SIGNAGE TO THE INDICATED CIRCUIT THROUGH THE LIGHTING CONTACTOR (LC). COORDINATE WITH THE OWNER OR LANDLORD TO DETERMINE THE EXACT LOCATION AND SCHEDULE FOR THE TIME CLOCK.
14. CONNECT THE EMERGENCY LIGHTING, EXIT SIGNS, OR EXIT SIGN AND BUG-EYE COMBO TO THE NEAREST LIGHTING CIRCUIT AHEAD OF SWITCHING. UON.
15. THE WATTAGE RATING OF THE CURRENT LIMITERS USED SHALL NOT EXCEED THE WATTAGE RATING OF THE CURRENT LIMITERS INDICATED ON THE PLAN.
16. EMERGENCY LIGHT FIXTURES (BUG EYES) SHALL TURN ON DURING POWER FAILURE WHEREAS ALL EXIT SIGNS SHALL BE PERMANENTLY ON. E.C. TO WIRE THE FIXTURE ACCORDINGLY.
17. THE ELR (EMERGENCY LIGHTING RELAY) SHALL CONNECT THE FIXTURE TO THE NORMAL CIRCUIT WHEN UTILITY POWER IS AVAILABLE, ALLOWING SWITCHING AND DIMMING THE FIXTURE, AND CONNECT TO THE BATTERY BACKUP OR EMERGENCY CIRCUIT TO ILLUMINATE THE FIXTURE AT FULL CAPACITY DURING POWER FAILURE. REFER ELR DIAGRAM FOR MORE DETAIL.
18. E.C. SHALL REARRANGE (IF REQUIRED) THE EMERGENCY FIXTURES TO PROVIDE INITIAL ILLUMINATION THAT IS NOT LESS THAN AN AVERAGE OF 1 FOOTCANDLE (11 LUX) AND A MINIMUM AT ANY POINT OF 0.1 FOOTCANDLE (1 LUX) MEASURED ALONG THE PATH OF EGRESS AT FLOOR LEVEL. ILLUMINATION LEVELS SHALL BE PERMITTED TO DECLINE TO 0.6 FOOTCANDLE (6 LUX) AVERAGE AND A MINIMUM AT ANY POINT OF 0.06 FOOTCANDLE (0.6 LUX) AT THE END OF THE EMERGENCY LIGHTING TIME DURATION. A MAXIMUM-TO-MINIMUM ILLUMINATION UNIFORMITY RATIO OF 40 TO 1 SHALL NOT BE EXCEEDED.
19. PROVIDE EMERGENCY LIGHTING ON THE EXTERIOR SIDE OF THE EXIT DISCHARGE DOORS. EMERGENCY LIGHTING SYSTEMS SHALL BE DESIGNED AND INSTALLED SO THAT THE FAILURE OF ANY INDIVIDUAL LIGHTING ELEMENT CANNOT LEAVE IN TOTAL DARKNESS ANY SPACE THAT REQUIRES EMERGENCY ILLUMINATION. A TWO-LAMP / TWO-LED (2-LAMP / 2-LED) DRIVER FIXTURE, OR MULTIPLE FIXTURES IN PROXIMITY TO EACH OTHER WILL ACCOMPLISH THIS. SECTION: 1008.3.2; CEC 700.16

KEYED NOTES:

1. CONNECT EXIT/EGRESS/EMERGENCY LIGHTING AHEAD OF ALL LIGHTING CONTROLS OF NEAREST GENERAL LIGHTING CIRCUIT SERVING THIS AREA.
2. PROVIDE JUNCTION BOX FOR EXTERIOR SIGNAGES. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT/VENDOR FOR FINAL LOCATION AND POWER REQUIREMENTS. INSTALL A READILY ACCESSIBLE SWITCH WITHIN SIGHT OF THE SIGNAGE.
3. EXTERIOR SIGNAGES TO BE CONTROLLED BY TIMECLOCK.
4. HOOD LIGHTS PROVIDED BY HOOD MANUFACTURER. E.C. TO COORDINATE WITH HOOD MANUFACTURER FOR THE CONTROLS OF THE HOOD LIGHTS.
5. PROVIDE SWITCHBANK WITH INTEGRAL OR ADJACENT PILOT INDICATOR LIGHT, CLEARLY LABELED FOR ASSOCIATED LIGHTING CONTROL.

LUMINAIRE SCHEDULE

TYPE	COUNT	MANUFACTURER & MODEL NO.	LAMP	VA SYSTEMS WATTS	VOLTS	GENERAL DESCRIPTION	NOTES
A	10	ILP LIGHTING VPAN24-55L-U-40 OR APPROVED EQUAL	LED 4000K	48	120	2X4 RECESSED LAY-IN LED TROFFER	
B	2	ILP LIGHTING VPAN22-27L-U-40 OR APPROVED EQUAL	LED 4000K	25	120	6"RECESSED DOWNLIGHT	PROVIDE ACCESSORIES REQUIRED FOR FIXTURE MOUNTING INSTALLATION.
C	23	GREEN CREATIVE INFT-4-8-35 DIM010UNV/NCFJB4 OR APPROVED EQUAL	LED 3500K	10	120	4" RESSED DOWNLIGHT	
D	4	COMMERCIAL LIGHTING INDUSTRIES CLI-312125885	E26 SOCKET	18W MAX	120	DECORATIVE PENDANT LIGHT, CLEAR GLASS SHADE BRONZE BULB FITTING	CLI TYPE P2 W/ FACTORY LABELED SOCKET WATTAGE MAXIMUM 18 WATT E26/27 LED BULB
E	11	BASELIGHT D616-74-LBLC-LED25W OR APPROVED EQUAL	LED 3000K	40W MAX	120	PENDANT LIGHT, 16" DIA DEEP BOWL.	CLI TYPE P W/ FACTORY LABELED SOCKET WATTAGE MAXIMUM 24 WATT E26/27 LED BULB
EM-1	12	BEST LIGHTING PRODUCTS/ LEDR-1	LED	(2) 1.5W PER HEAD	120	EMERGENCY WALL LIGHT	
EM-2	3	BEST LIGHTING PRODUCTS/ EZRXTEU2RWEM	LED	2.5W	120	RED EMERGENCY WALL LIGHT	
EM-3	1	BEST LIGHTING PRODUCTS/ LEDR-1	LED	(2) 1.5W PER HEAD	120	EMERGENCY WALL LIGHT	

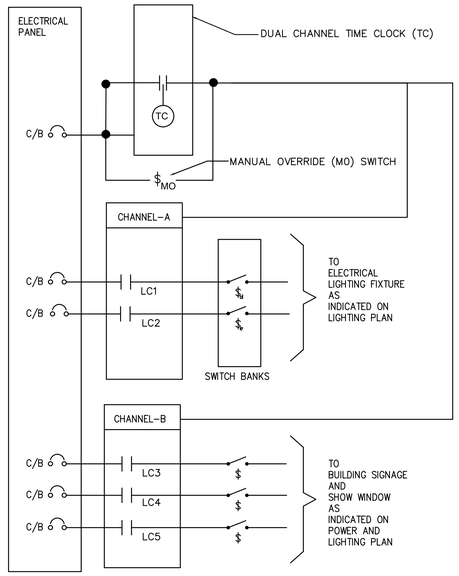
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The Great Greek

sheet name:
ELECTRICAL FLOOR LIGHTING PLAN

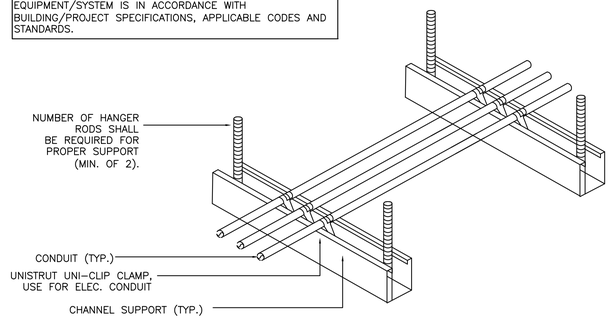
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E203

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



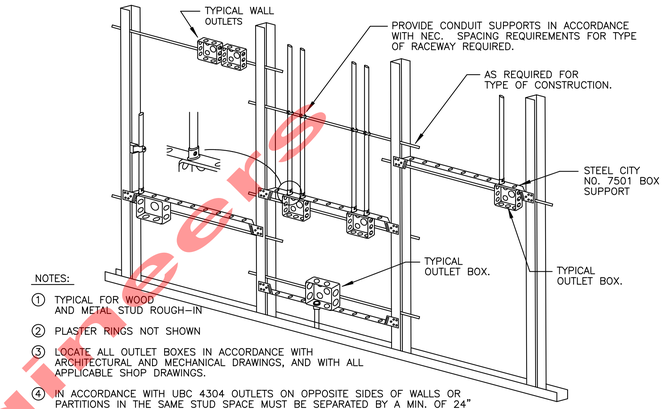
1 LIGHTING CONTACTOR DETAIL (TYPICAL)

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.



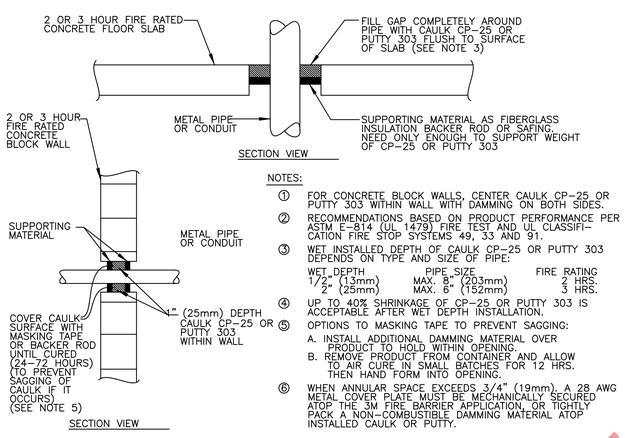
NOTES:
1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

2 CONDUIT SUPPORT DETAIL



NOTES:
① TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
② PLASTER RINGS NOT SHOWN
③ LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
④ IN ACCORDANCE WITH UBC 4304 OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

3 DETAIL TYPICAL ROUGH-IN REQUIREMENTS



NOTES:
① FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMMING ON BOTH SIDES.
② RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FIRE STOP SYSTEMS 49, 33 AND 91.
③ WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:

WET DEPTH	PIPE SIZE	FIRE RATING
1/2" (13mm)	MAX. 8" (203mm)	2 HRS.
2" (25mm)	MAX. 6" (152mm)	3 HRS.

④ UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
⑤ OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
A. INSTALL ADDITIONAL DAMMING MATERIAL OVER PRODUCT TO HOLD WITHIN OPENING.
B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM INTO OPENING.
⑥ WHEN ANNULAR SPACE EXCEEDS 3/4" (19mm), A 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY PACK A NON-COMBUSTIBLE DAMMING MATERIAL ATOP INSTALLED CAULK OR PUTTY.

4 FIRE STOP DETAIL

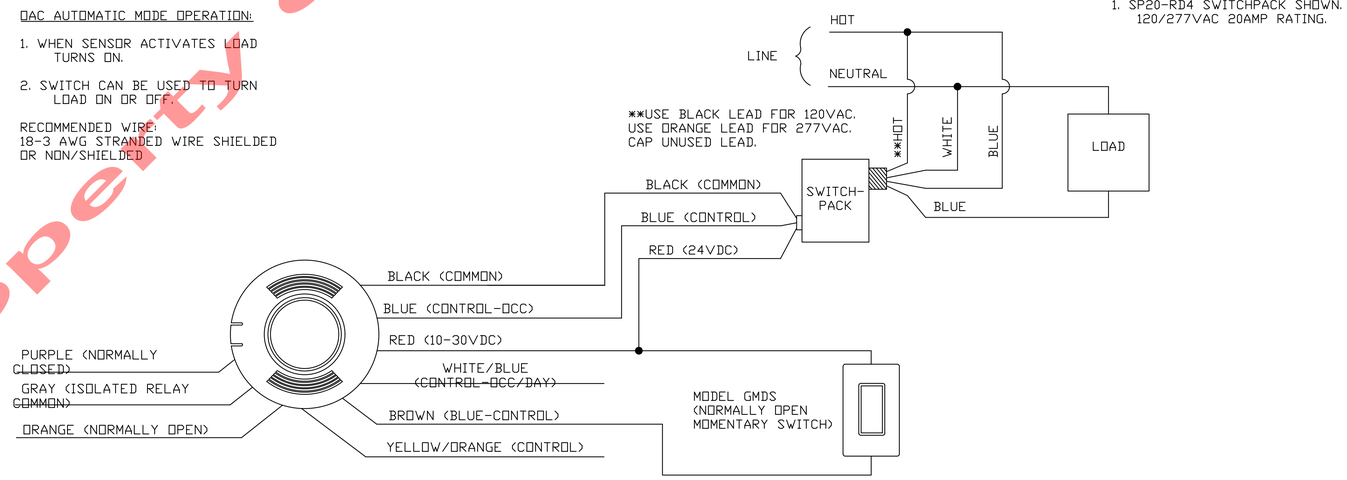
DAC AND VAC MANUAL MODE OPERATION:

1. SWITCHES ARE REQUIRED TO TURN LOAD ON.
2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR WITH SWITCH.

DAC AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. SWITCH CAN BE USED TO TURN LOAD ON OR OFF.

RECOMMENDED WIRE:
18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED



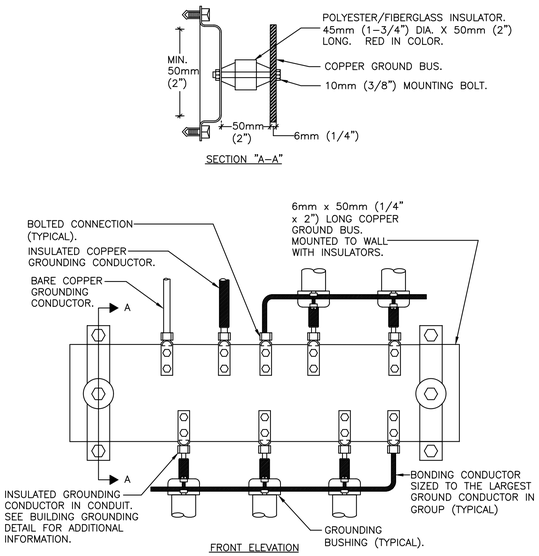
5 OCCUPANCY - AUTO ON/OFF.
WIRING DIAGRAM - LOW VOLTAGE CEILING SENSOR

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ELECTRICAL DETAILS SHEET 1 OF 2

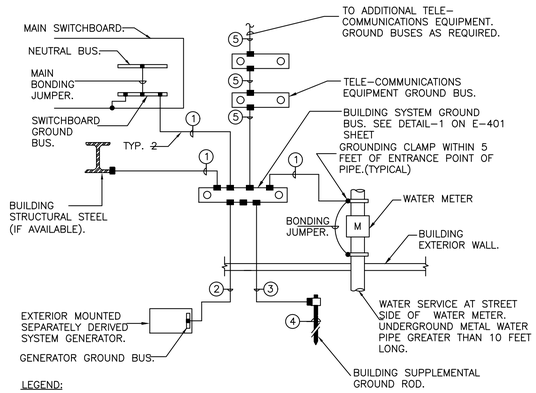
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E400



NOTES:

1. REFER TO BUILDING GROUNDING ELECTRODE SYSTEM DETAIL FOR EXACT CONFIGURATION.

1 BUILDING ELECTRICAL SYSTEMS GROUND BUS



LEGEND:

- ● INDICATES BOLTED CONNECTION.
- ■ INDICATES EXOTHERMIC WELD CONNECTION, COMPATIBLE WITH MATERIALS BEING JOINED.
- (1) INSULATED COPPER GROUNDING ELECTRODE CONDUCTOR IN CONDUIT SIZED AS PER NEC ARTICLE 250.66.
- (2) INSULATED COPPER GROUNDING ELECTRODE CONDUCTOR ENCASED IN CONCRETE SIZED AS PER NEC ARTICLE 250.66
- (3) 1/0 AWG BARE COPPER GROUND CONDUCTOR.
- (4) 3/4" x 10'-0" LONG COPPER-CLAD GROUND ROD DRIVEN WITH TOP 12" BELOW GRADE.
- (5) 2/0 AWG INSULATED COPPER GROUND CONDUCTOR IN 30mm CONDUIT.

2 BUILDING GROUNDING ELECTRODE SYSTEM

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ELECTRICAL DETAILS SHEET 2 OF 2

sheet no.:
E401

RISER DIAGRAM GENERAL NOTES:

A. E.C. SHALL VERIFY/COORDINATE THE FOLLOWING INFORMATION IN THE FIELD WITH THE UTILITY/LANDLORD/OWNER AND INFORM THE ENGINEER OF RECORD OF ANY DISCREPANCY.

B. THE EXACT POWER DISTRIBUTION AND SCOPE OF WORK WITH THE LANDLORD/OWNER BEFORE BID.

C. THE ELECTRICAL WORK SHALL BE PERFORMED IN COMPLIANCE WITH THE NEC, LOCAL CODES AND AHJ.

D. COORDINATE AVAILABLE FAULT CURRENT WITH UTILITY/LANDLORD/OWNER. CALCULATE THE EXACT AIC RATING OF EACH EQUIPMENT IN THE FIELD. PROVIDE THE EQUIPMENT ACCORDINGLY. AIC RATING SHALL BE WRITTEN ON EACH EQUIPMENT PER STANDARD.

E. ENSURE THE COMBINED VOLTAGE DROP OF THE FEEDER AND BRANCH CIRCUIT SHALL NOT EXCEED 5% PER CODE.

F. PROVIDE GEC AND EGC AS PER 250.66 & 250.122 RESPECTIVELY, AS NEEDED. PROVIDE SEPARATE GROUND CONDUCTORS IN ALL CONDUITS.

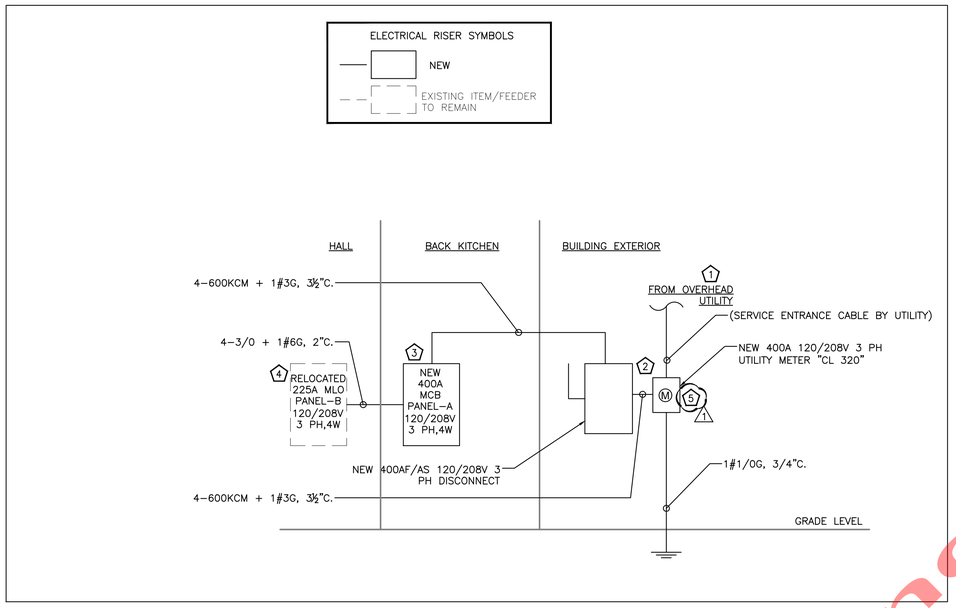
G. REFER POWER PLAN FOR THE PROPOSED LOCATION OF THE ELECTRICAL PANELS. INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY.

H. THE PART OF RISER MARKED AS NEW IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY THE EXACT POWER DISTRIBUTION (INCLUDING RISER IN THE FIELD. INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY FOUND).

I. ADDITION OR ALTERATION TO THE EXISTING SYSTEM SHALL NOT BE DONE WITHOUT THE WRITTEN CONSENT OF THE OWNER.

RISER DIAGRAM KEY NOTES:

1. UPGRADE EXISTING 200A, 120/208V, 3–PH, 4–W SERVICE TO 400A, 120/208V, 3–PH, 4–W SERVICE. E.C. SHALL COORDINATE WITH THE OWNER/BASE BUILDING FOR THE EXACT DETAILS AND ROUTING OF THE FEEDER ON FIELD. BASE BID ACCORDINGLY.
2. NEW 400A, 120/208, 3–PHASE, 4–WIRE ELECTRICAL METER & THE DISCONNECT SWITCH SERVING OUR SPACE. E.C. SHALL COORDINATE WITH OWNER FOR LOCATION AND SCOPE TO DEMOLISH THE EXISTING 200A METER AND DISCONNECT SWITCH.
3. NEW 400A, 120/208V, 3–PHASE, 4–WIRE ELECTRICAL PANEL "A". E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
4. RELOCATED 225A, 120/208V, 3–PHASE, 4–WIRE ELECTRICAL PANEL "B". E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
5. METER SOCKETS AND METER–PACKS SHALL BE SELECTED FROM THE BPUB ELECTRICAL CHECKLIST AND INSTALLED IN ACCORDANCE WITH BPUB REQUIREMENTS. EC TO COORDINATE ALL METERING EQUIPMENT WITH BPUB FOR APPROVAL PRIOR TO INSTALLATION.



1 E500 **ELECTRICAL RISER DIAGRAM**

N.T.S.

PANEL SCHEDULE GENERAL NOTES:

A. THE PANEL CIRCUITS AND CIRCUIT BREAKERS ARE ASSUMED. THE CORRECT PANEL SCHEDULE WILL BE FURNISHED ONCE THE PANEL INFORMATION IS RECEIVED. E.C. SHALL NOT MODIFY THE EXISTING PANEL BASED ON THIS ASSUMED PANEL SCHEDULE.

B. CONTRACTOR SHALL VERIFY BREAKER AND BRANCH CIRCUIT REQUIREMENTS FOR THE EQUIPMENT IN THE FIELD.

C. THE VOLTAGE DROP FOR THE BRANCH CIRCUIT SHALL NOT EXCEED 3% OR 5% IN COMBINATION WITH THE FEEDER CIRCUIT.

D. GFI MARKED ON THE PLAN INDICATES THAT THE CIRCUIT SHALL BE GFI PROTECTED. E.C. SHALL PROVIDE A GFCI BREAKER IN THE PANEL FOR THE INDICATED CIRCUIT IF EITHER THE RECEPTACLE IS NOT AVAILABLE OR NOT READILY ACCESSIBLE.

E. COORDINATE AVAILABLE FAULT CURRENT (AIC RATING) WITH UTILITY/LANDLORD/OWNER.

F. PROVIDE BREAKER LOCKING DEVICES IN THE PANELS, WHERE EVER REQUIRED BY CODE. INCLUDING BUT NOT LIMITED TO EMERGENCY LIGHTING, FIRE ALARM CIRCUITS, AND HARD–WIRED EQUIPMENT.

G. THE BREAKER FEEDING HVAC UNITS SHALL BE HACR TYPE.

H. THE ELECTRICAL LOAD IS BALANCED WITHIN 10% FOR ALL 3 PHASES.

I. THE CONTRACTOR IS TO PROVIDE A CIRCUIT DIRECTORY FOR EACH PANEL BOARD AS PER 408.4 (A).

J. EXISTING PANEL SCHEDULES AND BREAKER CONFIGURATIONS MAY NOT MATCH FIELD CONDITIONS. IN SEVERAL INSTANCES, SINGLE–POLE BREAKERS HAVE BEEN MECHANICALLY TIED TOGETHER TO FUNCTION AS MULTI–POLE BREAKERS. CONTRACTOR SHALL FIELD–VERIFY BREAKER CONFIGURATIONS AND CIRCUITING, VERIFY EXISTING LOADS FED FROM BREAKERS, AND RECONNECT ACCORDINGLY. PROVIDE NEW BREAKERS IF AND AS REQUIRED. ANY DISCREPANCIES BETWEEN DRAWINGS AND ACTUAL CONDITIONS SHALL BE REPORTED PRIOR TO BID.

PANEL SCHEDULE ABBREVIATIONS:

L= LIGHTING
R= RECEPTACLE
H= HVAC
E= EQUIPMENT
M= MOTOR
O= OTHER
* = EXISTING BREAKER IN EXISTING PANEL WITH NEW CIRCUITING.
** = VERIFY EXISTING BREAKER CONFIGURATIONS AND LOADS. REUSE EXISTING CIRCUITS WHERE FEASIBLE. PROVIDE NEW BREAKERS AS REQUIRED.
ETR = EXISTING TO REMAIN.
VIF = VERIFY IN FIELD.

PANEL: A (NEW) — MOUNTING: SURFACE

208Y/120	VOLTS		**3**	PHASE	-	-			DEMAND LOAD (in kVA)	101.42		**PANEL LOCATION:**	BACK KITCHEN
400	AMPS	MCB - MAIN CIRCUIT BREAKER	**4**	WIRE	-	-			DEMAND CURRENT (in Amps)	281.84		**FED FROM:**	DISCONNECT

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	WIRE SIZE	PER PHASE (KVA) A	B	C	WIRE SIZE	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	15/2P	AC-1	H	0.68	2#12 + 1#12G, 3/4"C	3.90			2#8 + 1#10G, 3/4"C	3.22	H	ACCU-1	40/2P	2
3			H	0.68			3.90			3.22	H			4
5	15/2P	AC-2	H	0.68	2#12 + 1#12G, 3/4"C			3.90	2#8 + 1#10G, 3/4"C	3.22	H	ACCU-2	40/2P	6
7			H	0.68		3.90				3.22	H			8
9	15/2P	AC-3	H	0.68	2#12 + 1#12G, 3/4"C		3.90		2#8 + 1#10G, 3/4"C	3.22	H	ACCU-3	40/2P	10
11			H	0.68				3.90		3.22	H			12
13	20/1P	GENERAL RECEPTACLES	R	0.54	2#12 + 1#12G, 3/4"C	1.26			2#12 + 1#12G, 3/4"C	0.72	E	U/C BEVERAGE REFRIGERATOR	20/1P	14
15	20/1P	SANDWICH/SALAD PREP REFRIGERATOR	E	0.61	2#12 + 1#12G, 3/4"C		2.53		2#12 + 1#12G, 3/4"C	1.92	R	KDS/PRINTER	20/1P	16
17	20/1P	KDS/PRINTER	R	1.92	2#12 + 1#12G, 3/4"C			2.87	2#12 + 1#12G, 3/4"C	0.95	E	WARMING DRAWER	20/1P	18
19	20/1P	KDS	R	1.92	2#12 + 1#12G, 3/4"C	2.53			2#12 + 1#12G, 3/4"C	0.61	E	SANDWICH/SALAD PREP REFRIGERATOR	20/1P	20
21	20/1P	U/C FREEZER	E	0.53	2#12 + 1#12G, 3/4"C		2.43		2#12 + 1#12G, 3/4"C	1.90	E	GYRO BROILER	20/1P	22
23	20/1P	DUPLEX CONVENIENCE RECEPTACLE #1	R	0.18	2#12 + 1#12G, 3/4"C			3.08	2#12 + 1#12G, 3/4"C	2.90	E	GYRO BROILER	20/1P	24
25	20/1P	GYRO BROILER	E	1.90	2#12 + 1#12G, 3/4"C	2.08			2#12 + 1#12G, 3/4"C	0.18	R	DUPLEX CONVENIENCE RECEPTACLE #4	20/1P	26
27	20/1P	EQUIPMENT STAND, REFRIGERATED	E	0.28	2#12 + 1#12G, 3/4"C		0.46		2#12 + 1#12G, 3/4"C	0.18	R	DUPLEX CONVENIENCE RECEPTACLE #5	20/1P	28
29	20/1P	REACH IN U/C FREEZER	E	0.78	2#12 + 1#12G, 3/4"C			0.96	2#12 + 1#12G, 3/4"C	0.18	R	DUPLEX CONVENIENCE RECEPTACLE #6	20/1P	30
31	15/1P	EF-1	M	0.36	2#12 + 1#12G, 3/4"C	0.54			2#12 + 1#12G, 3/4"C	0.18	R	DUPLEX CONVENIENCE RECEPTACLE #7	20/1P	32
33	15/2P	KXF-1	M	1.04	2#12 + 1#12G, 3/4"C		2.96		2#12 + 1#12G, 3/4"C	1.92	R	KDS	20/1P	34
35			M	1.04				2.28	2#12 + 1#12G, 3/4"C	1.24	E	REACH IN FREEZER	20/1P	36
`37	20/1P	DUPLEX CONVENIENCE RECEPTACLE #2	R	0.18	2#12 + 1#12G, 3/4"C	0.36			2#12 + 1#12G, 3/4"C	0.18	R	SERVICE RECEPTACLE	20/1P	38
39	20/1P	REFRIGERATED WORKTOP	E	0.43	2#12 + 1#12G, 3/4"C		0.53		2#12 + 1#12G, 3/4"C	0.10	M	RCP	20/1P	40
41	20/1P	DUPLEX CONVENIENCE RECEPTACLE #3	R	0.18	2#12 + 1#12G, 3/4"C			2.10	2#12 + 1#12G, 3/4"C	1.92	R	KDS	20/1P	42
43	20/1P	DUPLEX RECEPTACLES	R	0.90	2#12 + 1#12G, 3/4"C	0.90						SPARE	20/1P	44
45	20/1P	SPARE					0.00					SPARE	20/1P	46
47	20/1P	SPARE						0.00				SPACE		48
49		SPACE				0.00						SPACE		50
51		SPACE					18.57			18.57	O			52
53		SPACE						18.57	4#3/0 + 1#6G, 2"C	18.57	O	PANEL-B	200/3P	54
55		SPACE				18.57				18.57	O			56
						34.04	**35.28**	**37.65**						

PANEL: B (RELOCATED) — MOUNTING: SURFACE

208Y/120	VOLTS		**3**	PHASE	-	-			DEMAND LOAD (in kVA)	55.70		**PANEL LOCATION:**	HALL
225	AMPS	MLO - MAIN LUG ONLY	**4**	WIRE	-	-			DEMAND CURRENT (in Amps)	154.80		**FED FROM:**	PANEL-A

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	WIRE SIZE	PER PHASE (KVA) A	B	C	WIRE SIZE	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20/1P*	DISHWASHER	E	1.44	2#12 + 1#12G, 3/4"C	1.64			2#12 + 1#12G, 3/4"C	0.20	O	WATER HEATER	20/1P*	2
3	20/1P*	RESTROOM RECEPTALCES	R	0.36	2#12 + 1#12G, 3/4"C		0.72		2#12 + 1#12G, 3/4"C	0.36	R	HALLWAY RECEPTACLES	20/1P*	4
5	20/1P*	SHOW WINDOW RECEPTACLE #1	L	1.58	2#12 + 1#12G, 3/4"C			2.66	2#12 + 1#12G, 3/4"C	1.08	R	DINING AREA RECEPTACLES	20/1P*	6
7	20/1P*	SHOW WINDOW RECEPTACLE #2	L	1.58	2#12 + 1#12G, 3/4"C	2.20			2#12 + 1#12G, 3/4"C	0.62	L	ORDER AREA/DINING & HALL LIGHTS	20/1P*	8
9	20/1P*	SHOW WINDOW RECEPTACLE #3	L	1.13	2#12 + 1#12G, 3/4"C		1.81		2#12 + 1#12G, 3/4"C	0.68	L	BACK/FRONT KITCHEN & SERVICE AREA LIGHTS	20/1P*	10
11	20/1P*	SHOW WINDOW RECEPTACLE #4	L	1.13	2#12 + 1#12G, 3/4"C			2.13	2#12 + 1#12G, 3/4"C	1.00	O	LCP	20/1P*	12
13	20/1P*	BLADE SIGNAGE	L	1.20	2#12 + 1#12G, 3/4"C	1.70			2#12 + 1#12G, 3/4"C	0.50	L	TIMECLOCK	20/1P*	14
15	20/1P*	SIGNAGE	L	1.20	2#12 + 1#12G, 3/4"C		1.70		2#12 + 1#12G, 3/4"C	0.50	L	HOOD LIGHTING	20/1P*	16
17	20/1P*	DUPLEX CONVENIENCE RECEPTACLE #8	R	0.18	2#12 + 1#12G, 3/4"C			0.54	2#12 + 1#12G, 3/4"C	0.36	R	POS RECEPTACLE	20/1P*	18
19	20/1P*	WALK-IN LIGHTS	L	1.92	2#12 + 1#12G, 3/4"C	3.38			2#12 + 1#12G, 3/4"C	1.46	E	ICE CUBER	20/1P*	20
21	20/1P*	DUPLEX CONVENIENCE RECEPTACLE #9	R	0.18	2#12 + 1#12G, 3/4"C		2.10		2#12 + 1#12G, 3/4"C	1.92	R	POS SYSTEM/PRINTER	20/1P*	22
23	20/1P*	DUPLEX CONVENIENCE RECEPTACLE #10	R	0.18	2#12 + 1#12G, 3/4"C			2.10	2#12 + 1#12G, 3/4"C	1.92	R	POS SYSTEM/PRINTER	20/1P*	24
25	20/1P*	POS SYSTEM/PRINTER	R	1.92	2#12 + 1#12G, 3/4"C	3.84			2#12 + 1#12G, 3/4"C	1.92	R	POS SYSTEM/PRINTER	20/1P*	26
27	20/1P*	POS SYSTEM/PRINTER	R	1.92	2#12 + 1#12G, 3/4"C		3.84		2#12 + 1#12G, 3/4"C	1.92	R	POS SYSTEM/PRINTER	20/1P*	28
29	20/1P*	HOOD LIGHTING	L	0.50	2#12 + 1#12G, 3/4"C			1.22	2#12 + 1#12G, 3/4"C	0.72	E	U/C BEVERAGE REFRIGERATOR	20/1P*	30
31	70/3P	MAU-1	H	6.07	3#4 + 1#8G, 1"C	7.99			2#12 + 1#12G, 3/4"C	1.92	R	KDS/PRINTER	20/1P*	32
33			H	6.07			7.02		2#12 + 1#12G, 3/4"C	0.95	E	WARMING DRAWER	20/1P*	34
35			H	6.07				7.11	2#12 + 1#12G, 3/4"C	1.04	M	KXF-2	15/2P	36
`37	20/2P	WALK-IN COOLER (REFRIGERATION)	E	1.10	2#12 + 1#12G, 3/4"C	2.14				1.04	M			38
39			E	1.10			1.28		2#12 + 1#12G, 3/4"C	0.18	R	DUPLEX CONVENIENCE RECEPTACLE #11	20/1P	40
41	15/1P	EF-2	M	0.36	2#12 + 1#12G, 3/4"C			0.36				SHUNT TRIP	20/1P	42
						22.90	**18.47**	**16.12**						

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