MECHANICAL SYMBOLS LIST

AC-1 / TXF-1	EQUIPMENT SYMBOL
AIR DEVICES	
	CEILING DIFFUSER SUPPLY
	CEILING DIFFUSER RETURN
	SUPPLY GRILLE - SIDEWALL
DUCT ACCESSORIES	
BD	BACKDRAFT DAMPER
VD VD	VOLUME DAMPER W/ ACCESS DOOR

CONTROLS AND SENSORS	
T	THERMOSTAT
S_D	DUCT SMOKE DETECTOR
S	HOOD TEMPERATURE SENSOR
S	MANUAL ON/OFF SWITCH FOR HOOD
A	REMOTE ANNUCIATOR WITH PIEZO ALARM
DUCTWORK	
========	AIR DUCT W/ 1.5" ACOUSTICAL LINING
	FLEXIBLE DUCT
FC FC	FLEXIBLE CONNECTION
24X12	RECTANGULAR DUCT (WIDTH X DEPTH)
Ø12	ROUND DUCT (DIAMETER)
	SUPPLY AIR RECTANGULAR DUCT CROSS SECTION
	RETURN AIR RECTANGULAR DUCT CROSS SECTION
	ROUND DUCT CROSS SECTION

MECHANICAL ABBREVIATIONS

BD	BACKDRAFT DAMPER
RTU	ROOF TOP UNIT
VD	VOLUME DAMPER
CFM	CUBIC FEET PER MINUTE
COP	COEFFICIENT OF PERFORMANCE
EA	EXHAUST AIR
FC	FLEXIBLE CONNECTION
CDE	CEILING DIFFUSER EXHAUST
OA	OUTSIDE AIR
RA	RETURN AIR
SA	SUPPLY AIR
SP	STATIC PRESSURE
CDS	CEILING DIFFUSER SUPPLY
CDR	CEILING DIFFUSER RETURN
MAU	MAKE-UP AIR UNIT
KEF	KITCHEN EXHAUST FAN
TEF	TOILET EXHAUST FAN
SG	SUPPLY GRILLE
WMS	WIRE MESH SCREEN
IEER	INTEGRATED ENERGY EFFICIENCY RATIO

GENERAL ABBREVIATIONS

DN	DOWN
EFF	EFFICIENCY
UP	UP
EQUIP	EQUIPMENT
EXH	EXHAUST
(E)	EXISTING
FPM	FEET PER MINUTE
FT	FEET
HP	HORSEPOWER
HZ	HERTZ
IN	INCHES
KW	KILOWATT
LB	POUND
MAX	MAXIMUM
MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
N/A	NOT APPLICABLE
NTS	NOT TO SCALE
PH	PHASE
PLBG	PLUMBING
RPM	REVOLUTIONS PER MINUTE
SPEC	SPECIFICATION
SF	SQUARE FEET
TEMP	TEMPERATURE
TON	TONS OF REFRIGERATION
VEL	VELOCITY
VFD	VARIABLE FREQUENCY DRIVE
WB	WET BULB TEMPERATURE

MECHANICAL DRAWING LIST

M-1	MECH. GENERAL NOTES, SYMBOLS LIST & ABBREVIATIONS
M-2	MECHANICAL SPECIFICATIONS
M-3	MECHANICAL FLOOR PLAN
M-4	MECHANICAL ROOF PLAN
M-5	MECHANICAL DETAILS
M-6	MECHANICAL SCHEDULES
H-1	KITCHEN HOOD DRAWINGS (1 OF 4)
H-2	KITCHEN HOOD DRAWINGS (2 OF 4)
H-3	KITCHEN HOOD DRAWINGS (3 OF 4)
H-4	KITCHEN HOOD DRAWINGS (4 OF 4)

OHIO BUILDING DEPARTMENT NOTES

ALL WORK SHALL COMPLY WITH APPLICABLE SECTIONS OF OHIO BUILDING CODE 2024 (IBC 2021) AND ALL AMENDMENTS AND RULES AND REGULATIONS OF THE DEPARTMENT OF BUILDINGS TO DATE.

1. THE CONTRACTOR SHALL ENGAGE THE SERVICES OF A PROFESSIONAL ENGINEER TO PROVIDE THE REQUIRED SPECIAL INSPECTIONS AND TESTS. 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 OHIO BUILDING CODE 2024 (IBC 2021)
2. 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.
3. TESTS OF MECHANICAL SYSTEMS SHALL BE PERFORMED IN ACCORDANCE WITH SECTION MC 107 AND THE FOLLOWING SECTIONS OF THE OHIO BUILDING CODE 2024 (IBC 2021).
4. THE FOLLOWING WORK ITEMS, COMPONENTS, MATERIALS, CAPACITIES, ETC. SHALL COMPLY WITH THE REFERENCED CODE OR STANDARD:
   A. STANDARDS OF HEATING - OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 309.1.
   B. DUCT CONSTRUCTION AND INSTALLATION - OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 603.
   C. AIR INTAKES, EXHAUSTS AND RELIEF - OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 401.5.
   D. AIR FILTERS - OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 605.
   E. GAS FIRED EQUIPMENT - OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 901.
5. MINIMUM TEMPERATURE TO BE MAINTAINED IN OCCUPIED SPACES DURING HEATING SEASON: 68 DEG. FAHRENHEIT.
6. VENTILATION FOR ALL AREA SHALL COMPLY WITH OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 401.
7. A STATEMENT SHALL BE FILED BY THE OWNER OR TENANT IN POSSESSION THAT THE VENTILATION SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION AT ALL TIMES DURING THE NORMAL OCCUPANCY OF THE STRUCTURE AS REQUIRED BY OHIO MECHANICAL CODE 2024 (IMC 2021) - SECTION 403.3.
8. REFER TO ARCHITECTURAL DRAWINGS FOR REQUIRED FIRE-RATED WALL AND SMOKE WALL CONSTRUCTION AND LOCATION.
9. THESE PLANS ARE APPROVED ONLY FOR THE WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDAN WITH APPLICABLE CODES.
10. ALL HEATING AND COOLING LOADS CALCULATED PER ASHRAE/ACCA 183.
11. SMOKE DETECTOR SHALL MEET UL268A.

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. 2024 OHIO ENERGY CODE (BASE CODE - IECC 2021)
B. 2024 OHIO BUILDING CODE (BASE CODE - IBC 2021)
C. 2024 OHIO MECHANICAL CODE (BASE CODE - IMC 2021)
D. 2024 OHIO PLUMBING CODE (BASE CODE - IPC 2021)
E. 2021 OHIO FUEL GAS CODE (BASE CODE - IFGC 2021)

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. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
8. WHERE PENETRATIONS THROUGH FIRE RATED WALLS ARE NOT FIRE PROOFED THIS CONTRACTOR SHALL BE RESPONSIBLE TO SEAL SAME TO MAINTAIN THE RATED INTEGRITY.
9. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT.
10. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME.
11. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OR SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. INSERTS SHALL BE STEEL, SLOTTED TYPE AND FACTORY PAINTED. MULTI-ROD SHALL BE SIMILAR TO FEE & MASON SERIES 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.
12. 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.
13. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL (FIBERGLASS INSULATION IS NOT ACCEPTABLE).
14. 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.
15. 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.
16. 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.
17. 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.
18. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
19. MATERIALS AND WORKMANSHIP, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
20. ALL EQUIPMENT SHALL BE PROVIDED WITH ONE YEAR WARRANTY PARTS AND LABOR AND FIVE YEARS ON COMPRESSORS. WARRANTY PERIOD BEGINS UPON PROJECT ACCEPTANCE
21. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
22. 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.
23. 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.
24. SUBMIT SHOP DRAWING OF ALL WORK WHICH MUST BE APPROVED BY THE ARCHITECT AND ENGINEER BEFORE WORK COMMENCES.
25. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.
26. 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.
27. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS THE CONTRACTOR SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.
28. 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.
29. 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.
30. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS, THE SPECIFICATIONS OR ANY OTHER CONSTRUCTION DOCUMENT, THE ONE WITH THE MOST STRINGENT REQUIREMENT(S) SHALL APPLY. DEFINITIONS:

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

SCOPE OF WORK

SCOPE OF WORK

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

MECHANICAL NOTES

GENERAL:

1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT 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. THE LOCATION OF EXISTING UNDERGROUND UTILITIES IS APPROXIMATELY SHOWN. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR SHALL PAY FOR AND REPAIR ALL DAMAGES CAUSED BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES UNLESS OTHERWISE INDICATED.
5. 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.
6. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.
7. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
8. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.
9. 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.
10. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.
11. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
12. 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.
13. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS OF STEAM MAINS WITHIN 50 FT. OF BOILERS AND PRESSURE-REDUCING VALVES.
14. MAINTAIN A MINIMUM 6'-8" CLEARANCE TO THE UNDERSIDE OF PIPES, DUCTS, CONDUITS, SUSPENDED EQUIPMENT, ETC., THROUGHOUT ACCESS ROUTES IN MECHANICAL ROOMS.
15. 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.
16. ALL MECHANICAL ROOM DOORS SHALL BE A MINIMUM OF 4'-0" WIDE.
17. 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.
18. 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.
19. 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.
20. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.
21. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.
22. 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.
23. ALL ROOF-MOUNTED EQUIPMENT CURBS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.
24. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.
25. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:
1.
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6.
7.
8.

Another Broken Egg Cafe

Mech. General Notes, Symbols List & Abbreviations

M-1

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 230517 - SLEEVES AND SLEEVE SEALS FOR HVAC PIPING

1.1 SLEEVE-SEAL SYSTEMS

A. FIELD-ASSEMBLED, MODULAR SEALING-ELEMENT UNIT FOR FILLING ANNULAR SPACE BETWEEN PIPING AND SLEEVE.

1. SEALING ELEMENTS: EPDM RUBBER OR NBR.
2. PRESSURE PLATES: CARBON STEEL, PLASTIC, STAINLESS STEEL.
3. CONNECTING BOLTS AND NUTS: CARBON STEEL WITH CORROSION-RESISTANT COATING, STAINLESS STEEL.

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

1. ADVANCE PRODUCTS & SYSTEMS, INC.
2. CALPICO, INC.
3. METRAFLEX COMPANY (THE).
4. PIPELINE SEAL AND INSULATOR, INC.
5. PROCO PRODUCTS, INC.

1.2 SLEEVE-SEAL FITTINGS

A. MANUFACTURED PLASTIC, SLEEVE-TYPE, PLASTIC OR RUBBER WATER-STOP ASSEMBLY MADE FOR IMBEDDING IN CONCRETE SLAB OR WALL.

1.3 GROUT

A. NON-SHRINK, FACTORY PACKAGED.

1.4 SLEEVE AND SLEEVE-SEAL SCHEDULE

A. USE SLEEVES AND SLEEVE SEALS FOR THE FOLLOWING PIPING-PENETRATION APPLICATIONS:

1. INTERIOR PARTITIONS:
   a. PIPING SMALLER THAN NPS 6 (DN 150): GALVANIZED-STEEL-PIPE SLEEVES, PVC-PIPE SLEEVES.
   b. PIPING NPS 6 (DN 150) AND LARGER: GALVANIZED-STEEL-SHEET SLEEVES.

END OF SECTION 230517

SECTION 230518 - ESCUTCHEONS FOR HVAC PIPING

PART 2 - PRODUCTS

2.1 ESCUTCHEONS

A. ONE-PIECE, CAST-BRASS TYPE: WITH POLISHED, CHROME-PLATED AND ROUGH-BRASS FINISH AND SETSCREW FASTENER.

B. ONE-PIECE, DEEP-PATTERN TYPE: DEEP-DRAWN, BOX-SHAPED BRASS WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

C. ONE-PIECE, STAMPED-STEEL TYPE: WITH CHROME-PLATED FINISH AND SPRING-CLIP FASTENERS.

2.2 FLOOR PLATES

A. ONE-PIECE FLOOR PLATES: CAST-IRON FLANGE WITH HOLES FOR FASTENERS.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS, CEILINGS, AND FINISHED FLOORS.

B. INSTALL ESCUTCHEONS WITH ID TO CLOSELY FIT AROUND PIPE, TUBE, AND INSULATION OF PIPING AND WITH OD THAT COMPLETELY COVERS OPENING.

1. ESCUTCHEONS FOR NEW PIPING:
   a. PIPING WITH FITTING OR SLEEVE PROTRUDING FROM WALL: ONE-PIECE, DEEP-PATTERN TYPE.
   b. INSULATED PIPING: ONE-PIECE, STAMPED-STEEL TYPE.
   c. BARE PIPING AT WALL AND FLOOR PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.
   d. BARE PIPING AT CEILING PENETRATIONS IN FINISHED SPACES: ONE-PIECE, CAST-BRASS TYPE WITH POLISHED, CHROME-PLATED FINISH OR STAMPED-STEEL TYPE.

3.2 FIELD QUALITY CONTROL

A. REPLACE BROKEN AND DAMAGED ESCUTCHEONS AND FLOOR PLATES USING NEW MATERIALS.

END OF SECTION 230518

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 EQUIPMENTS SUPPORTS CAPABLE OF SUPPORTING COMBINED OPERATING WEIGHT OF SUPPORTED EQUIPMENT AND CONNECTED SYSTEMS.
3. DESIGN SEISMIC-RESTRAINT HANGERS AND SUPPORTS FOR PIPING AND EQUIPMENT AND OBTAIN APPROVAL FROM AUTHORITIES HAVING JURISDICTION.

1.2 SUBMITTALS

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

1.3 QUALITY ASSURANCE

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

1.4 COMPONENTS

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

B. TRAPEZE PIPE HANGERS: CARBON OR STAINLESS STEEL

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

D. METAL FRAMING SYSTEMS: MFMA MANUFACTURER

E. FIBERGLASS STRUT SYSTEMS: COOPER B-LINE

F. THERMAL-HANGER SHIELD INSERTS:

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

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

I. EQUIPMENT SUPPORTS.

END OF SECTION 230529

SECTION 230548 - VIBRATION CONTROLS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 COMPONENTS

A. VIBRATION ISOLATORS:

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

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

1.2 FIELD QUALITY CONTROL

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

PART-2 PRODUCTS

1.1 VIBRATION ISOLATORS & SEISMIC-RESTRAINT DEVICES

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

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

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

END OF SECTION 230548

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-6
WITHIN BUILDING ENVELOPE ASSEMBLY:	R-12
OUTSIDE OF BUILDING:	R-12

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

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. SINGLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.

C. SHEET METAL MATERIALS:

1. GALVANIZED SHEET STEEL.
2. STAINLESS-STEEL SHEETS.
3. ALUMINUM SHEETS.
4. FACTORY-APPLIED ANTI-MICROBIAL COATING.

D. DUCT LINER:

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

E. SEALANT MATERIALS:

1. TWO-PART TAPE SEALING SYSTEM.
2. WATER-BASED JOINT AND SEAM SEALANT.
3. SOLVENT-BASED JOINT AND SEAM SEALANT.
4. FLANGED JOINT SEALANT.
5. FLANGE GASKETS.
6. ROUND DUCT JOINT O-RING SEALS.

1.3 DUCT CLEANING

A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.

B. CLEAN THE FOLLOWING ITEMS:

1. AIR OUTLETS AND INLETS.
2. SUPPLY, RETURN, AND EXHAUST FANS.
3. AIR HANDLING UNIT.
4. COILS AND RELATED COMPONENTS.
5. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
6. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.
7. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.

1.4 DUCT SCHEDULE

A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:

1. MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.

END OF SECTION 233113

SECTION 233713 - DIFFUSERS AND GRILLES

1.1 PRODUCTS

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

B. MANUFACTURERS: TITUS

1. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCT BY ONE OF THE FOLLOWING:

a. CARNES.
b. HART & COOLEY INC.
c. KRUEGER.
d. METALAIRE, INC.
e. NAILOR INDUSTRIES INC.

C. ALL DIFFUSERS SHALL HAVE CONTROLLING/EQUALIZING GRID AND OPPOSED BLADE DAMPER UNLESS OTHERWISE NOTED.

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

END OF SECTION 233713

THERMOSTATIC CONTROLS (MANDATORY):

C403.4.1 THERMOSTATIC CONTROLS
THE SUPPLY OF HEATING AND COOLING ENERGY TO EACH ZONE SHALL BE CONTROLLED BY INDIVIDUAL THERMOSTATIC CONTROLS CAPABLE OF RESPONDING TO TEMPERATURE WITHIN THE ZONE. WHERE HUMIDIFICATION OR DEHUMIDIFICATION OR BOTH IS PROVIDED, NOT FEWER THAN ONE HUMIDITY CONTROL DEVICE SHALL BE PROVIDED FOR EACH HUMIDITY CONTROL SYSTEM.
EXCEPTION: INDEPENDENT PERIMETER SYSTEMS THAT ARE DESIGNED TO OFFSET ONLY BUILDING ENVELOPE HEAT LOSSES, GAINS OR BOTH SERVING ONE OR MORE PERIMETER ZONES ALSO SERVED BY AN INTERIOR SYSTEM PROVIDED THAT BOTH OF THE FOLLOWING CONDITIONS ARE MET:

1. THE PERIMETER SYSTEM INCLUDES NOT FEWER THAN ONE THERMOSTATIC CONTROL ZONE FOR EACH BUILDING EXPOSURE HAVING EXTERIOR WALLS FACING ONLY ONE ORIENTATION (WITHIN ± 45 DEGREES) (0.8 RAD) FOR MORE THAN 50 CONTIGUOUS FEET (15 240 MM).
2. THE PERIMETER SYSTEM HEATING AND COOLING SUPPLY IS CONTROLLED BY THERMOSTATS LOCATED WITHIN THE ZONES SERVED BY THE SYSTEM.

C403.4.1.2 DEADBAND
WHERE USED TO CONTROL BOTH HEATING AND COOLING, ZONE THERMOSTATIC CONTROLS SHALL BE CONFIGURED TO PROVIDE A TEMPERATURE RANGE OR DEADBAND OF NOT LESS THAN 5°F (2.8°C) WITHIN WHICH THE SUPPLY OF HEATING AND COOLING ENERGY TO THE ZONE IS SHUT OFF OR REDUCED TO A MINIMUM.
EXCEPTIONS:

1. THERMOSTATS REQUIRING MANUAL CHANGEOVER BETWEEN HEATING AND COOLING MODES.
2. OCCUPANCIES OR APPLICATIONS REQUIRING PRECISION IN INDOOR TEMPERATURE CONTROL AS APPROVED BY THE CODE OFFICIAL.

C403.4.1.3 SETPOINT OVERLAP RESTRICTION
WHERE A ZONE HAS A SEPARATE HEATING AND A SEPARATE COOLING THERMOSTATIC CONTROL LOCATED WITHIN THE ZONE, A LIMIT SWITCH, MECHANICAL STOP OR DIRECT DIGITAL CONTROL SYSTEM WITH SOFTWARE PROGRAMMING SHALL BE CONFIGURED TO PREVENT THE HEATING SETPOINT FROM EXCEEDING THE COOLING SETPOINT AND TO MAINTAIN A DEADBAND IN ACCORDANCE WITH SECTION C403.2.4.1.2.

C403.4.2 OFF-HOUR CONTROLS
EACH ZONE SHALL BE PROVIDED WITH THERMOSTATIC SETBACK CONTROLS THAT ARE CONTROLLED BY EITHER AN AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROL SYSTEM.
EXCEPTIONS:

1. ZONES THAT WILL BE OPERATED CONTINUOUSLY.
2. ZONES WITH A FULL HVAC LOAD DEMAND NOT EXCEEDING 6,800 BTU/H (2 KW) AND HAVING A MANUAL SHUTOFF SWITCH LOCATED WITH READY ACCESS.

C403.4.2.1 THERMOSTATIC SETBACK
THERMOSTATIC SETBACK CONTROLS SHALL BE CONFIGURED TO SET BACK OR TEMPORARILY OPERATE THE SYSTEM TO MAINTAIN ZONE TEMPERATURES DOWN TO 55°F (13°C) OR UP TO 85°F (29°C).

C403.4.2.2 AUTOMATIC SETBACK AND SHUTDOWN
AUTOMATIC TIME CLOCK OR PROGRAMMABLE CONTROLS SHALL BE CAPABLE OF STARTING AND STOPPING THE SYSTEM FOR SEVEN DIFFERENT DAILY SCHEDULES PER WEEK AND RETAINING THEIR PROGRAMMING AND TIME SETTING DURING A LOSS OF POWER FOR NOT FEWER THAN 10 HOURS. ADDITIONALLY, THE CONTROLS SHALL HAVE A MANUAL OVERRIDE THAT ALLOWS TEMPORARY OPERATION OF THE SYSTEM FOR UP TO 2 HOURS; A MANUALLY OPERATED TIMER CONFIGURED TO OPERATE THE SYSTEM FOR UP TO 2 HOURS; OR AN OCCUPANCY SENSOR.

C403.4.2.3 AUTOMATIC START & STOP
AUTOMATIC START AND STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM. THE AUTOMATIC START CONTROLS SHALL BE CONFIGURED TO AUTOMATICALLY ADJUST THE DAILY START TIME OF THE HVAC SYSTEM IN ORDER TO BRING EACH SPACE TO THE DESIRED OCCUPIED TEMPERATURE IMMEDIATELY PRIOR TO SCHEDULED OCCUPANCY. AUTOMATIC STOP CONTROLS SHALL BE PROVIDED FOR EACH HVAC SYSTEM WITH DIRECT DIGITAL CONTROL OF INDIVIDUAL ZONES. THE AUTOMATIC STOP CONTROLS SHALL BE CONFIGURED TO REDUCE THE HVAC SYSTEM'S HEATING TEMPERATURE SETPOINT AND INCREASE THE COOLING TEMPERATURE SETPOINT BY NOT LESS THAN 2°F (-16.6°C) BEFORE SCHEDULED UNOCCUPIED PERIODS BASED ON THE THERMAL LAG AND ACCEPTABLE DRIFT IN SPACE TEMPERATURE THAT IS WITHIN COMFORT LIMITS.

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:
1
2
3
4
5
6
7
8

Another Broken Egg Cafe

Mechanical Specifications

M-2

MECHANICAL GENERAL NOTES

A. PROVIDE ALL NEW DUCTWORK AS SHOWN. DUCT WORK ABOVE CEILING TO BE INSULATED ACCORDING TO 2024 OHIO ENERGY CONSERVATION CODE.
B. FLEXIBLE AIR CONNECTORS SHALL BE TESTED IN ACCORDANCE WITH UL 181. SUCH DUCTS SHALL BE LISTED AND LABELED AS CLASS 0 OR CLASS 1 FLEXIBLE AIR CONNECTORS. FLEXIBLE AIR CONNECTORS SHALL BE LIMITED IN LENGTH TO 14 FEET.
C. TEST & BALANCE SYSTEM PRIOR TO CLOSEOUT OF PROJECT. PROVIDE A DETAILED REPORT TO OWNER, ARCHITECT, & ENGINEER.
D. ALL DUCTWORK SHALL BE FABRICATED, INSTALLED, SEALED, AND INSULATED PER THE LATEST ISSUE OF SMACNA LOW-VELOCITY DUCT MANUAL.
E. DUCT SIZES SHOWN ON DRAWINGS ARE CLEAR INSIDE DIMENSION.
F. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
G. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/BARRIERS/SLABS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
H. DUCT TO EXHAUST FAN CONNECTIONS SHALL BE FLANGED, GASKETED AND BOLTED TO THE INLET OF THE FAN FOR SIDE-INLET UTILITY FANS APPROVED FLEXIBLE CONNECTIONS MAY BE PROVIDED.
I. ALL WORK SHALL BE SUBJECT TO THE ACCEPTANCE AND APPROVAL OF THE ARCHITECT AND OWNER. THE ARCHITECT SHALL BE NOTIFIED OF ANY AND ALL DISCREPANCIES BETWEEN FIELD CONDITIONS AND THE CONTRACT DOCUMENTS BEFORE PROCEEDING WITH THAT PORTION OF THE WORK. FAILURE OF PROPER NOTIFICATION DOES NOT RELIEVE THE CONTRACTOR. THE CONTRACTOR SHALL CORRECT ANY AND ALL WORK ARISING FROM SUCH FAILURE TO COORDINATE DISCREPANCIES TO THE SATISFACTION OF THE ARCHITECT WITHOUT ADDITIONAL COST TO THE OWNER.
J. THE CONTRACTOR SHALL, UPON COMPLETION OF PROJECT, PERFORM A COMPLETE TEST 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.
K. PROVIDE DUCT INSULATION AS SPECIFIED WITH MINIMUM VALUES AS FOLLOWS:
R-6 SUPPLY & 6 RETURN DUCT INSULATION IN UNCONDITIONED SPACES WITHIN BUILDING.
R-12 SUPPLY & 12 RETURN DUCT INSULATION WITHIN BUILDING ENVELOPE ASSEMBLY.
R-12 SUPPLY & 12 RETURN DUCT INSULATION OUTSIDE OF BUILDING.
L. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.

MECHANICAL FLOOR PLAN KEY NOTES

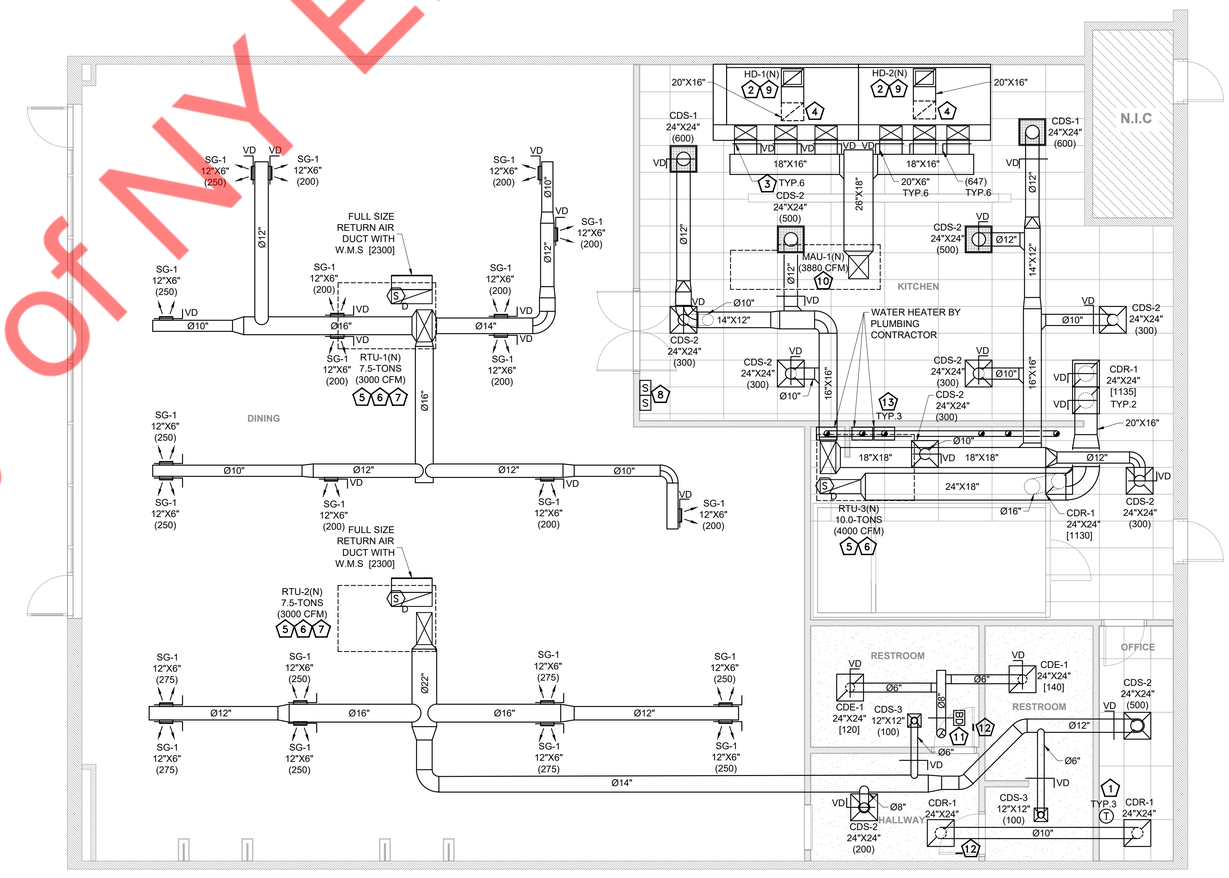
1. PROVIDE NEW 7-DAY PROGRAMMABLE THERMOSTAT WITH LOCKING COVER. LOCATE THERMOSTAT IN MANAGER'S OFFICE. PROVIDE REMOTE SENSOR LOCATED 48" A.F.F. NEAR LOCATION INDICATED. COORDINATE LOCATION ON SITE WITH GENERAL CONTRACTOR AND EQUIPMENT. AVOID LOCATING NEAR OR ABOVE SOURCES OF HEAT. INTERLOCK WITH ASSOCIATED RTU. CONFIRM FINAL LOCATION WITH ARCHITECT/OWNER.
2. INSTALL TYPE-I GREASE EXHAUST HOOD. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRAPEZE HANGERS FOR ALL THREAD SUPPORT UNDER DUCTWORK AS REQUIRED. TRANSITION FROM HOOD CONNECTION TO WELDED KITCHEN EXHAUST DUCT SIZES SHOWN. THE HOOD AND DUCT SHALL HAVE AN APPROVED FIRE PROTECTION. THE FIRE-EXTINGUISHING SYSTEM SHALL BE INTERCONNECTED TO THE FUEL OR CURRENT SUPPLY SO THAT THE FUEL OR CURRENT SUPPLY IS AUTOMATICALLY SHUT OFF TO ALL EQUIPMENT UNDER THE HOOD WHEN THE SYSTEM IS ACTUATED. REFER TO HOOD SCHEDULE AND DRAWINGS FOR HOOD SPECIFICATIONS AND FOR BALANCE OF MAKE-UP AIR AND SUPPLY TO HOOD.
3. FURNISH AND INSTALL MANUAL VOLUME DAMPER IN EACH SUPPLY AIR DUCT CONNECTED TO HOOD SUPPLY AIR PLENUM. REFER TO HOOD SCHEDULE FOR REQUIRED AIRFLOW AT EACH CONNECTION.
4. 20"X16" GREASE EXHAUST DUCT FROM HOOD UP THRU ROOF TO KITCHEN EXHAUST FAN. PROVIDE FIRE WRAP ON ON DUCT RATED FOR 0" CLEARANCE TO COMBUSTIBLES.
5. EXTEND FULL SIZE SUPPLY & RETURN DUCTWORK FROM ROOFTOP UNITS TO SPACE. EXTEND AS SHOWN. TRANSITION DUCT AS NECESSARY TO MAKE CONNECTION. ACOUSTICALLY LINE THE FIRST 10'-0" OF BOTH SUPPLY AND RETURN MAIN DUCTS.
6. CONTRACTOR TO PROVIDE TEMPERATURE SENSOR IN RETURN AIR DUCT & WIRE BACK TO RTUs.
7. DUCT MOUNTED SMOKE DETECTOR SHALL BE FURNISHED/INSTALLED BY MECHANICAL CONTRACTOR IN RETURN AIR DUCT AND WIRED BY ELECTRICAL CONTRACTOR TO SHUT DOWN CORRESPONDING RTU & MAU UNDER ALARM CONDITIONS. ALL WIRING SHALL BE IN CONDUIT PER N E C SMOKE DETECTOR SHALL BE SYSTEM SENSOR MODEL DH100ACDCLP OR EQUAL.
8. PROVIDE AND INSTALL EMERGENCY MANUAL SHUTDOWN PUSH BUTTON FOR HOOD. PUSH BUTTON SHALL BE IN THE PATH OF EGRESS, A MINIMUM OF 10' AWAY FROM THE HOOD AND A MAXIMUM OF 20'.
9. GREASE DUCT TO BE PROVIDED WITH KITCHEN EQUIPMENT AND INSTALLED BY MECHANICAL CONTRACTOR. INSTALL PER MANUFACTURER'S INSTRUCTIONS.
10. EXTEND MAKE-UP AIR DUCT FROM HOOD COLLAR UP TO MOUNTED MAKE-UP AIR UNIT ON ROOF MAU-1(N).
11. 8"Ø TOILET EXHAUST DUCT UP THRU ROOF TO TEF-1(N).
12. PROVIDE 1" DOOR UNDERCUT OR 6"X6" DOOR GRILLE.
13. PROVIDE 3"Ø/5"Ø CONCENTRIC VENT FOR WATER HEATER INTAKE & EXHAUST VENT. INSTALL AS PER MANUFACTURER'S RECOMMENDATION/INSTRUCTIONS. MAINTAIN A MINIMUM 10'-0" DISTANCE AWAY FROM ANY BUILDING/OUTSIDE AIR INTAKES.

KITCHEN EXHAUST NOTES

1. ALL TYPE I GREASE DUCT SHALL BE WRAPPED WITH TWO LAYERS OF 3M™ FIRE BARRIER DUCT WRAP 615+ DUCT ENCLOSURE SYSTEM PROVIDING 2-HOUR FIRE RESISTANT PROTECTION. WRAP SHALL CONSIST OF 3" PERIMETER AND LONGITUDINAL OVERLAPS WITH ZERO CLEARANCE TO COMBUSTIBLES. DUCT WRAP SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 96 AND ICC-ES EVALUATION REPORT NO. ESR-1255. DUCT WRAP IS UL LISTED. DUCT WRAP SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. MATERIAL - STEEL NOT LESS THAN 0.0575 INCH (NO. 16 GAGE) IN THICKNESS, WITH JOINTS AND SEAMS MADE WITH A CONTINUOUS LIQUID-TIGHT WELD MADE ON THE EXTERNAL SURFACE OF THE DUCT SYSTEM.
3. ALL TURNS IN KITCHEN EXHAUST DUCT SHALL BE ACHIEVED WITH THE USE OF A 1.5 RADIUS/WIDTH SMOOTH RADIUS ELBOW. REFERENCE DETAILS.
4. HORIZONTAL DUCT SERVING TYPE I HOODS SHALL BE SLOPED NOT LESS THAN 2% TOWARD HOOD.
5. A PERFORMANCE TEST SHALL BE CONDUCTED UPON COMPLETION AND BEFORE FINAL APPROVAL OF THE INSTALLATION OF A VENTILATION SYSTEM SERVING COMMERCIAL COOKING APPLIANCES. THE TEST SHALL VERIFY THE RATE OF EXHAUST AIRFLOW, MAKEUP AIRFLOW, AND PROPER OPERATION AS SPECIFIED IN THE MECHANICAL CODE (INCLUDING CAPTURE AND CONTAINMENT TEST). THE PERMIT HOLDER SHALL FURNISH THE NECESSARY TEST EQUIPMENT AND DEVICES REQUIRED TO PERFORM THE TESTS. COORDINATE ALL TESTS WITH AHJ, INCLUDING FINAL REPORT/SUBMITTAL AND WITNESS REQUIREMENTS.
6. SLOPE ALL HORIZONTAL GREASE DUCT 1" PER FOOT WHERE SPACE ALLOWS, BUT NOT LESS THAN 1/4" PER FOOT AS REQUIRED BY AHJ.
7. CONTRACTOR TO PROVIDE AND INSTALL ALL CODE REQUIRED FIRE RATED ACCESS DOORS IN GREASE DUCTS AT ALL LOCATIONS REQUIRED BY CODE AND LOCAL AUTHORITY HAVING JURISDICTION.
8. PROVIDE CLEANOUTS IN ALL KITCHEN EXHAUST DUCTWORK AT EVERY CHANGE OF DIRECTION AND AT EVERY 12' OF DUCT. PROVIDE ACCESS PANELS AT ALL GREASE DUCT CLEANOUTS. PROVIDE AS PER LOCAL CODE.
9. COORDINATE HOOD INSTALLATION WITH HOOD PLANS. HOOD OPERATION, CAPTURE, SIZE AND ACCESSORIES ARE BASED ON EQUIPMENT AND CLEARANCES INDICATED IN PLANS. FIELD VERIFY AND COORDINATE HOODS WITH EQUIPMENT FURNISHED. COORDINATE HOOD CONNECTIONS WITH HOOD PLANS AND MANUFACTURER PRIOR TO FABRICATION.
10. COORDINATE INTERLOCKS AND HOOD CONTROLS WITH HOOD PLANS AND HOOD MANUFACTURER PRIOR TO INSTALLATION.

IMPORTANT NOTE:

PROVIDE COPY OF TEST AND BALANCE REPORT TO MECHANICAL INSPECTOR AT TIME OF HAVING FINAL INSPECTION



1 M-3 MECHANICAL FLOOR PLAN
3/16" = 1'-0"

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PROJECT NO.:	13257
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ISSUED DATE:	

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Another Broken Egg Cafe
Mechanical Floor Plan

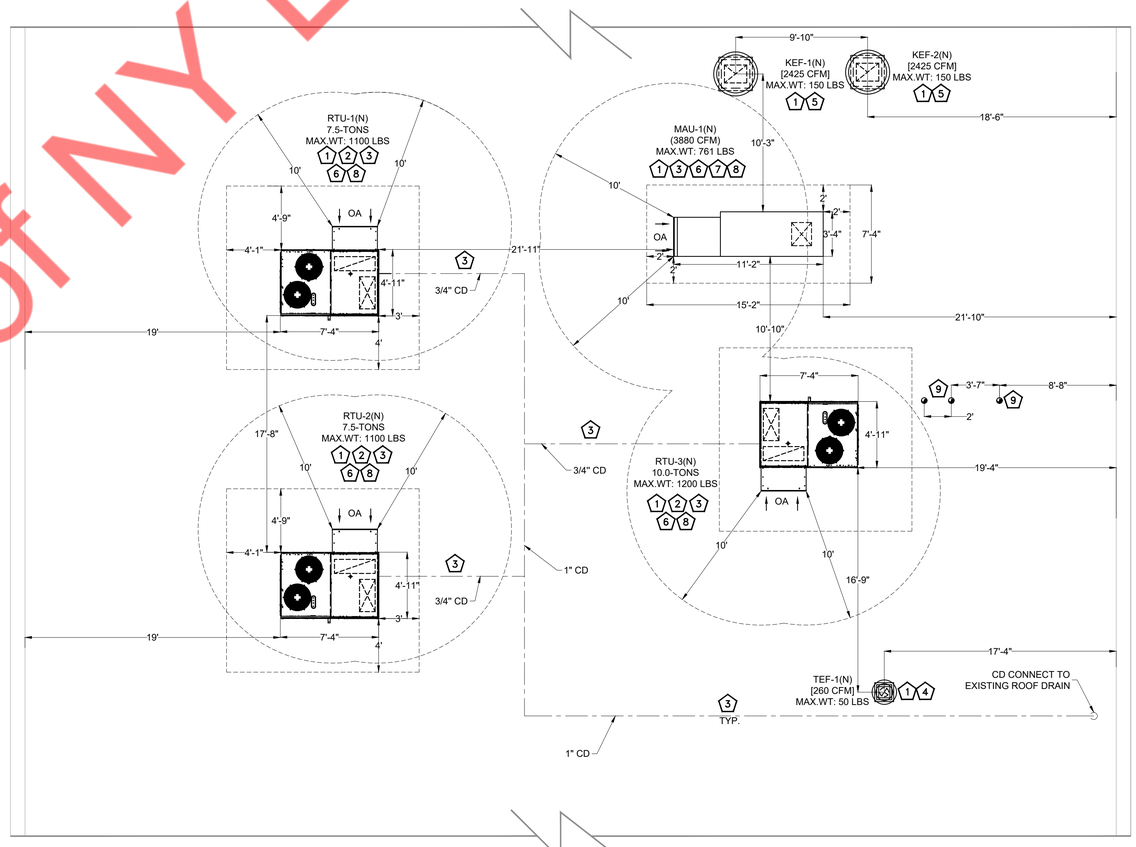
M-3

MECHANICAL GENERAL NOTES

A. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
B. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
C. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
D. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
E. ALL SOURCE OF MECHANICAL INTAKE SHALL MAINTAIN 10 LINEAR FEET SEPARATION BETWEEN ANY SOURCE OF EXHAUST. CONTRACTOR IS RESPONSIBLE TO ADJUST DUCT LENGTH AS NEEDED.
F. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TRUSSES AND MODIFY DUCTWORK ACCORDINGLY.
G. RTU,MAU & EXHAUST FAN WEIGHTS ARE INCLUDED ROOF CURBS AND/OR ADAPTORS.

MECHANICAL ROOF PLAN KEY NOTES

1. COORDINATE FINAL LOCATION OF EQUIPMENT WITH STRUCTURAL ENGINEER/DRAWINGS.
2. NEW ROOFTOP UNIT IS PROVIDED. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCT CONNECTIONS. SET OUTSIDE AIR AS INDICATED ON ROOFTOP UNIT SCHEDULES. MECHANICAL CONTRACTOR SHALL SCRIBE INTO UNIT POSITION OF OUTSIDE AIR DAMPER AND LABEL OUTSIDE AIR VOLUME AND PERCENT OF OUTSIDE AIR. TRANSITION AND CONNECT SUPPLY AND RETURN DUCTWORK FROM BELOW. COORDINATE ROUTING THROUGH STRUCTURAL TRUSSES AND OFFSET AS REQUIRED IN CURB SPACE.
3. ROUTE CONDENSATE DRAIN FROM RTU-1(N), RTU-2(N) & RTU-3(N) TO THE EXISTING ROOF DRAIN POINT ON THE ROOF. SUCH PIPING SHALL MAINTAIN A MINIMUM HORIZONTAL SLOPE IN THE DIRECTION OF NOT LESS THAN 1/8 TH UNIT VERTICAL IN 12 UNITS HORIZONTAL (1% SLOPE). CONDENSATE SHALL NOT DISCHARGE INTO A STREET, ALLEY OR OTHER AREAS SO AS TO CAUSE NUISANCE. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING ROOF DRAIN POINT. INSTALL & ROUTE CONDENSATE DRAIN PIPING AS PER MANUFACTURER'S RECOMMENDATION/INSTRUCTIONS.
4. PROVIDE ROOF MOUNTED TOILET EXHAUST FAN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES & A MINIMUM OF 40" ABOVE ROOF.
5. PROVIDE ROOF MOUNTED GREASE EXHAUST FAN. MAINTAIN A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES & A MINIMUM OF 40" ABOVE ROOF.
6. CONTRACTOR TO FIELD VERIFY THAT THE LOCATION OF ANY EXHAUST SOURCE SHOULD BE AT LEAST 10' AWAY FROM THE OUTSIDE AIR INTAKE OPENING OF RTUs & MAU.
7. PROVIDE MAKE-UP AIR UNIT AND ROOF CURB. PROVIDE FLEXIBLE CONNECTION ON THE SUPPLY DUCT CONNECTION TRANSITION TO DUCT SIZE INDICATED. FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID.
8. CONTRACTOR TO VERIFY IN FIELD THAT THE PENETRATIONS/DROPS OF NEW ROOFTOP UNITS DO NOT CLASH WITH ANY WALLS OR KITCHEN HOOD BELOW. NOTIFY ARCHITECT/OWNER OF ANY DISCREPANCIES PRIOR TO BID AND START OF WORK.
9. PROVIDE 3"Ø/5"Ø CONCENTRIC VENT FOR WATER HEATER INTAKE & EXHAUST VENT. INSTALL AS PER MANUFACTURER'S RECOMMENDATION/INSTRUCTIONS. MAINTAIN A MINIMUM 10'-0" DISTANCE AWAY FROM ANY BUILDING/OUTSIDE AIR INTAKES.



1 M-4 MECHANICAL ROOF PLAN
3/16" = 1'-0"

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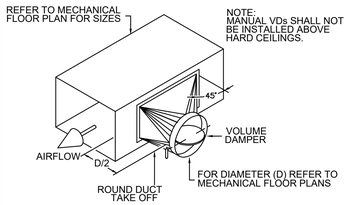
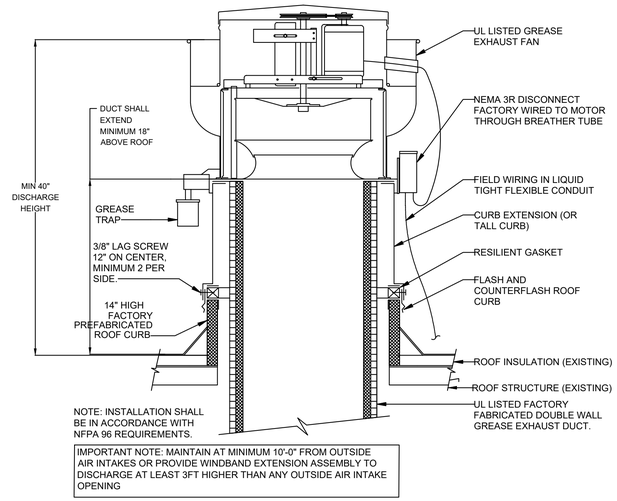
Another Broken Egg Cafe

Mechanical Roof Plan

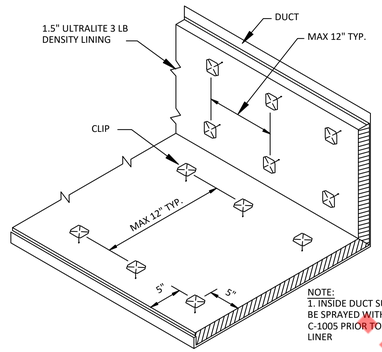
M-4



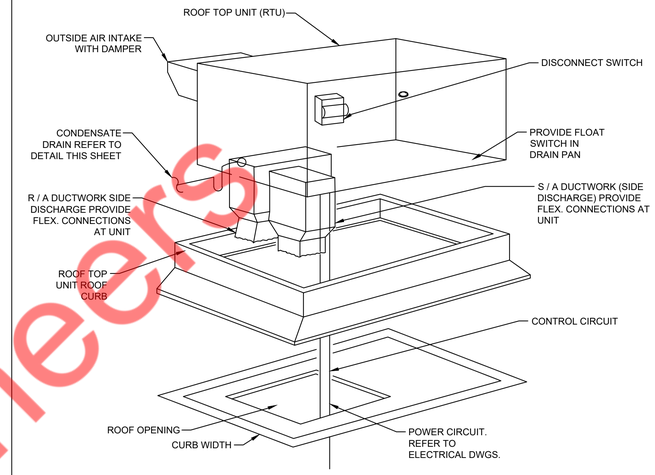
1 M-5 ROUND DUCT TAKE OFF DETAIL N.T.S



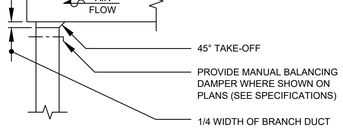
2 M-5 ROOF MOUNTED KITCHEN EXHAUST FAN DETAIL N.T.S



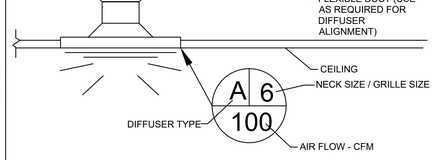
3 M-5 DUCT PLENUM LINING N.T.S



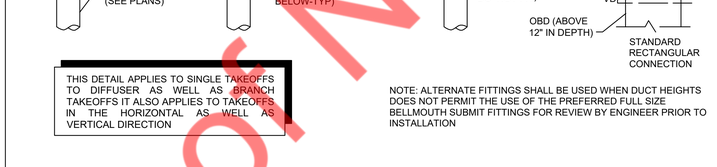
4 M-5 ROOF-TOP UNIT CURB DETAIL N.T.S



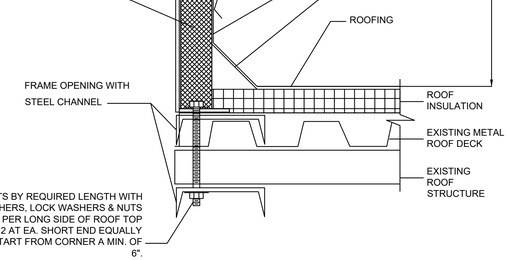
5 M-5 SUPPLY AIR DUCT DETAIL N.T.S



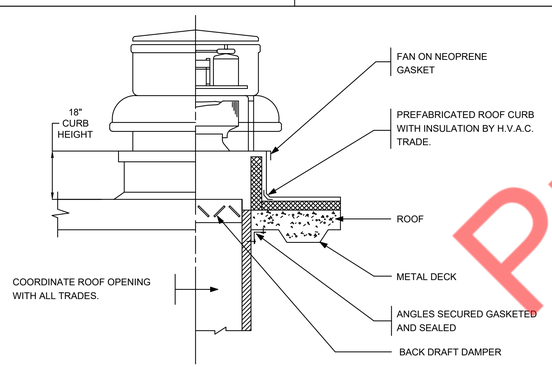
6 M-5 CEILING DIFFUSER BRANCH DUCT CONNECTION N.T.S



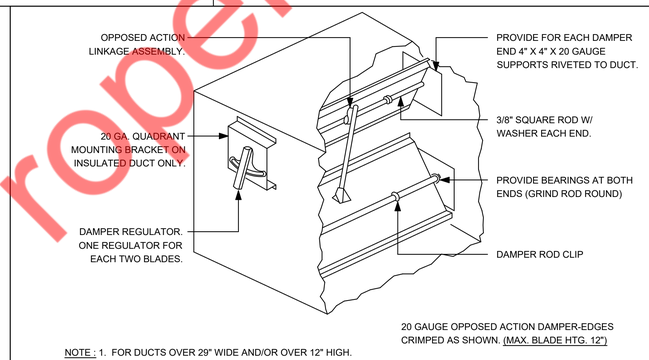
7 M-5 DUCT TAKEOFFS N.T.S



8 M-5 ROOF TOP UNIT INSTALLATION DETAILS N.T.S



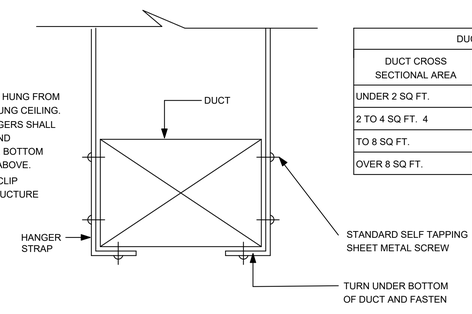
9 M-5 ROOF MOUNTED EXHAUST FAN DETAIL N.T.S



10 M-5 LOW PRESSURE BALANCING DAMPER N.T.S

NOTES:

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



DUCT HANGER SCHEDULE

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

11 M-5 DUCT HANGING DETAILS N.T.S

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Another Broken Egg Cafe

Mechanical Details

M-5

ROOF TOP UNIT (GAS HEAT) SCHEDULE

UNIT ID	MANUFACTURER	MODEL	AREA SERVED	NOMINAL TONS	SUPPLY FAN			HEATING CAPACITY		COOLING CAPACITY				ELECTRICAL DATA				EER	IEER	THERMAL EFFICIENCY %	MAX OPERATING WEIGHT (LBS.)
					SUPPLY AIR CFM	OUTSIDE AIR CFM	MAX. ESP (IN. OF W.G.)	INPUT MBH	OUTPUT MBH	TOTAL MBH	SENSIBLE MBH	AMBIENT TEMP. DB	ENTERING TEMP. DB / WB (°F)	VOLTS	PHASE	MCA (A)	MOCP (A)				
RTU-1(N)	CARRIER	48FEEM08B2A5-0A0A0 (OR EQUIVALENT)	SEE PLAN	7.5	3000	500	1.0	180.0	148.0	93.4	71.1	95	80/67	208-230	3	37	45	11.2	15	82	1100
RTU-2(N)	CARRIER	48FEEM08B2A5-0A0A0 (OR EQUIVALENT)	SEE PLAN	7.5	3000	500	1.0	180.0	148.0	93.4	71.1	95	80/67	208-230	3	37	45	11.2	15	82	1100
RTU-3(N)	CARRIER	48FEEM12B2A5-0A0A0 (OR EQUIVALENT)	SEE PLAN	10	4000	600	1.0	224.0	181.0	123.9	92.5	95	80/67	208-230	3	52	60	11	15	81	1200

NOTES / ACCESSORIES -

1. CONTRACTOR TO BALANCE OUTSIDE AIR DAMPER ON RTUs TO MATCH VALUE MENTIONED IN EQUIPMENT SCHEDULE.
2. PROVIDE GFI OUTLET WITH IN USE WEATHERPROOF COVER FOR EACH UNIT.
3. REPLACE ALL AIR FILTERS WITH NEW MERV-13 FILTERS BEFORE HANDING OVER THE SPACE TO THE OWNER/TENANT.
4. BOTTOM DISCHARGE & RETURN CONFIGURATION.
5. UNIT TO BE PROVIDED WITH LOW LEAKAGE VOLUME CONTROL DAMPER, NEMA 3R DISCONNECT, FAN WITH VFD, VIBRATION ISOLATION SPRING SUPPORTED BLOWER, INTAKE HOOD, SCREEN INTAKE.
6. PROVIDE ENTHALPY ECONOMIZER WITH BAROMATRIC RELIEF & FDD FOR RTU-1(N), RTU-2(N) & RTU-3(N).
7. PROVIDE FLEXIBLE CONNECTION AT DUCT CONNECTION TO UNIT.
8. PROVIDE VIBRATION ISOLATOR FOR UNIT MOUNTING.
9. UNIT SHALL BE COMPLETE WITH GAS HEATING SECTION. GAS REGULATOR TO RECEIVE 4-13" GAS PRESSURE FROM MAIN.
10. PROVIDE SMOKE DETECTOR IN RETURN AIR SIDE OF RTU-1(N), RTU-2(N) & RTU-3(N). PROVIDE GLOBAL SHUTDOWN TO ALL HVAC UNITS UPON ACTIVATION OF A BUILDING'S FIRE ALARM SYSTEM.
11. PROVIDE ALL COMPRESSORS WITH 5 YEAR WARRANTY.
12. ANTI SHORT CYCLE TIMER.
13. PROVIDE 14" ROOF CURB. CONTRACTOR TO FIELD INSULATE.
14. CONNECT CONDENSATE DRAIN LINE FROM ALL RTUs ON THE ROOF TO THE NEAREST DRAIN POINT. CONNECT TO A DRAIN LINE VIA AIR GAP IN AN APPROVED MANNER.

MAKE-UP AIR UNIT SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	MOTOR HP	GAS HEATING CAPACITY (MBH)	MIN.GAS PRESSURE (IN W.C.)	FAN		MAU ELECTRICAL DATA			MAX WEIGHT
							AIR (CFM)	E.S.P (IN. W.G.)	V/PH/HZ	MCA (A)	MOCP (A)	(LBS)
MAU-1(N)	SELECT AIR SYSTEM	V3-HOX	HD-1(N) & HD-2(N)	3	319	8"	3880	0.75"	208-3-60	23.2	30	761

NOTES:

1. PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.
2. REFER TO CAPTIVEAIRE DRAWINGS ON SHEET H-1 TO H-4 FOR SPECIFICATIONS AND MORE DETAILS. SCHEDULES SHOWN FOR REFERENCE ONLY.
3. MAU-1(N) SHALL BE CONTROLLED BY HOOD CONTROLS

KITCHEN EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	SERVICE	DRIVE TYPE	RPM	MOTOR HP	EXHAUST AIR DATA		ELECTRICAL DATA			MAX. WEIGHT
							AIR (CFM)	E.S.P (IN. W.G.)	VOLTAGE	PHASE	FLA	(LBS)
KEF-1(N)	COOK	VCR	HD-1(N)	BELT DRIVE	1725	1	2425	1.00	208	3	4.6	150
KEF-2(N)	COOK	VCR	HD-2(N)	BELT DRIVE	1725	1	2425	1.00	208	3	4.6	150

NOTES:

1. FAN SHALL BE CONTROLLED BY HOOD CONTROLS. INTERLOCK WITH RTU-3(N) TO OPERATE IN OCCUPIED MODE WHILE KITCHEN EXHAUST FAN IS ENERGIZED.
2. REFER TO COOK SYSTEM DRAWINGS ON SHEET H-1 TO H-4 FOR SPECIFICATIONS AND MORE DETAILS. SCHEDULES SHOWN FOR REFERENCE ONLY.
3. PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.

TOILET EXHAUST FAN SCHEDULE

TAG	QUANTITY	FLOW RATE	STATIC PRESSURE EXTERNAL	ELECTRIC DATA					MAXIMUM LOUDNESS	BASIS OF DESIGN		MAX. WEIGHT (LBS)
				SPEED	HP	V/PH/HZ	MCA (A)	MOCP (A)		MANUFACTURER	MODEL	
		CFM	IN W.G.	RPM					DBA			
TEF-1(N)	1	280	0.5	1346	1/6	115/60/1	3.5	15	53	GREENHECK	G-095-VG	50

NOTES:

1. INTERCONNECT WITH RTU-1(N).
2. PROVIDE FACTORY MOUNTED AND INSTALLED DISCONNECT.
3. INSTALL AS PER MANUFACTURERS RECOMMENDATION.
4. PROVIDE ROOF CURB, NEMA 3R DISCONNECT SWITCH, THERMAL OVERLOAD PROTECTION.

HOOD SCHEDULE

UNIT ID	MANUFACTURER	HOOD DIMENSIONS (LXWXH) (IN.)	TYPE	MODEL	SERVICE	EXHAUST AIR (CFM)	EXHAUST COLLAR (WXL) (IN.)	SUPPLY AIR (CFM)	CONSTRUCTION
HD-1(N)	SELECT AIR SYSTEM	116X54X24	I	EC-FP1	KITCHEN	2425	12X16	1940	430 SS
HD-2(N)	SELECT AIR SYSTEM	116X54X24	I	EC-FP1	KITCHEN	2425	12X16	1940	430 SS

NOTES:

1. REFER TO SELECT AIR SYSTEM DRAWINGS ON SHEET H-1 TO H-2 FOR SPECIFICATIONS AND MORE DETAILS. SCHEDULES SHOWN FOR REFERENCE ONLY.
2. INCLUDE HOOD CONTROLLER WITH CONTROL PANEL FOR CONTROL OF HOOD, EXHAUST FAN & MAKE-UP AIR UNIT. THE CONTROLLER SHOULD INTEGRATE & CONTROL KITCHEN EXHAUST FAN & MAKE-UP AIR UNIT CONNECTED TO HOODS.

VENTILATION CALCULATION

ROOM NAME	AREA (SQ.FT.)	NUMBER OF PEOPLE/1000 SQFT AS PER 2024 OHIO MECHANICAL CODE	NUMBER OF PEOPLE AS PER 2024 OHIO MECHANICAL CODE	NUMBER OF CHAIR	FINAL PEOPLE NO.	MIN OUTSIDE AIR AS PER 2024 OHIO MECHANICAL CODE		REQ. OA (CFM)	PROVIDED OA (CFM)	EXHAUST AIRFLOW RATE (CFM/SQ.FT OR /FIXT.)	TOTAL EXHAUST (CFM)	PROVIDED EXHAUST (CFM)
						CFM/PEOPLE	CFM/SQ.FT.					
DINING	2715	70	191	107	162	7.5	0.18	1705		0	0	0
BAR	162	100	17	4	4	7.5	0.18	60		0	0	0
KITCHEN	1209	20	25	8	8	7.5	0.12	210		0.7	850	4850
OFFICE	96	5	1	1	1	5	0.06	15	2000	0	0	0
RESTROOM-01	140	0	0	0	0	0	0	0		70	140	140
RESTROOM-02	113	0	0	0	0	0	0	0		70	140	140
HALLWAY	100	0	0	0	0	0	0.06	10		0	0	0
TOTAL	**4535**	**-**	**234**	**-**	**175**	**-**	**-**	**2000**	**2000**	**-**	**1130**	**5130**

AIR TERMINAL DEVICES SCHEDULE

TAG	SIZE (IN.)	DESCRIPTION	CONSTRUCTION	NECK SIZE (IN.)	BASIS OF DESIGN		NOTES
					MANUFACTURER	MODEL	
CDS-1	24"X24"	ALUMINIUM FACE, STEEL BACKPAN PERFORATED SUPPLY DIFFUSER WITH FACE MOUNTED DEFLECTORS	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	PAS-AA	1,2,3,4,5,7
CDS-2	24"X24"	SQUARE CONE DIFFUSER	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMS-AA	1,2,3,4,5,7
CDS-3	12"X12"	SQUARE CONE DIFFUSER	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	TMS-AA	1,2,3,4,5,7
SG-1	12"X6"	ALUMINUM SPIRAL DUCT MOUNTED GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	S300FL	1,2,3,4,5,6
CDR-1	24"X24"	ALUMINUM EGGCRATE RETURN GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	50F	1,2,3,4,5,7
CDE-1	24"X24"	ALUMINUM EGGCRATE RETURN GRILLE	ALUMINUM	PER PLAN	TITUS (OR EQUIVALENT)	50F	1,2,3,4,5,7

1. PROVIDE FRAME FOR MOUNTING AIR DEVICE IN LAY-IN GRID CEILING UNLESS REFLECTED CEILING PLAN INDICATES HARD CEILING. IN AREAS WITH HARD CEILINGS, PROVIDE FRAMES FOR SURFACE MOUNTING.
2. UNLESS OTHERWISE NOTED, BRANCH DUCTS SERVING AIR DEVICES SHALL BE SAME SIZE AS NECK OF AIR DEVICE.
3. ARCHITECT/OWNER TO CONFIRM FINAL COLOR/FINISH/BORDER TYPE.
4. MAXIMUM NOISE CRITERION RATING < 30 DBA.
5. PROVIDE AN OPPOSITE BLADE DAMPER FOR AIR BALANCING.
6. PROVIDE AIR SCOOP DEVICE FOR DUCT MOUNTED GRILLE.
7. FOR ROUND NECK DIFFUSERS: NECK SIZES SHALL BE:-
16" DIA: 901-1100 CFM
14" DIA: 601-900 CFM
12" DIA: 401-600 CFM
10" DIA: 201-400 CFM
8" DIA: 101-200 CFM
6" DIA: 0-100 CFM

TENANT SHALL PROVIDE A FULL SET OF STRUCTURAL DRAWINGS SHOWING EXISTING ROOF STRUCTURE CAN HANDLE ALL NEW ROOF TOP EQUIPMENT FOR LANDLORDS REVIEW AND RECORD KEEPING, OR LETTER FROM STRUCTURAL ENGINEER OR ARCHITECT

AIR BALANCE

UNIT	AREA SERVED	SUPPLY AIR	OUTSIDE AIR	RETURN AIR	EXHAUST AIR
RTU-1(N)	SEE PLAN	3000 CFM	700 CFM	2300 CFM	-
RTU-2(N)	SEE PLAN	3000 CFM	700 CFM	2300 CFM	-
RTU-3(N)	SEE PLAN	4000 CFM	600 CFM	3400 CFM	
MAU-1(N)	SEE PLAN	3880 CFM	3880 CFM	-	
KEF-1(N)	SEE PLAN	-	-	-	2425 CFM
KEF-2(N)	SEE PLAN	-	-	-	2425 CFM
TEF-1(N)	SEE PLAN	-	-	-	280 CFM
	TOTAL:	13880 CFM	5880 CFM	8000 CFM	5130 CFM
	BUILDING PRESSURE:	.....		750 CFM	**POSITIVE**

1. CONTRACTOR TO BALANCE OUTSIDE AIR & RETURN AIR DAMPERS ON RTUs TO MATCH VALUES AS MENTIONED IN ABOVE TABLE.

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

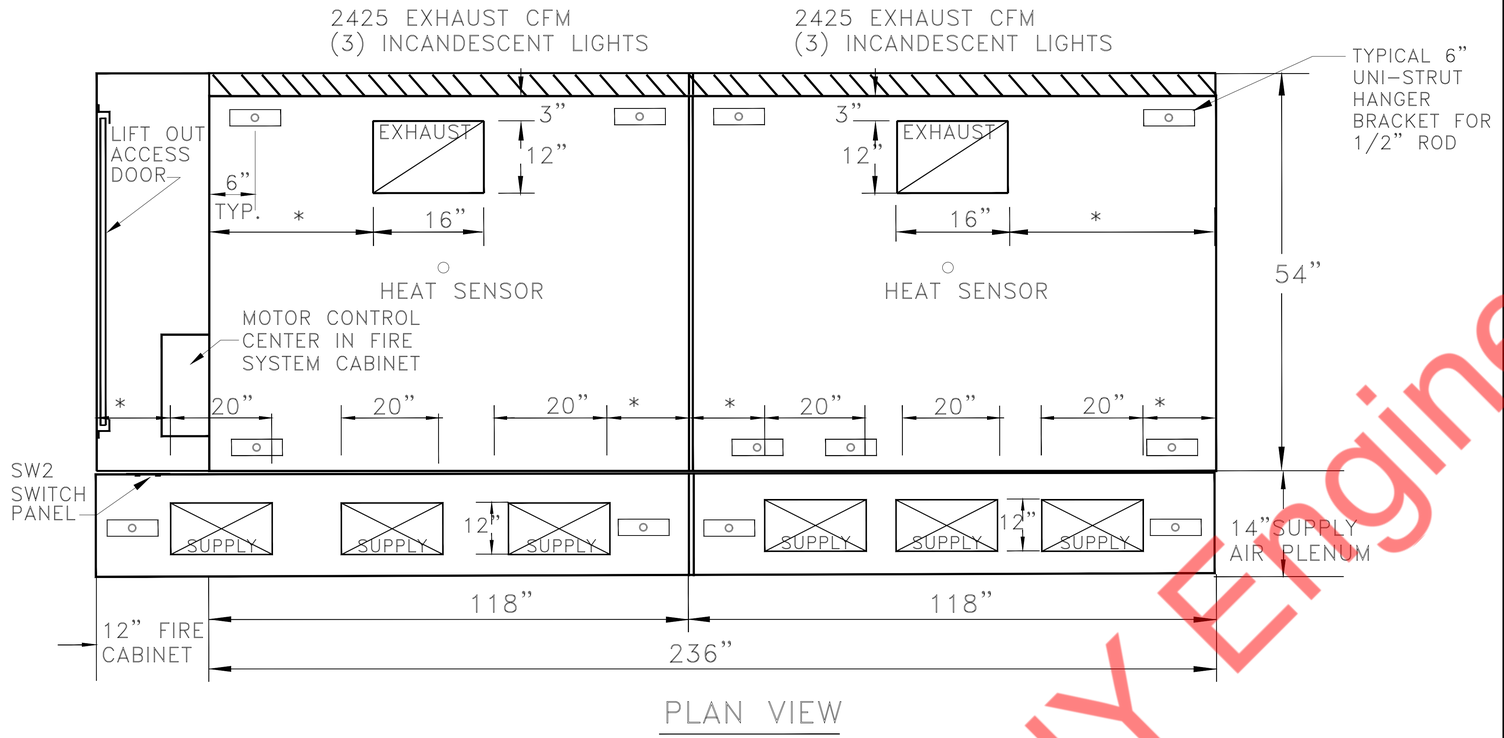
ISSUED REVISIONS:

1. 2. 3. 4. 5. 6. 7. 8.

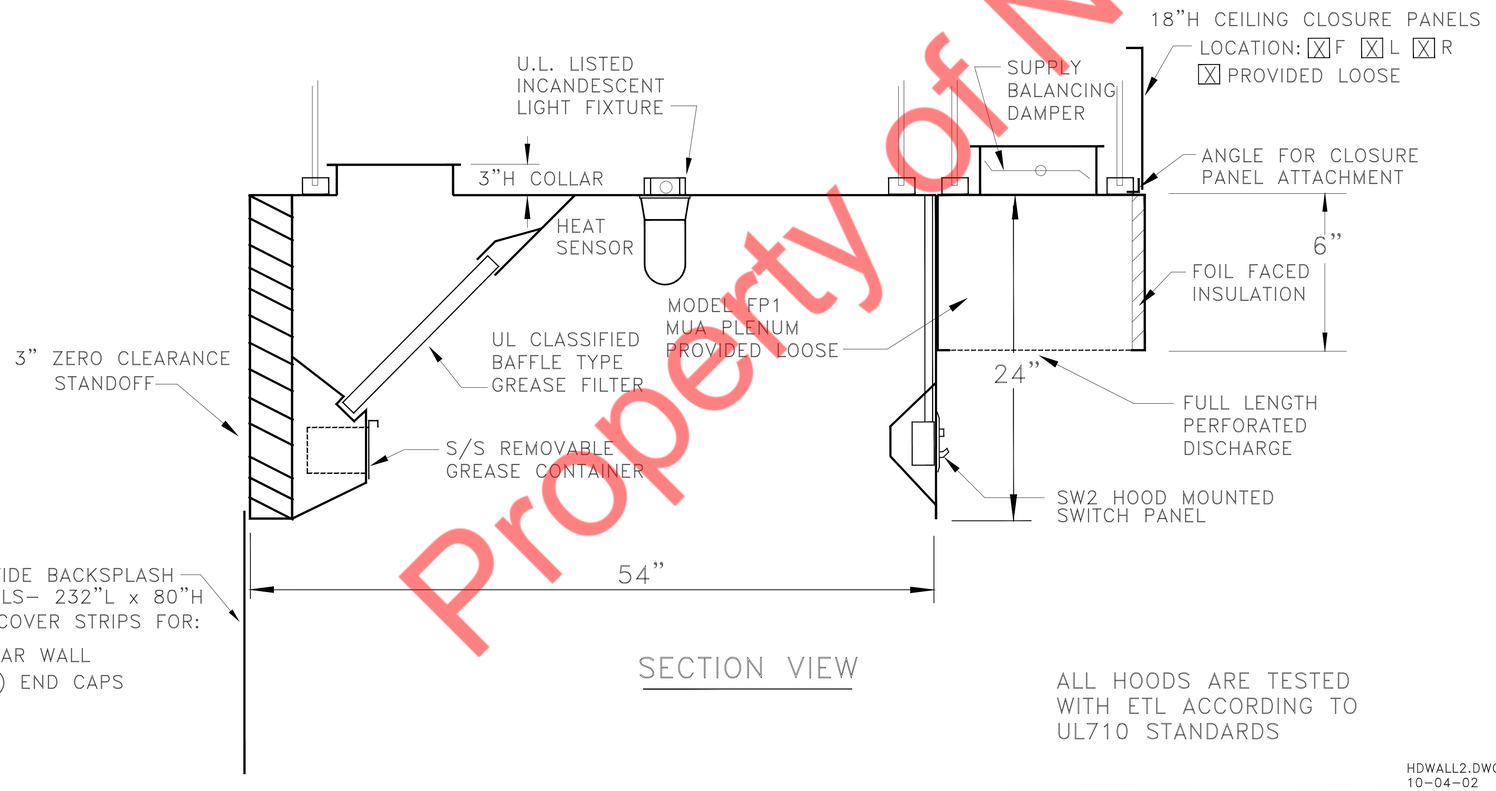
Another Broken Egg Cafe

Mechanical Schedules

M-6



PLAN VIEW



SECTION VIEW

ALL HOODS ARE TESTED WITH ETL ACCORDING TO UL710 STANDARDS

HDWALL2.DWG
10-04-02

KITCHEN HOOD–MODEL EC –FP1
HOOD CONSTRUCTION 430 STAINLESS STEEL (WHERE EXPOSED)
FINISH: # 3 POLISH
GREASE FILTERS: STAINLESS STEEL (8) 20X20 (4) 20X16
HOOD LIGHTS: (6) UL LISTED VP INCANDESCENT
EXHAUST CFM: 4850
SUPPLY CFM: 3880
CONTROLS: SW2 "LIGHTS, FANS"
OTHER: HEAT SENSOR X 2 (SNAP)
OTHER:
TAG:
HOOD WGT: (INSTALLED)
NOTES: INSTALL WET CHEMICAL FIRE SUPPRESSION SYSTEM

ETL LISTED · NSF · NFPA 96 · ICC BUILT PER IMC 2000 CODE

PROJECT NAME
ANOTHER BROKEN EGG

LOCATION

DATE	PROJECT #

SUBMITTAL APPROVAL: DATE: _____

[ ] APPROVED [ ] REVISE & RESUBMIT

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:
1
2
3
4
5
6
7
8

Another Broken Egg Cafe
Kitchen Hood Drawings (1 of 4)

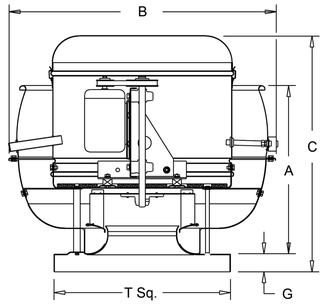
H-1

COOK

VCR

Upblast Centrifugal
Exhaust Ventilator
Roof Mounted/Belt Drive

MARK: EF-1	
PROJECT: ABE	
DATE: 7/8/2025	



STANDARD CONSTRUCTION FEATURES:
All aluminum housing - Backward inclined all aluminum wheel - Two piece top cap with stainless steel quick release latches - One piece bottom spinning - Welded curb cap corners - Lifting Lugs - Permanently lubricated ball bearing motors - Oil and heat resistant, static conducting belts - Adjustable pitch drives through 5 hp motor - Corrosion resistant fasteners - Regreasable bearings in cast iron pillow block housing, rated at 200,000 hours average life - All fans factory adjusted to specified fan RPM - Transit tested packaging.

Performance (*Bhp includes 11% drive loss)

Qty	Catalog Number	Flow (CFM)	SP (inwc)	Fan RPM	Power* (HP)	FEG	FEI
2	180V7B	2425	1.00	1040	.746	n/a(<1HP)	1.46

Altitude (ft): 899 Temperature (F): 70

Motor Information

HP	RPM	Volts/Ph/Hz	Enclosure	FLA	Mounted	VFD Rated
1	1725	208/3/60	ODP -PE	4.6	Yes	Yes

FLA based on NEC (2017) Table 430.250

Sound Data Inlet Sound Power by Octave Band

1	2	3	4	5	6	7	8	LwA	dBA	Sones
67	71	81	70	68	66	60	58	75	64	12.7

- Distance from Sound source 5 ft

Accessories:
Premium Efficiency Motor (Min. 85.5%)
DRIVES (1.5 SF) @ 1040 RPM
DISCONNECT NEMA 3 PRE-WIRED
UL762 (327Y-300DEG)
KEYWAY GREASE TROUGH

Dimensions (inches)

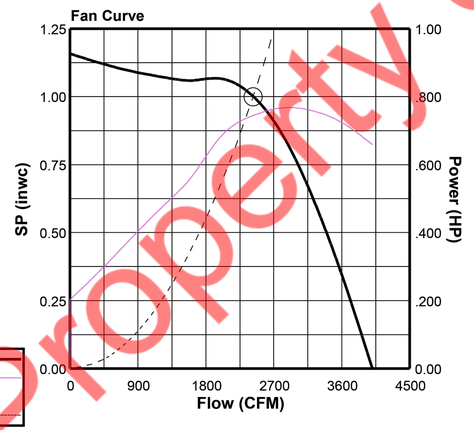
A	24-13/16
B	39-7/16
C	35-7/8
G	3
T Sq.	30
Roof Open. Sq.*	25-1/2

NOTE: Accessories may affect dimensions shown.

Weight(lbs)***	Shipping	149	Unit	118

* Roof opening size for curbs supplied by Cook only.
***Includes fan, motor & accessories.

Fan Curve

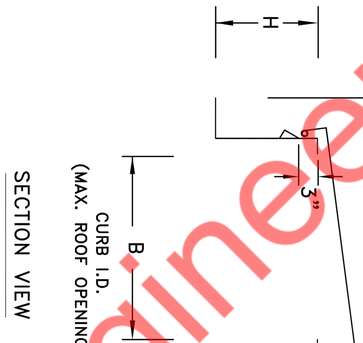


Fan Curve Legend

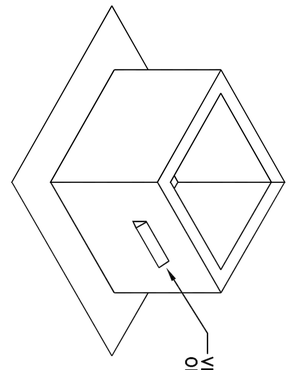
CFM vs SP
CFM vs HP
Point of Operation
System Curve

v8.0.433.16592

Page 1 of 2



SECTION VIEW



ISOMETRIC VIEW

NOTE:
PROVIDE EXH. CURBS WITH OPTIONAL HINGED BASE, AS FOLLOWS:
HINGE BASE O.D. NOT TO EXCEED 29.5" SQ.

ROOF CURB SCHEDULE

FAN MODEL	CURB MODEL	A	B	H	OPTIONS	QTY.	TAG	CURB WEIGHT
180V7B	RC285	28.5"	26.5"	18"		2	EXHAUST	

ROOF CURB – MODEL RC

STANDARD FEATURES:
- 18 GAUGE GALVANIZED STEEL
- ALL WELDED, WEATHERPROOF CONSTRUCTION.
- SELF FLASHING CURB BASE

OPTIONS AVAILABLE:
1. FIBERGLASS INSULATED CONSTRUCTION
2. VENTED CONSTRUCTION
3. PITCHED ROOF
4. .063" ALUMINUM CONSTRUCTION
5. PAINTED FINISH
6. INTERIOR METAL LINER

NOTES:

PROJECT NAME
ABE

LOCATION

DATE | PROJECT #

SUBMITTAL APPROVAL: DATE:_____
☐ APPROVED ☐ REVISE & RESUBMIT

RCURB.DWG
02-12-01

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:
1
2
3
4
5
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7
8

Another Broken Egg Cafe
Kitchen Hood Drawings (2 of 4)

H-2

COOK

VCR

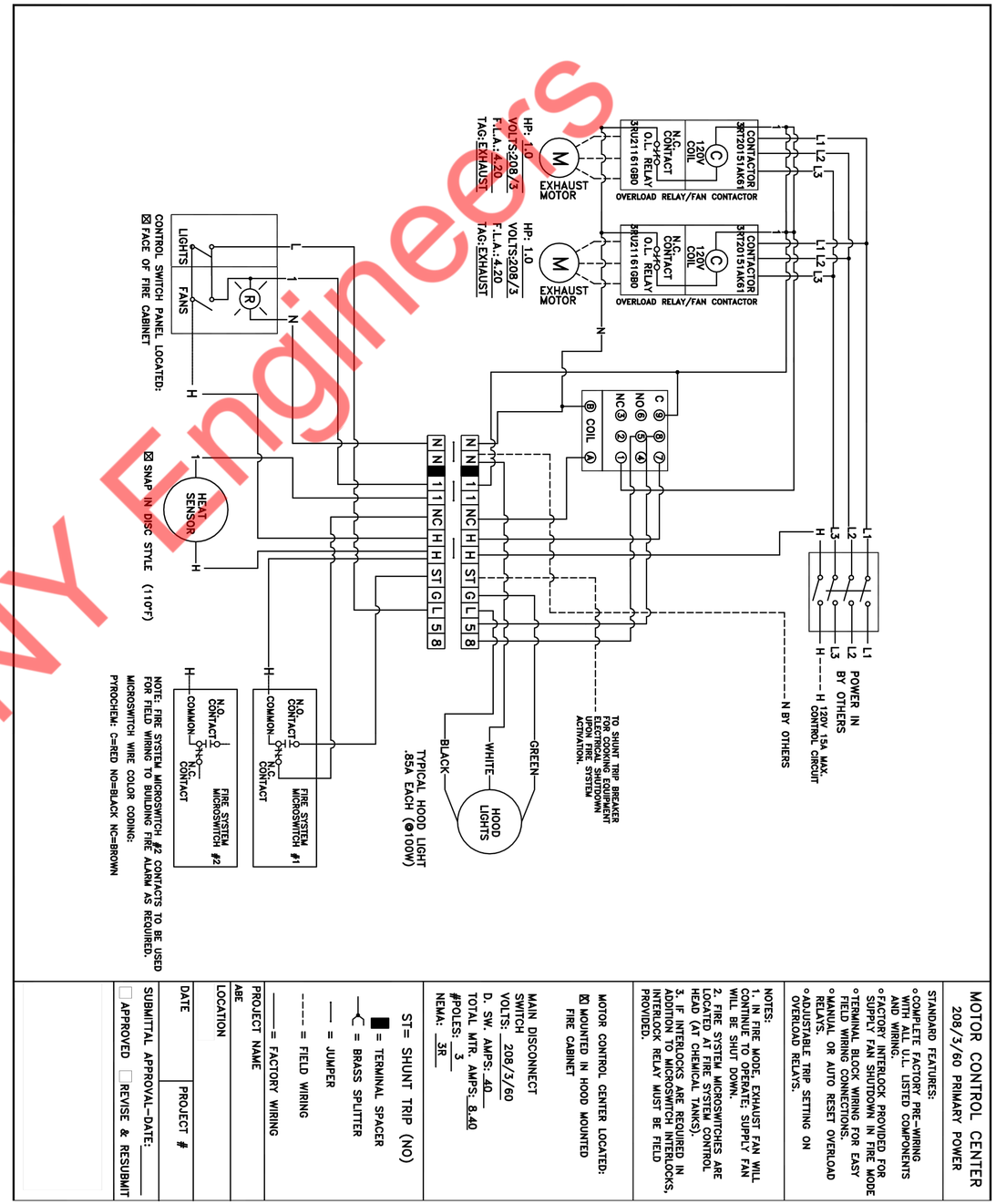
MARK: EF-1	
PROJECT: ABE	
DATE: 7/8/2025	

AMCA License Information

amca WORLDWIDE CERTIFIED RATINGS
SOUND AND AIR PERFORMANCE
FEI FAN ENERGY INDEX
AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.
www.amca.org

Loren Cook Company certifies that the 180V7B shown herein is licensed to bear the AMCA Seal. The ratings shown are based on tests and procedures performed in accordance with AMCA Publication 211 and AMCA Publication 311 and comply with the requirements of the AMCA Certified Ratings Program.

Performance certified is for installation type A: free inlet, free outlet. Power rating (BHP/kW) does not include transmission losses. Performance ratings do not include the effects of appurtenances (accessories).



MOTOR CONTROL CENTER 208/3/60 PRIMARY POWER

STANDARD FEATURES:
- COMPLETE FACTORY PRE-WIRING WITH ALL U.L. LISTED COMPONENTS AND WIRING.
- FACTORY INTERLOCK PROVIDED FOR SUPPLY FAN SHUTDOWN IN FIRE MODE
- TERMINAL BLOCK WIRING FOR EASY FIELD WIRING CONNECTIONS.
- MANUAL OR AUTO RESET OVERLOAD RELAYS.
- ADJUSTABLE TRIP SETTING ON OVERLOAD RELAYS.

MOTOR CONTROL CENTER LOCATED:
☒ MOUNTED IN HOOD MOUNTED FIRE CABINET

MAIN DISCONNECT SWITCH VOLTS: 208/3/60
D. SW. AMPS: 40
TOTAL MTR. AMPS: 8.40
#POLES: 3
NEMA: 3R

NOTES:
1. IN FIRE MODE, EXHAUST FAN WILL CONTINUE TO OPERATE; SUPPLY FAN WILL BE SHUT DOWN.
2. FIRE SYSTEM MICROSWITCHES ARE LOCATED AT FIRE SYSTEM CONTROL HEAD (AT CHEMICAL TANKS).
3. IF INTERLOCKS ARE REQUIRED IN ADDITION TO MICROSWITCH INTERLOCKS, INTERLOCK RELAY MUST BE FIELD PROVIDED.

ST= SHUNT TRIP (NO)
■ = TERMINAL SPACER
⊂ = BRASS SPLITTER
—— = JUMPER
- - - - = FIELD WIRING
_____ = FACTORY WIRING

PROJECT NAME
ABE
LOCATION

DATE | PROJECT #

SUBMITTAL APPROVAL—DATE: _____
☐ APPROVED ☐ REVISE & RESUBMIT

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:
1
2
3
4
5
6
7
8

Another Broken Egg Cafe
Kitchen Hood Drawings (3 of 4)

H-3

PROPRIETARY

PERFORMANCE & SPECIFICATIONS			
MODEL:	V3-HOX	QUANTITY:	1
CONTROLS SIDE:	LEFT (STD)	DISCHARGE:	BOTTOM
3880 CFM @ 0.75" WC ESP (1.86" WC TSP) @ 750' ELEV.			
BLOWER SIZE:	G15 CANARM/DELHI		
MOTOR HORSEPOWER:	3.00 HP (IMP)		
MOTOR TYPE:	PREM-EFF ODP		
VOLTAGE:	208/3/60		
UNIT FLA / MCA / MOP:	21.00 AMPS / 23.20 AMPS / 30 AMPS		
GAS TYPE:	NATURAL		
HEATING CAPACITY:	319Z MBH (≈ 70.0° F ΔT)		
GAS PRESSURE - MIN.:	8" WC	MAX.:	14" WC
GAS LINE SIZE:	3/4"		
INSURANCE TYPE:	FM/ETL		
MOUNTING LOCATION:	OUTDOOR		
UNIT MATERIAL:	GALVANIZED		
PAINT COLOR:	NONE		

FEATURES & ACCESSORIES	WEIGHT
* (2) 1.00 HP 208/3/60 Exh. Fan Motor Starters	–
* Flat, Insulated Full Curb (shipped knocked down)	80 LBS.
* OA Filtered Inlet Hood (shipped knocked down) with:	75 LBS.
– 2" Aluminum Cleanable Filters (MERV 6)	–
* Base Unit	560 LBS.
* Motorized Inlet Damper	46 LBS.
* (4) Drop-Out Access Doors	–
* Unit Insulation (1" foil face)	–
* Internal Vibration Isolators (rubber)	–
* Maxon NP-1-LE Cast Alum. Direct Fired Burner	–
w/Stainless Steel Mixing Plates	–
* Maxitrol 14 DTC (55°-90°F) w/TD @ Unit	–
* Direct Spark Ign. w/Flame Rod Burner Supervision	–
* Non-Fused Disconnect Switch	–
* Mild Weather Stat Circuit	–
* 10 Ft. Wiring Harness for Power	–
* 10 Ft. Wiring Harness for Remote	–
* SW2 - Fan On/Off & Hood Light Switches	–
* Main Control Panel	–
(meets NEMA 1,2,3,3R,3S,4,5 & 12 requirements)	–
* Auto-Profiler System	–
–	–
–	–
–	–
–	–
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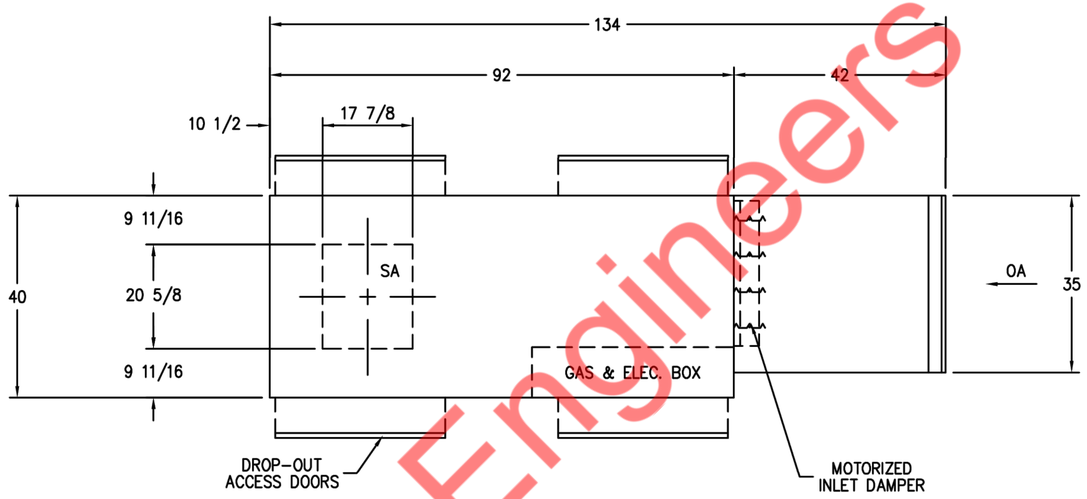
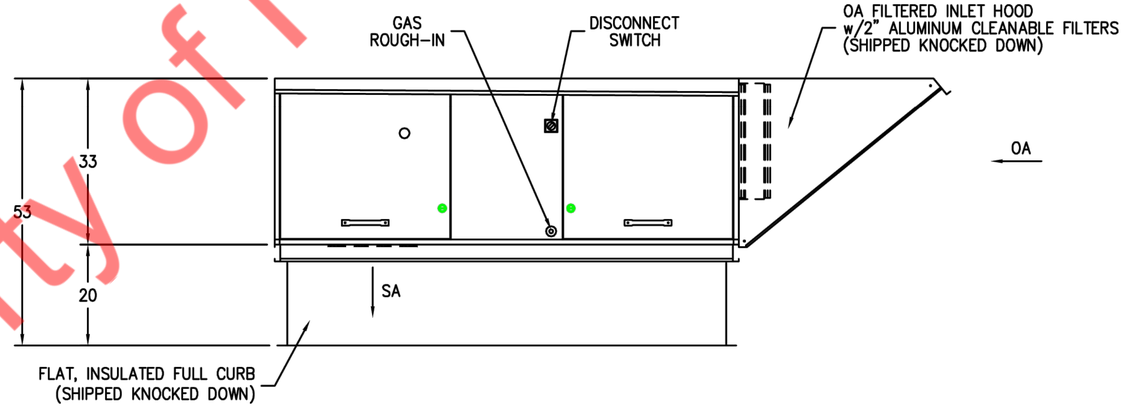
TOTAL APPROXIMATE WEIGHT:	761 LBS.



PLAN VIEW



CONTROLS SIDE VIEW

REV.	DATE	BY	DESCRIPTION OF REVISION
A	03-21-19	MMD	Increased Airflow, External Static Pressure & Motor Horsepower
B	03-21-19	MMD	Increased Heating Capacity changed Burner Manufacturer from Midco
–	–	–	–

PROJECT NAME:	ABE		
REF. NO./JOB NO.: V3 WITH DAMPER	MODEL: V3-HOX	TAG: –	
DRAWN BY:	DATE:	SCALE: NONE	
CERTIFIED BY:	DRAWING NO.: U:\HTR-SUBM\V-SERIES\33277		

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

Another Broken Egg Cafe

Kitchen Hood Drawings (4 of 4)

LIGHTING PLAN LEGENDS

^{A} / $_{a}$	SWITCH TYPE (SUPERSCRIPT IN UPPERCASE) 20A, 120V SPST WALL SWITCH (UON) SWITCH TAG (SUBSCRIPT IN LOWERCASE)
$^{OS}	WALL SWITCH WITH OCCUPANCY SENSOR
$^{V}	WALL SWITCH WITH VACANCY SENSOR
$^{T}	WALL SWITCH WITH TIMER
$^{D,T}	WALL SWITCH WITH DIMMER & TIMER
$^{3}	3 WAY WALL SWITCH (SPDT)
$^{4}	4 WAY / INTERMEDIATE WALL SWITCH (DPDT)
$^{R}	WALL SWITCH WITH SPEED REGULATOR
$^{M}	MOTOR RATED WALL SWITCH
$^{Th}	THERMOSTAT WALL SWITCH
$^{MO}	MANUAL OVERRIDE WALL SWITCH
PC	PHOTOCELL WALL MOUNTED
OS	OCCUPANCY SENSOR WALL MOUNTED
(OS)	OCCUPANCY SENSOR CEILING MOUNTED
(VS)	VACANCY SENSOR CEILING MOUNTED
(DS)	DAY LIGHT SENSOR CEILING MOUNTED
TC	TIME CLOCK - DUAL CHANNEL
LC	LIGHTING CONTACTOR
	BUG EYE - EMERGENCY LIGHT WITH BATTERY
	ILLUMINATED EXIT SIGN
	ILLUMINATED DIRECTIONAL SIGN
	BUG EYE & EXIT SIGN COMBO WITH BATTERY

ANNOTATION

TO A#1 VIA LC#1 AND $a@SB	CONNECT THE HOME RUN TO CIRCUIT BREAKER #1 OF THE ELECTRICAL PANEL "A" VIA LIGHTING CONTACTOR (LC) #1 AND SWITCH($) "a" WHICH IS LOCATED IN THE SWITCH BANK "SB"

APPLICABLE CODES

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 CODES APPLICABLE TO THIS PROJECT:

NEC: NEC: 2020 NATIONAL ELECTRICAL CODE. (NEC)
IECC:IECC: 2021 INTERNATIONAL ENERGY CONSERVATION CODE

ELECTRICAL DRAWING LIST

POWER AND COMMUNICATION PLAN LEGEND

	WALL MOUNTED SIMPLEX RECEPTACLE, RATING SHALL BE SAME AS BREAKER OR AS NOTED
	20A, 120V WALL MOUNTED DUPLEX RECEPTACLE
USB	20A, 120V WALL MOUNTED RECEPTACLE WITH USB OUTLET
$	20A, 120V WALL MOUNTED HALF SWITCHED DUPLEX RECEPTACLE WITH SWITCH
$	20A, 120V WALL MOUNTED FULL SWITCHED DUPLEX RECEPTACLE WITH SWITCH
	20A, 120V WALL MOUNTED GFCI DUPLEX RECEPTACLE
CL	20A, 120V CEILING MOUNTED DUPLEX RECEPTACLE
FL	20A, 120V FLOOR MOUNTED DUPLEX RECEPTACLE
	20A, 120V WALL MOUNTED QUAD RECEPTACLE
	WALL MOUNTED SPECIAL RECEPTACLE, RATING SHALL BE SAME AS BREAKER OR AS NOTED
IG	ISOLATED GROUND RECEPTACLE
#	DATA OUTLET - QUANTITY AS INDICATED
#	TELEPHONE OUTLET - QUANTITY AS INDICATED
#	DATA / TELEPHONE COMBINATION OUTLET - QUANTITY AS INDICATED
DR+TDB	DATA RACK + TELEPHONE DISTRIBUTION BOARD - AS REQUIRED
TR	TAMPER RESISTANT DUPLEX RECEPTACLE
TV	CABLE TV OUTLET
J	NON FUSED DISCONNECT SWITCH - RATING EQUAL TO OR MORE THAN BREAKER RATING 1P/NEMA-3R
J	FUSED DISCONNECT SWITCH - FUSE RATING AS NEEDED - 1P/NEMA-3R

ELECTRICAL ABBREVIATIONS

A	AMPERES
AF	AMPERE FRAME / AMP FUSE
AFF	ABOVE FINISHED FLOOR
AS	AMP SWITCH
AIC	AMPS INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AWG	AMERICAN WIRE GAUGE
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
COMM	COMMUNICATION
CT	CURRENT TRANSFORMER
CU	COPPER
°C	DEGREE CELSIUS
CL	CURRENT LIMITER
DWG	DRAWING
DPSP	DOUBLE POLE SINGLE THROW
DPDT	DOUBLE POLE DOUBLE THROW
E	EXISTING
EF	EXHAUST FAN
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
ER	EXISTING TO BE RELOCATED
ETR	EXISTING TO REMAIN
EOR	ENGINEER OF RECORD
E.C.	ELECTRICAL CONTACTOR
FA	FIRE ALARM
G	GROUND
GFI	GROUND FAULT INTERRUPTER
G.C.	GENERAL CONTRACTOR
HD	HAND DRYER
HP	HORSEPOWER
HZ	HERTZ
IG	ISOLATED GROUND
IC	INTERRUPTING CAPACITY
JB	JUNCTION BOX
KCMIL	ONE THOUSAND CIRCULAR MILS
KV	KILOVOLT
KVA	KILOVOLT-AMPERES
KW	KILOWATTS
LP	LIGHTING PANEL
LL	LANDLORD
LTG	LIGHTING
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MIN	MINIMUM
MLO	MAIN LUGS ONLY
N	NEUTRAL
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
PP	POWER PANEL
PVC	POLYVINYL CHLORIDE
PWR	POWER
R	REMOVE
RE	RELOCATED EXISTING
RR	REMOVE & RELOCATE
SPDT	SINGLE POLE DOUBLE THROW
SPST	SINGLE POLE SINGLE THROW
TR	TAMPER RESISTANT
TYP	TYPICAL
USB	USB JACK
UON	UNLESS OTHERWISE NOTED
VA	VOLT AMPERE
VIF	VERIFY IN FIELD
WP	WEATHER PROOF
W	WIRE / WATT
XMER	TRANSFORMER

ELECTRICAL SHEET GENERAL NOTES

A. 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.

B. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, TEST REPORTS, AND CERTIFICATIONS FOR TEMPORARY AND FINAL CERTIFICATE OF OCCUPANCY.

C. 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.

D. 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.

E. LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED: FURNISH FISH WIRE.

F. 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.

G. CONTRACTOR SHALL PROVIDE A WARRANTY ON ALL MATERIALS, EQUIPMENT, AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.

H. ALL UNUSED MATERIALS AND DEBRIS SHALL BE LEGALLY REMOVED AND DISPOSED OF AWAY FROM THE PREMISES ON A DAILY BASIS.

I. CONTRACTOR SHALL PATCH, PAINT, AND RESTORE EXISTING SURFACES DAMAGED DURING THE COURSE OF THIS CONSTRUCTION TO PRE-EXISTING CONDITIONS OR BETTER.

J. 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.

K. 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.

L. 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 PROVIDED 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 CONCEALED IN FINISHED AREAS, AND ALL COVERS TO PULL & JUNCTION BOXES SHALL BE READILY ACCESSIBLE.

M. SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.

N. FOR EXACT LOCATION AND MOUNTING HEIGHT OF LIGHTING FIXTURES AND SWITCH/RECEPTACLE OUTLETS, REFER TO ARCHITECTURAL REFLECTED CEILING AND POWER PLANS.

O. ALL ELECTRICAL ACCESSORIES AND EQUIPMENT INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN-TIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFCI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.

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

Q. ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION AND INSTALLATION OF NEW WORK WITH THE GENENERAL 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.

R. ALL CONDUITS AND EQUIPMENT TO BE CONCEAL ED IN FINISHED SPACES UNLESS OTHERWISE NOTED. CONDUITS SHALL BE ENCASED IN THE CONCRETE FLOOR SLAB.

S. ALL EQUIPMENT AND MATERIALS INSTALLED IN PLENUM CEILINGS SHALL BE APPROVED FOR THAT APPLICATION.

T. 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.

U. COORDINATE ALL FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS. CONFIRM PENETRATION LOCATIONS WITH THE ENGINEER AND OWNER BEFORE INSTALLATION.

V. 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.

W. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL LUMINARIES AND SWITCHES, AND FOR ALL FINISHED CEILING HEIGHTS.

X. REFER TO ARCHITECTURAL PLANS FOR FINAL LOCATIONS OF ALL ELECTRICAL DEVICES, AND FOR FINAL CEILING AND WALL HEIGHTS AND LAYOUTS.

Y. 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.

Z. NUMBER(S) SHOWN AT RECEPTACLES, JUNCTION BOXES AND EQUIPMENT INDICATES CIRCUIT NUMBERS IN PANEL BOARD. PROVIDE WIRE AND CONDUIT TO INTERCONNECT EQUIPMENT AND DEVICES WITH SAME CIRCUIT NUMBERS AND RUN TO PANEL BOARD.

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 THEIR PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED, MAINTAIN HEADROOM AND SPACE CONDITIONS.

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

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

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

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

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 OR 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 HOURS. 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) HEIGHTS OF OUTLETS: REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGNER'S PLANS FOR DEVICE HEIGHTS IN NON BOH SPACES.

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.

c. REFER TO ARCHITECTURAL AND/OR INTERIOR DESIGNER'S PLANS FOR DEVICE HEIGHTS IN NON BOH SPACES.

D. PRODUCT DELIVERY, STORAGE AND HANDLING

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

b. 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 LAMACOID 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 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. SUBMIT ELECTRICAL POWER SYSTEM STUDIES INCLUDING SUPPORTING DATA AND RECOMMENDATIONS FOR THE FOLLOWING:
1) SHORT CIRCUIT CURRENT AND PROTECTIVE DEVICE COMBINATION.
2) ARC FLASH HAZARD ANALYSIS.

EQUIPMENT SHOP DRAWINGS SHALL MOT BE SUBMITTED UNTIL THESE STUDIES HAVE BEEN COMPLETED.

G. 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.

H. 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.

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

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

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

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Another Broken Egg Cafe

Elec. General notes, Symbol list & Abbreviations

E-1

ELECTRICAL SPECIFICATIONS

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 APPLICABLE CODES WITH LOCAL 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 NEC 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) DISTRIBUTION EQUIPMENT INCLUDING SWITCHBOARDS, TRANSFORMERS, PANELBOARDS AND LOAD CENTERS.

5) RACEWAYS

6) WIRE AND CABLE

7) LIGHTING CONTROL DEVICES

8) INSERTION RECEPTACLES

9) MOMENTARY CONTACT SWITCHES

10) TIME SWITCHES

11) LIGHTING FIXTURES, BALLASTS AND LAMPS.

12) FIRE ALARM EQUIPMENT AND DEVICES.

13) MOTOR STARTERS.

SUBMIT ELECTRICAL POWER SYSTEM STUDIES INCLUDING SUPPORTING DATA AND RECOMMENDATIONS FOR THE FOLLOWING:

1) SHORT CIRCUIT CURRENT AND PROTECTIVE DEVICE COORDINATION
2) ARC FLASH HAZARD ANALYSIS.
3) EQUIPMENT SHOP DRAWINGS SHALL NOT BE SUBMITTED UNTIL THESE STUDIES HAS BEEN COMPLETED.

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

5. AS-BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

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

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

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

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

6. LOW-VOLTAGE DISTRIBUTION EQUIPMENT:

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

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

C. DISCONNECT SWITCHES SHALL BE FUSED OR NONFUSED AS NOTED. VOLTAGE SHALL BE AS REQUIRED. SWITCHES SHALL BE HEAVY DUTY, EXCEPT AS NOTED, AND HORSEPOWER RATED FOR MOTOR LOADS. TOGGLE TYPE SWITCHES SHALL BE NONFUSED, LOAD BREAK, HAVING MAXIMUM RATINGS OF 20 AMP AT 600 VOLTS AND 30 AMP AT 240 VOLTS. TWO-POLE SWITCHES SHALL BE SIMILAR TO HART AND HEGEMAN NO. 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. OVERCURRENT AND SHORT CIRCUIT PROTECTION WITHIN FUSIBLE SWITCHES SHALL BE CLASS L CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 800A AND LARGER AND CLASS RK-1 CURRENT LIMITING TIME DELAY FUSES FOR SWITCHES RATED 600A AND SMALLER. MANUFACTURER SHALL BE BUSSMAN.

B. INDIVIDUAL MOTOR STARTERS SHALL INCLUDE TWO SETSOF NORMALLY OPEN CONTACTS, ONE SET OF NORMALLY CLOSED CONTACTS, THREE OVERLOAD RELAYS, INDIVIDUALLY FUSED CONTROL TRANSFORMER, HAND OFF AUTO SELECTOR SWITCH FOR AUTOMATIC START AND PILOT LIGHT(S) AS REQUIRED. COMBINATION STARTER DISCONNECTS SHALL INCLUDE FUSIBLE SWITCHES. CONTACTORS SHALL BE NEMA TYPE WITH REPLACEABLE COIL AND CONTACT TIPS. MANUFACTURER SHALL BE EATON, SIEMENS OR SQUARE D.

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 AND CLOSE MOTOR OPERATOR AND ALARM INDICATION. ENCLOSURES HALL 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 PANEL BOARDS, CIRCUIT BREAKER TYPE:

A. DISTRIBUTION PANEL BOARDS SHALL BE FULLY RATED WITH COPPER PHASE, NEUTRAL, AND GROUND BUS, BRACED AT 65000 AIC FOR 480/277 VOLT SYSTEM AND 42000 AIC FOR 208Y/120 VOLT SYSTEM, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. ISOLATED GROUND BUS SHALL BE AS REQUIRED. MANUFACTURERS SHALL BE EATON, SIEMENS OR SQUARE D.

B. BRANCH PANEL BOARDS SHALL BE FULLY RATED WITH COPPER PHASE, NEUTRAL AND GROUND BUS, BRACED AT 14000 AIC FOR 480/277 VOLT SYSTEM AND 10000 AIC FOR 208Y/120 VOLT SYSTEM, OR MORE TO BE GREATER THAN THE AVAILABLE SHORT CIRCUIT CURRENT. NEUTRAL BUS SHALL BE RATED AT 200 PERCENT WITHIN PANELS SERVING NON-LINEAR LOADS. ISOLATED GROUND BUS SHALL BE AS REQUIRED. MANUFACTURER SHALL BE EATON, SIEMENS, OR SQUARE D.

9. DISTRIBUTION PANEL BOARDS, 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. PANEL BOARD 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).

10. DISCONNECTS

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

B. 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.

C. SWITCHES SHALL BE OF THE DOUBLE STATIONARY CONTACT TYPE.

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

11. INSTALLATION

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

12. IDENTIFICATION

A. PROVIDE NAMEPLATE AT EACH SWITCH IDENTIFYING THE LOAD SERVED.

B. 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.

C. DISTRIBUTION AND SUB-DISTRIBUTION PANEL BOARDS SHALL BE A MINIMUM OF 30" WIDE AND 10" DEEP.

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

E. PANEL BOARD 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.

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

13. MATERIALS

A. RACEWAYS:

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

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

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

d. WIREWAYS: STEEL WITH GROUND CONTINUITY. FINISH SHALL BE BAKED ENAMEL. COVERS SHALL BE SCREW-ON.

e. SURFACE METAL RACEWAY: SURFACE METAL RACEWAY INCLUDING POWER DEVICES, FITTINGS,, CONNECTORS, FEEDS, ELBOWS, COUPLINGS, BLANKS, TEES, WIRE CLIPS, DEVICE BRACKETS, DEVICE COVERS AND OTHER ASSOCIATED APPARATUS SHALL BE SIZED TO FACILITATE PULLING THE QUANTITY AND SIZE OF WIRES AND CABLES, AND INSTALLING THE DEVICES CONTAINED. RACEWAY SHALL BE OF CODE GAUGE GALVANIZED STEEL, SHALL INCLUDE MOUNTING KNOCK-OUTS, AND SHALL BE FINISHED AS DIRECTED BY THE ARCHITECT. MANUFACTURER SHALL BE WIREMOLD.

B. FITTINGS AND ACCESSORIES:

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

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

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

d. BUSHINGS: METALLIC INSULATED TYPE.

C. 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. MANUFACTURER SHALL BE APPLETON, RACO OR STEEL CITY.

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 ADJUSTABLE CONCRETE TIGHT PRESSED STEEL WITH BRASS FLANGE AND COVERS. FLUSH FLOOR BOXES SHALL INCLUDE BRASS TRIM AND HINGED OUTLET OPENING COVERS. FIRE RATED POKE-THROUGH FLOOR FITTINGS SHALL BE UL LISTED AND APPROVED FOR THE FLOOR SLAB FIRE RATING.

FLOOR MOUNTED SERVICE FITTING FOR SERVICE FITTINGS FOR CONNECTION TO UNDER-FLOOR ELECTRIFIED METAL DECK SHALL BE COMPATIBLE WITH THE DECK MANUFACTURER. ACCESS FLOOR MOUNTED FITTINGS FOR USE WITH RAISED FLOOR SHALL BE FLUSH TYPE WITH SPACE FOR EQUIPMENT CORD PLUG DEVICES AND SUITABLE FLIP TYPE COVER. MANUFACTURER SHALL BE HUBBELL, WIREMOLD, OR STEEL CITY

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 MANUFACTURED 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 NEC TABLE 300.19(A).

E. 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.

F. 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.

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

H. 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.

14. 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. MANUFACTURER SHALL BE AMERICAN INSULATED WIRE CORP., CERRO, COLLYER, CAPITOL WIRE AND CABLE, OKONITE, SENETOR, SOUTH WIRE OR TRIANGLE.

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. METAL-CLAD CABLE, NFPA 70 ARTICLE 330 TYPE MC:
1. INTERLOCKED FLEXIBLE GALVANIZED STEEL ARMOR SHEATH, CONFORMING TO UL REQUIREMENTS FOR TYPE MC METAL CLAD CABLE.
2. INSULATED COPPER CONDUCTORS, SUITABLE FOR 600 VOLTS, RATED 90°C, ONE OF THE TYPES LISTED IN NFPA 70 TABLE 310.13(A) OR OF A TYPE IDENTIFIED FOR USE IN TYPE MC CABLE.
3. INTERNAL FULL SIZE COPPER GROUND CONDUCTOR WITH GREEN INSULATION.
4. ACCEPTABLE COMPANIES: AFC CABLE SYSTEMS INC., SOUTHWIRE, GENERAL CABLE.
5. CONNECTORS FOR MC CABLE: AFC FITTING INC.'S AFC SERIES, ARLINGTON INDUSTRIES INC.'S SADDLE GRIP, OR THOMAS & BETTS CO.'S TITE-BITE WITH ANTI-SHORT BUSHINGS.

G. COLOR CODING SHALL BE AS FOLLOWS:

1. 120/208 VOLT SYSTEM:
2. BLACK FOR A PHASE
3. RED FOR B PHASE
4. BLUE FOR C PHASE

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

a. 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.

b. 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.

c. 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.

d. 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.

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

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

g. 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.

15. INTERCOM CONDUIT SYSTEM:

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

B. EQUIPMENT SHALL CONFORM TO REQUIREMENTS OF INTERCOM MANUFACTURER.

C. J-BOXES SHALL BE:

WALL : 4 IN. SQUARE WITH SINGLE GANG COVER PLATE.

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

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

16. ELECTRICAL WIRING METHOD:

A. ALL CONDUIT SHALL BE RUN CONCEALED IN SO FAR AS IS PRACTICABLE. CONDUITS SHALL BE EXPOSED ONLY WHERE SO INDICATED ON THE DRAWINGS OR IN UNFINISHED AREAS SUCH AS ELECTRICAL AND BOILER ROOMS.

B. MINIMUM CONDUIT SIZE SHALL BE 3/4" UNLESS NOTED OTHERWISE ON THE PLANS.

C. RIGID METAL CONDUIT: HOT DIPPED GALVANIZED, MILD STEEL PIPE, ZINC COATED THREADS WITH AN OUTER COATING OF ZINC BICHROMATE, AS MANUFACTURED BY TRIANGLE, REPUBLIC, WHEATLAND OR EQUAL.

D. INTERMEDIATE METAL CONDUIT (IMC): HOT DIPPED GALVANIZED, MILD STEEL PIPE, ZINC COATED THREADS WITH AN OUTER COATING OF ZINC BICHROMATE AS MANUFACTURED BY TRIANGLE, REPUBLIC, WHEATLAND OR EQUAL.

E. FLEXIBLE METAL CONDUIT: GALVANIZED OR ZINC METALIZED STEEL, SINGLE STRIP INTERLOCKED CONSTRUCTION AS MANUFACTURED BY TRIANGLE, ANACONDA, AMERICAN FLEXIBLE CONDUIT, ELECTRIC-FLEX, OR EQUAL.

F. ELECTRIC METALLIC TUBING (EMT): HOT DIPPED GALVANIZED, MILD STEEL TUBE, ZINC COATED, AS MANUFACTURED BY TRIANGLE, REPUBLIC, WHEATLAND OR EQUAL.

G. RIGID NONMETALLIC CONDUIT: SCHEDULE 40 PVC AS MANUFACTURED BY CARLON OR EQUAL.

H. METAL CLAD CABLE: TYPE MC, COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, 90 DEG. C, INTERLOCKED STEEL TAPE ARMOR.

I. ARMORED CABLE: TYPE AC, COPPER CONDUCTOR, 600 VOLT THERMOPLASTIC INSULATION, 90 DEG. C.

J. ANY EXPOSED RACEWAY SHALL BE RUN TRUE, PLUMB AND PARALLEL OR PERPENDICULAR TO BUILDING LINES.

K. ALL CONDUCTORS SHALL BE COPPER.

L. RACEWAYS SHALL BE SEALED WHERE ENTERING PULL BOXES OR STRUCTURES.

M. SINGLE CONDUCTOR CABLES SHALL BE USED FOR FEEDERS AND BRANCH CIRCUIT WIRING (EXCEPT WHERE AC AND MC CABLE IS USED). MINIMUM SIZE WIRE SHALL BE #12 AWG UNLESS OTHERWISE INDICATED AND SHALL BE SIZED TO CONFORM TO NORMAL NEC VOLTAGE DROPS. WIRE SIZES #10 AWG AND SMALLER SHALL BE SOLID, #8 AWG AND LARGER SHALL BE STRANDED.

N. FEEDERS AND ALL WIRING IN MOIST OR WET LOCATIONS UNDERGROUND OR UNDER THE SLAB SHALL BE 600 VOLT CODE TYPE THHN-THWN. BRANCH CIRCUIT WIRING IN DRY LOCATIONS, ABOVE GRADE, IN THE INTERIOR OF THE BUILDING SHALL BE 600 VOLT CODE TYPE THHN-THWN OR XHHW.

O. WIRING TO RECESSED FIXTURE AND WITHIN FIXTURE RACEWAYS SHALL BE TYPE THHN, #12 AWG MINIMUM.

P. EQUIPMENT GROUND: GREEN CONDUCTOR SHALL BE USED.

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

1
2
3
4
5
6
7
8

Another Broken Egg Cafe

Electrical Specifications sheet

E-2

LIGHTING, FIXTURE LEGEND

FXTR#	SYMBOL	DESCRIPTION	LOCATION	HEIGHT	MODEL #
C-1		PENDANT - METAL	OVER BAR	8'-0" AFF	HI-LITE PENDANT, BR47 RUST ITEM # H-SLBNE988BC CORD MOUNT SIZE: 8" DIA x 4.75H; WATTAGE: 100 WATT; BULB: SOFT LT LED, LAMPS: 1, 120v
C-2		CHANDELIER - GLASS GLOBE	DINING ROOM	10'-0" AFF (CENTER OF FIXTURE)	KICHLER - CHANDELIER, SKU # 43119BK FINISH BLACK; SIZE: 47" W x 53 1/2" H; WATTAGE: 40 W (SOFT WHITE BULB) (INCANDESCENT)
C-3		WALL SCONCE COPPER	OVER DECOR MIRROR WINDOW	REFERENCE ELEVATIONS	HI-LITE GOOSENECK, 152-OLD NICHKEL (ARM & CAP) w/ 44- POLISHED COPPER SHADE; SIZE: 13.25 " H x 12"W x 18"P WATTAGE: 200 WATT; BULB : SOFT LIGHT LED, LMPS: 1, 120v
C-4		PENDANT LOFT SHADE	CENTER OVER TABLES	8'-0" AFF	LOFT SHADE VISUAL COMFORT, ITEM #S 5030BR-NP FINISH: DARK IRON; SIZE: 20.5" H X 19.5"W X 10"D; BULB - 60W SOFT WHITE LED EQ; CANDLE BASE 4/PER FIXTURE
C-5		LED STRIP LIGHT	BAR LIQUOR STEPS	N/A	LUMINII PREMIUM GRADE WARM DIMMING LINELED STRIP, MODEL #LLWD68, CCT: 1900K, 2400K, 2700K 5.5W
C-6		BLACK TRACK LIGHTING (2', 4', & 8' TRACK LENGTHS) w/ SPOT LIGHTS 5' APART TYP.	DINING ROOM	11'-0" AFF BTM OF TRACK	JUNO TRACK & TRACK FIXTURES, SKU #: R##BL (LENGTHS VARY), TRACK LIGHT R 600L-G2; FINISH: BLACK; WATTAGE: 10 WATT PER LAMP; BULB: LED
C-7		CAN LIGHT	RESTROOM & RESTROOM VESTIBULE	MOUNTED IN CEILING GRID OR DRYWALL SOFFIT	LITELINE 6" RECESSED CAN LIGHT, MODEL # RA56-17F-90WHWH/ P-510 FINISH; 17W TRIM: WHITE, CCT (LIGHT COLOR - SOFT LT) 3000K
C-8		2x4	BACK OF HOUSE & OFFICE	MOUNTED IN CEILING GRID	TCP 2'x4' LAY-IN LED FIXTURE - WHITE TRIM; MODEL NUMBER: DTF4UZDB1CC, 4400L WATT,46W
C-9		CEILING FAN	DINING ROOM	13'-0' AFF	MINKAAI, INTERIOR CEILING FAN, ITEM# F524-CL, FINISH: COAL SIZE: 52" SWEEP NO LAMPING.57.72W
C-10		NOT USED			
EXIT	EXIT	EXIT DIRECTION SIGN	ABOVE DOOR OR BULKHEAD		NAVILITE EXIT LIGHT W/ BATTERY BACKUP; MODEL: TP-U-R-W-EM,2.5W
EM		WALL MOUNTED EMERGENCY LIGHTING	WHERE NOTED ON DRAWINGS		ASTRALITE - HEAD EMERGENCY LIGHT; MODEL: EEU-U-R-W-EM,2W
EM1	EXIT	EXIT SIGN	ABOVE DOOR (INTERIOR)		NAVILITE EXIT / EMERGENCY COMBINATION LIGHT; MODEL: #NXPCSRWH (OR EXISTING),5.4W
EM2		REMOTE HEAD (IF NOT EXISTING)	ABOVE DOOR (EXTERIOR)		EXITRONIX, (SINGLE) REMOTE LAMPS FOR LED EXIT, COMBO OR EMERGENCY UNITS (WEATHERPROOF) MODEL: MLED1-W-WP; FINISH: WHITE (OR EXISTING)

LIGHTING PLAN GENERAL NOTES

A. ALL LIGHT FIXTURES NOT ON THE OCCUPANCY SENSOR/OTHER AUTOMATIC CONTROL SHALL BE CONTROLLED BY TIMER-CONTROLLED LIGHTING CONTACTOR(S). UON.

B. THE OCCUPANCY SENSOR, TIMERS, AND OTHER APPROVED LIGHTING CONTROLS SHALL MATCH THE CONTROL FUNCTION REQUIREMENT SPECIFIED IN THE IECC C405.2.

C. LIGHTING CONTROLS (SENSORS AND SWITCHES) SHALL BE RATED FOR LINE VOLTAGE (UON); ELSE PROVIDE POWER BASE.

D. THE OCCUPANCY SENSORS SHALL BE SET TO TURN OFF THE LIGHTS WITHIN 20 MINUTES AFTER ALL OCCUPANTS LEAVE THE SPACE.

E. THE TIME CLOCK (MIN. 2 CHANNEL) SHALL BE SCHEDULED AS PER THE REQUIREMENT OF THE PROJECT SPACE. COORDINATE WITH OWNER/LANDLORD.

F. 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.

G. 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.

H. THE WATTAGE RATING OF THE CURRENT LIMITERS SHALL NOT EXCEED THE WATTAGE RATING INDICATED ON THE PLAN.

LIGHTING PLAN KEYED NOTES : (#)

1. COORDINATE THE EXACT LOCATION OF THE MANUAL OVERRIDE SWITCH WITH THE ARCHITECT AND OWNER. THE SWITCH SHALL BE CAPABLE OF TURNING OFF THE CONTROLLED LIGHTING (CONNECTED VIA TIME CLOCK AND CONTACTORS) IMMEDIATELY UPON ACTIVATION, WITH A MAXIMUM OVERRIDE DURATION OF 2 HOURS.
2. LOOP ALL EMERGENCY LIGHT FIXTURES, AND EXIT SIGNS AND CONNECT TO THE NEAREST LIGHTING BRANCH CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS AS PER STATE AND LOCAL CODES.
3. E.C. SHALL COORDINATE THE EXACT LOCATION OF THE LIGHTING AND FAN SWITCH BANK IN THE FIELD. ALL THE SWITCHES TAGGED AS ($ @ SB/$ @ SB1) IN THE PLAN SHALL BE INSTALLED IN THE SWITCH BANK. REFER TO THE LIGHTING PLAN FOR THE NUMBER OF THE SWITCHES REQUIRED. E.C. SHALL LABEL EACH SWITCH WITH THE AREA IT CONTROLS FOR EASY IDENTIFICATION.
4. COORDINATE WITH THE W.I.C. VENDOR FOR THE LIGHTING FIXTURES, SWITCHES, AND ELECTRICAL CONNECTION REQUIREMENTS. PROVIDE JUNCTION BOX, CIRCUIT, AND SWITCH FOR WALK-IN COOLER AS REQUIRED.
5. THE E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR THE EXACT LOCATION FOR JUNCTION BOX/ DISCONNECT SWITCH FOR EXTERIOR SIGNAGE IN THE FIELD. EXTERIOR SIGNAGE TO BE CONTROLLED BY PHOTO CELL.
6. COORDINATE EXACT LOCATION OF TIME CLOCK & LIGHTING CONTACTOR WITH ARCHITECT/OWNER.
7. COORDINATE WITH THE HEAT LAMP VENDOR FOR THE LIGHTING FIXTURES, SWITCHES, AND ELECTRICAL CONNECTION REQUIREMENTS. PROVIDE JUNCTION BOX, CIRCUIT, AND SWITCH FOR THE TRACK AND LIGHTS AS REQUIRED.
8. THE HOOD LIGHTINGS ARE THE INTEGRAL PART OF THE HOOD SYSTEM, AND SEPARATE CIRCUITS AND CONTROLS ARE NOT REQUIRED. ELSE PROVIDE A DEDICATED SWITCH FOR HOOD LIGHTING CONTROL AND CONNECT IT TO THE HOOD CIRCUIT.
9. E.C. TO COORDINATE EXACT MAKE/MODEL OF PHOTOCELL WITH EQUIPMENT MANUFACTURER.
10. SHOW WINDOW RECEPTACLES, INSTALL WITHIN 18" ABOVE THE TOP OF THE SHOW WINDOW.
11. 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.

LIGHTING FIXTURE SCHEDULE NOTES:

A. ALL (NEW) LIGHTING FIXTURES SHOWN ON THE LIGHTING FIXTURES SCHEDULE ARE SUBJECT TO THE ARCHITECTS APPROVAL. E.C. SHALL COORDINATE MAKE, MODEL, FINISHES, AND OTHER CRITICAL PARAMETERS WITH THE ARCHITECT BEFORE PURCHASING.

B. THE ADDITIONAL ACCESSORIES (VIZ. DRIVERS AND CURRENT LIMITERS) REQUIRED FOR THE PROPER WORKING OF THE LIGHTING FIXTURES MIGHT NOT BE PROVIDED BY THE VENDOR. E.C. SHALL PURCHASE IT SEPARATELY.

C. ALL LIGHTING FIXTURES ARE RATED FOR 120V UNLESS OTHERWISE NOTED.

D. ALL EMERGENCY LIGHTING FIXTURES AND EXIT SIGNS SHALL HAVE A MINIMUM OF 90 MINUTES OF BATTERY BACKUP OR AS REQUIRED BY AHJ.

E. WATTS PER FACE FOR EXIT SIGNS SHALL NOT EXCEED 5 WATTS.

F. ALL LIGHTING CONTROLS SHALL BE PER AHJ AND CODE COMPLIANCE.

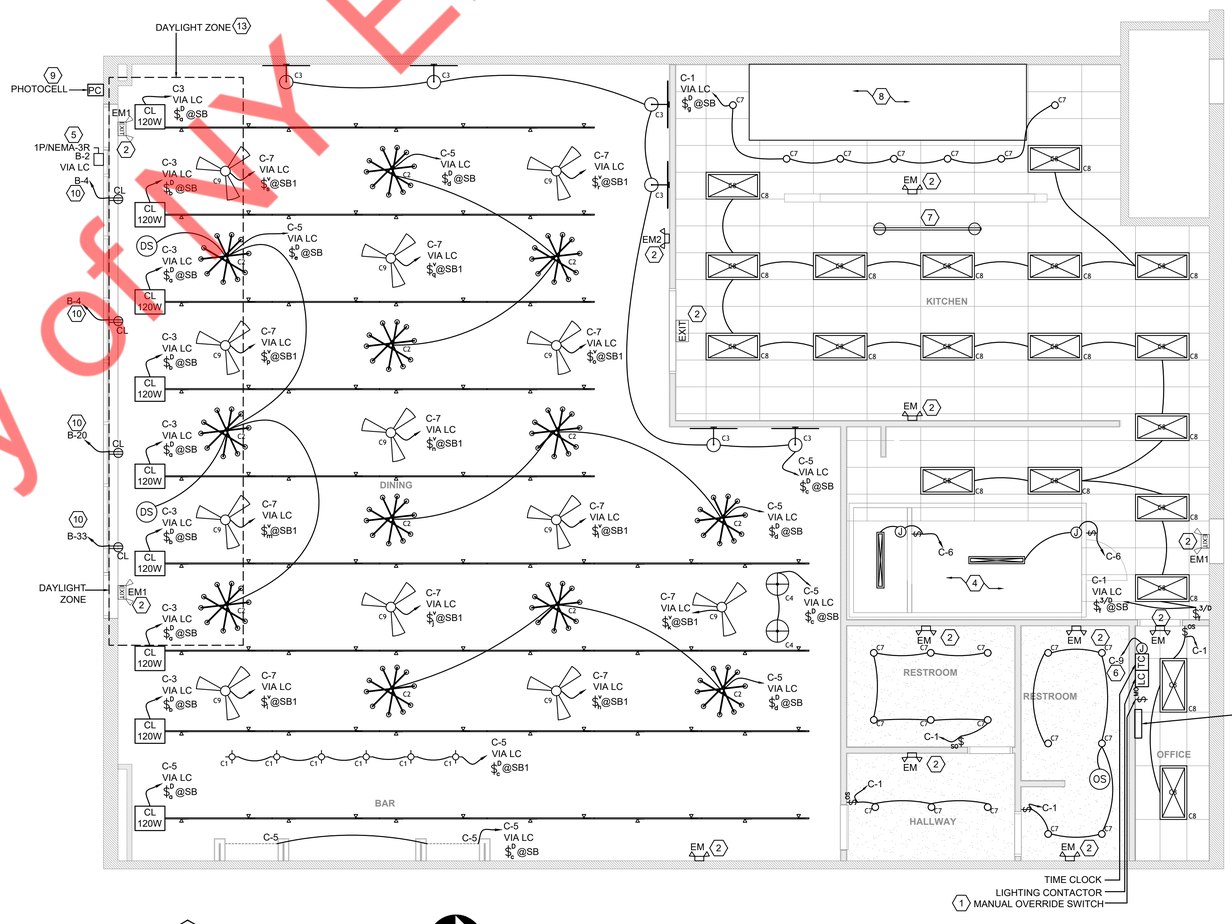
G. ALL LIGHT FIXTURES OVER FOOD SERVICE AREA SHALL HAVE LENS COVERS OR SHATTER PROOF BULBS.

LIGHT SWITCHING SCHEDULE

CIRCUIT #	CONTACTOR#	AUTO. CONTROL	SWITCH#	SWITCH TYPE	SWITCH BANK	LOAD IN VA	NOTES
C-3	L1	TIME CLOCK	a	DIMMER	SB	480	1,2
C-3	L1	TIME CLOCK	b	DIMMER	SB	400	1,2
C-5	L2	TIME CLOCK	c	DIMMER	SB	250	1,2
C-5	L2	TIME CLOCK	d	DIMMER	SB	360	1,2
C-5	L2	TIME CLOCK	e	DIMMER	SB	102	1,3
C-1	L3	TIME CLOCK	f	DIMMER	SB	782	1,2
C-1	L3	TIME CLOCK	g	DIMMER	SB	119	1,2
B-2	L4	TIME CLOCK	-	-	-	1200	-

1 - COORDINATE EXACT LOADING CAPACITY OF THE SWITCH AND SENSOR WITH THE VENDOR.

2 - NUMBER OF SENSOR AND SWITCHES REQUIRED MAY VARY BASED ON THE LOADING CAPACITY OF THE SENSOR AND SWITCH.



1 E-3 ELECTRICAL LIGHTING PLAN
3/16" = 1'-0"

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

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Another Broken Egg Cafe

Electrical Lighting Plan

E-3

EQUIPMENT SCHEDULE GENERAL NOTES :

A. ALL ELECTRICAL WORK FOR FOOD SERVICE EQUIPMENT SHALL BE COMPLETELY INTERWIRED BY ELECTRICAL CONTRACTOR. FINAL CONNECTIONS TO EQUIPMENT JUNCTION BOX OR PULL BOX, AND ALL ELECTRICAL WORK FROM PANEL BOARDS, TO BE BY THE ELECTRICAL CONTRACTOR.

B. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ROUGH-IN AND FINAL CONNECTION TO THE FOOD SERVICE EQUIPMENT. ALL WORK TO BE IN COMPLIANCE WITH ALL NATIONAL, STATE AND LOCAL CODES APPLICABLE.

C. VERIFY OUTLET RATING AND CONFIGURATION WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.

D. VERIFY EXACT LOCATION AND MOUNTING HEIGHTS OF ALL OUTLETS WITH EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.

E. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL PLUGS AND CORDS REQUIRED. ALL CORDS SHALL BE NEMA RATED AND UL APPROVED FOR MANUFACTURER AND EQUIPMENT.

F. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL JUNCTION BOXES, PVC OR METAL CONDUIT, CONVENIENCE OUTLETS WITH COVERS, SWITCHES CONNECTORS, CONTROLS, AND OTHER ACCESSORIES THAT ARE NOT AN INTEGRAL PART OF THE FOOD SERVICE EQUIPMENT AS REQUIRED TO MAKE FINAL CONNECTIONS TO THE FOOD SERVICE EQUIPMENT FOR A COMPLETE AND FUNCTIONAL OPERATION MEETING ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AND ORDINANCES.

G. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL ALL DISCONNECTS OR CIRCUIT BREAKERS AS REQUIRED BY CODES FOR EACH CONNECTION. COORDINATE LOCATION WITH THE KITCHEN EQUIPMENT CONTRACTOR.

H. ELECTRICAL CONTRACTOR TO FURNISH AND INSTALL WALL SWITCH FOR FACTORY INSTALLED LIGHTING FIXTURES IN EXHAUST VENTILATOR HOODS PER APPLICABLE STATE AND LOCAL CODES APPLICABLE. ELECTRICAL CONTRACTOR SHALL PROVIDE WIRE AND CONNECTION TO EACH LIGHT FIXTURE. THE ELECTRICAL CONTRACTOR SHALL FULLY CONCEAL ALL WIRING BETWEEN POWER SOURCE, WALL SWITCH, AND JUNCTION BOX ON HOOD. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY INNER WIRING OF LIGHT FIXTURES BETWEEN VENTILATOR HOOD SECTIONS AS REQUIRED. ALL WIRING WITHIN HOOD AND POWER SOURCE TO BE IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, NFPA #96 AND ALL OTHER APPLICABLE CODES.

I. IN ACCORDANCE WITH NFPA #96 AND MANUFACTURER'S RECOMMENDATIONS, THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL A PUSH BUTTON STATION WITH PILOT LIGHT FOR VENTILATOR FAN MOTOR(S). THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR, AND TO PROVIDE ALL REQUIRED WIRING FROM POWER SUPPLY THROUGH FAN SWITCH TO FAN MOTOR(S) AND PROVIDE MAGNETIC STARTERS AND FULLY INTERWIRE SYSTEM WITH ALL POWER INTERRUPTION DEVICE(S) BUILT INTO HOOD AND FIRE PROTECTION SYSTEM AS REQUIRED BY NFPA #96, NATIONAL, STATE AND/OR LOCAL CODES APPLICABLE. ELECTRICAL CONTRACTOR TO PROVIDE LOCK-OUT DEVICES ON CONTROL BOXES FOR EXHAUST HOOD FANS, SYSTEM AND FIRE PROTECTION SYSTEM.

J. ELECTRICAL CONTRACTOR TO PROVIDE, INSTALL AND FULLY WIRE SHUNT-TRIP BREAKERS FOR SHUT DOWN OF FUEL AND POWER TO COOKING EQUIPMENT AS REQUIRED BY NFPA #96 AND ALL OTHER NATIONAL, STATE, OR LOCAL CODES APPLICABLE. THE HOLDING COILS FOR SHUNT-TRIP BREAKERS SHALL BE WIRED TO A 120 VOLT/SINGLE PHASE CONTROL CIRCUIT BY THE ELECTRICAL CONTRACTOR AND EXTENDED THROUGH A CONTACTOR AND MAINTAINED BY A PRESSURE SWITCH LOCATED AT THE MOUNTING BRACKET OF THE CHEMICAL CYLINDER FOR HOOD PROTECTION. THE ELECTRICAL CONTRACTOR SHALL ALSO PROVIDE, INSTALL, AND FULLY INTERWIRE WITH POWER SHUTDOWN RELAY SWITCH, AND ADDITIONAL RELAY OR SWITCHES REQUIRED TO INTERFACE FIRE PROTECTION SYSTEM WITH FAN VENTILATOR MOTORS AND BUILDING ALARM SYSTEMS AS REQUIRED BY NFPA #96, NATIONAL, STATE, AND LOCAL CODES APPLICABLE. COORDINATE WITH FIRE SUPPRESSION CONTRACTOR FOR LOCATION OF FIRE SUPPRESSION SYSTEM, AND GAS SHUT-OFF VALVE AS PART OF THE COMPLETE SYSTEM AS APPLICABLE.

K. AT THE REMOTE FIRE CABLE PULL. ELECTRICAL TRADES TO PROVIDE EMPTY JUNCTION BOX AT 54" AFF AND CONDUIT CONCEALED IN WALL TO 6" ABOVE FINISHED CEILING. COORDINATE EXACT REQUIREMENTS WITH FOOD SERVICE EQUIPMENT TRADE AND FIRE SUPPRESSION CONTRACTOR.

L. ELECTRICAL CONTRACTOR SHALL INTERWIRE DISPOSER CONTROL SWITCH AND TO TIME DELAY/RELAY, MAGNETIC STARTER, DISPOSER MOTOR, AND SOLENOID VALVE WITH WATER TIGHT CONDUIT AS REQUIRED PER LOCAL CODES.

M. ELECTRICAL CONTRACTOR SHALL INTERWIRE THROUGH TIME CLOCK FOR LOW TEMPERATURE COMPRESSOR AND WALK-IN COMPARTMENT BLOWER COIL FAN MOTORS AND DEFROST ELEMENT POWER SOURCE AS PART OF MAIN POWER SOURCE PROVIDE ALL WIRING AND CONDUIT WITH DISCONNECT. (VERIFY REQUIREMENTS WITH EQUIPMENT SUPPLIER)

N. ELECTRICAL CONTRACTOR SHALL PROVIDE FINAL CONNECTION TO A JUNCTION BOX MOUNTED ON TOP OF A PREFABRICATED REFRIGERATOR AND/OR FREEZER WALL AT APPROXIMATELY 8'-6" AFF. INTERWIRE THE LIGHT ADJACENT TO THE DOOR WITH THE FACTORY MOUNTED LIGHT SWITCH. ALL CONDUIT SHALL BE RUN EXPOSED ON TOP OF WALK-IN. NO EXPOSED CONDUIT WILL BE ALLOWED ON INSIDE OF WALK-IN. ELECTRICAL SERVICE REQUIRED FOR WALK-IN SHALL BE AS SHOWN FOR LIGHTS, DOOR AND DOOR FRAME HEATER, THRESHOLD PLATE HEATERS (WHERE SPECIFIED), HEATED PRESSURE RELIEF PORT (ON FREEZERS) AND ALARM SYSTEMS (WHERE SPECIFIED). (VERIFY REQUIREMENTS WITH EQUIPMENT SUPPLIER).

O. ELECTRICAL CONTRACTOR TO PROVIDE THE REQUIRED POWER SUPPLY AND FINAL CONNECTIONS TO THE TERMINAL BLOCK AT THE CONDENSING UNIT AND TO FULLY INTERWIRE TO ANY ADDITIONAL COMPONENTS, INCLUDE THE PROPER SIZE DISCONNECTS OR CIRCUIT BREAKERS. ALL WIRING FOR LOW AND MEDIUM TEMPERATURE CONDENSING UNIT TO BE ROUTED THROUGH DEFROST TIME CLOCK AND THEN WIRED TO EVAPORATOR COIL FOR PROPER POWER SUPPLY WITH THE REQUIRED QUANTITY OF WIRES. THE EVAPORATOR COIL DEFROST HEATER AND FAN MOTOR VOLTAGES AND LOADS ARE AS NOTED ON PLAN. VERIFY LOCATION OF COMPRESSORS AND COORDINATE WITH REFRIGERATION CONTRACTOR FOR FINAL CONNECTIONS. (VERIFY REQUIREMENTS WITH EQUIPMENT SUPPLIER)

P. ALL 15AMP AND 20AMP, 125V-2P-3W RECEPTACLES IN KITCHEN AREAS SHALL BE GFCI TYPE RECEPTACLES PER N.E.C. 210-8(B). ALL 208V-2P-3/4W AND 208V-3P-3/4W RECEPTACLES IN KITCHEN AREAS SHALL BE GFCI TYPE RECEPTACLES PER N.E.C. 210-8(B).

ELECTRICAL EQUIPMENT SCHEDULE

TAG	QUANTITY	EQUIPMENT DESCRIPTION	MAKE	MODEL	LOAD IN VA	VOLTS	PHASE	AMPS	CONNECTION	NOTES
1		WALK-IN COOLER	NORLAKE	CUSTOM	TBD	TBD	TBD	TBD	TBD	1,2,3
01.a		REACH-IN FREEZER	AVANTCO	178SS3FHC	1440	115	1	14.4	NEMA 5-20P	1,2,3
3	1	BAG IN BOX SYRUP TANK RACK SYSTEM	TBD	TBD	1000	120	1	8.3	NEMA 5-20P	1,2,3
20	2	SOUS VIDE COOKER	VACPAK-IT	186SVC280	1800	120	1	15	NEMA 5-20P	1,2,3
21	1	PLANETARY MIXER	AVANTCO	177MX10H	550	120	1	4.58	NEMA 5-15P	
22	1	CONVECTION OVEN	COOKING PERFORMANCE GROUP	351FGC200NK	708	120	1	5.9	NEMA 5-15P	
24	1	27" SANDWICH PREP TABLE	AVANTCO	178APT27HC	360	115	1	3.6	NEMA 5-15P	
26	1	72" CHEF BASE	AVANTCO	178CBE72HC	487	115	1	6.5	NEMA 5-15P	
27	1	48" GRIDDLE (THERMOSTATIC)	COOKING PERFORMANCE GROUP	351GTCPG48NL	TBD	120	1	TBD	TBD	2,5
28	1	24" GRIDDLE (THERMOSTATIC)	COOKING PERFORMANCE GROUP	351GTCPG24NL	TBD	120	1	TBD	TBD	2,5
30	2	GAS FRYER	AVANTCO	177FFES50N	TBD	120	1	TBD	TBD	2,5
31	1	SALAMANDER, GAS	COOKING PERFORMANCE GROUP	351S36SBN36K	TBD	120	1	TBD	TBD	2,5
32	2	COUNTERTOP RANGE	COOKING PERFORMANCE GROUP	351RCPG24NL	TBD	120	1	TBD	TBD	2,5
35	1	EXHAUST HOOD	TBD	TBD	TBD	TBD	TBD	TBD	TBD	
37	3	SANDWICH/SALAD PREPARATION REFRIGERATOR	AVANTCO	178APT48HC	490	115	1	4.9	NEMA 5-15P	
40	2	WAFFLE GRIDDLES	GOLDEN WAFFLES	TRT SERIES	1300	120	1	10.83333333	NEMA 5-20P	1,2,3
41	3	FOOD PAN WARMER, COUNTERTOP	AVANTCO	177W50		120			NEMA 5-15P	
42	1	UNDERCOUNTER REFRIGERATOR	AVANTCO	178SSUC27RHC	210	115	1	2.2	NEMA 5-15P	
43	1	FRENCH FRY WARMER	VOLLRATH	92271500	500	120	1	4.2	NEMA 5-15P	
44	1	FOOD PAN WARMER/RETHERMALIZER, COUNTERTOP	SERVER PRODUCTS	71886090	500	120	1	4.2	NEMA 5-15P	
45	1	INDUCTION RANGE, COUNTERTOP	AVANTCO	177IC1800	1800	120	1	15	NEMA 5-15P	
46	2	MICROWAVE OVEN	SOLWAVE	180MW1000SS	1000				NEMA 5-15P	
48	2	HEAT LAMP	HATCO	413GRAL84D3J	3420	120	1	28.5	DIRECT	3,4
49	0	HEAT LAMP	HATCO	413GRAL96D3J	3936	120	1	32.8	DIRECT	3,5
53	2	DECORATIVE LAMP	HATCO	DL-775	250	120	1	16	DIRECT	3
54	1	CONVEYOR TOASTER	HATCO	413TQ800HB	3.3	208	1	16	NEMA 6-20P	
55	1	27" SALAD/SANDWICH PREP STATION	AVANTCO	447APST27	265	115	1	2.3	NEMA 5-15P	2
58	1	ICE MAKER, CUBE STYLE	MANITOWOC	499IYT1500AB	4.49	208	1	18.5	HARDWIRE	2,3
64	1	DISHMACHINE	AUTO-CHLOR SYSTEM		2300	115	1	20	NEMA 5-20P	1,2,3
72	1	REFRIGERATED MERCHANDISER	AVANTCO	178GDC12FHCB	510	115	1	5.3	NEMA 5-15P	
73	1	SODA DISPENSER	TBD	TBD	1500	120	1	12.2	TBD	1,2,3
76	1	COFFEE GRINDER	TBD	TBD	1100	120	1	9	NEMA 5-20P	1,2,3
77	1	DUAL COFFEE BREWER	TBD	TBD	4200	208	1	20	NEMA L-14-30-P	1,2,3
78	1	TEA BREWER	TBD	TBD	1700	120	1	14	NEMA 5-20P	1,2,3
B04	1	BACK BAR CABINET, REFRIGERATED	AVANTCO	178UBB48HC	325	115	1	3.5	NEMA 5 -15P	
B05	1	BACK BAR CABINET, REFRIGERATED	AVANTCO	178UBB2HC	325	115	1	3.5	NEMA 5-15P	
B07	1	UNDER BAR GLASS WASHER	TBD	TBD	600	120	1	4.8	TBD	1,2,3

1 - COORDINATE EXACT MAKE/MODEL NUMBER WITH THE OWNER/ARCHITECT.
2 - COORDINATE EXACT POWER REQUIREMENT WITH THE EQUIPMENT VENDOR.
3 - COORDINATE EXACT CONNECTION TYPE WITH THE VENDOR PRIOR TO ROUGH IN.
4. GC HOOKUP AND ROUTES WIRING TO BREAKER PANEL.
5 - GAS FIRED EQUIPMENT, COORDINATE WITH PLUMBING.

ELECTRICAL FLOOR PLAN KEY NOTES : (#)

1. E.C. SHALL COORDINATE WITH THE PLUMBING CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROL AS REQUIRED.
2. E.C. SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT LOCATION OF THE NEW METER, DISCONNECT & ELECTRICAL PANELS IN THE FIELD. ALSO, ENSURE CLEAR WORKING AND DEDICATED SPACE AS PER NEC 110.26.
3. CIRCUITING FOR EQUIPMENT LOCATED IN BAR AREA TO BE ROUTED THROUGH BAR MILLWORK AS APPLICABLE. E.C. TO VERIFY THE EXACT CONDITIONS, ROUTING AND ALL REQUIREMENTS WITH MILLWORK AND KITCHEN EQUIPMENT VENDOR PRIOR TO BID.
4. PLYWOOD-BACKED OUTLETS FOR DATA AND TELEPHONE SERVICES. COORDINATE WITH THE ARCHITECT/OWNER/SERVICE PROVIDER FOR OTHER REQUIREMENTS. PROVIDE CONDUIT AND CONNECTION AS REQUIRED.
5. REMOTE PULL STATION FOR HOOD SUPPRESSION SYSTEM ACTIVATION. VERIFY EXACT REQUIREMENTS AND LOCATION(S) WITH KITCHEN EQUIPMENT CONTRACTOR (KEC) PRIOR TO ROUGH-IN.
6. ALL GENERAL RECEPTACLES IN THIS AREA SHALL BE TAMPER RESISTANCE AS PER NEC 406.12.
7. E.C. SHALL COORDINATE EXACT OUTLET & POWER REQUIREMENT & EXACT LOCATION FOR HOOD AND ANSUL SYSTEM WITH EQUIPMENT MANUFACTURER PRIOR TO PURCHASE & BID.
8. E.C. TO VERIFY IN FIELD THE LOCATION ,POWER REQUIREMENTS AND ELECTRICAL CONNECTIONS FOR WALK-IN COOLER AND FREEZER PER MANUFACTURER'S SPECIFICATIONS, AND COORDINATE THE LOCATION OF UNITS WITH EQUIPMENT VENDOR. VERIFY ALL INFORMATION PRIOR TO BIDDING.
9. E.C. TO COORDINATE WITH MECHANICAL DRAWINGS/MANUFACTURER FOR MSDs, VVTS, AND EBDs LOCATION. PROVIDE A JUNCTION BOX FOR EACH ONE OF THEM AND WILL BE POWERED VIA CIRCUIT A:32. BASE BID ACCORDINGLY.
10. ELECTRICAL CONTRACTOR TO COORDINATE EXACT POWER REQUIREMENT WITH WALK-IN BOX MANUFACTURER AND MAKE POWER PROVISION ACCORDINGLY. AND ALL CONDUITS ENTERING AND LEAVING THE WALK-IN COOLER/FREEZER SHALL BE SEALED. SEALANTS SHALL BE IDENTIFIED FOR USE WITH CABLE INSULATION, CONDUCTOR INSULATION, A BARE CONDUCTOR, A SHIELD, OR OTHER COMPONENTS.

POWER PLAN GENERAL NOTES :

A. 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.

B. POWER AND LOCATION OF ALL THE MECHANICAL AND PLUMBING UNITS SHALL BE COORDINATED WITH THE RESPECTIVE CONTACTORS BEFORE BID.

C. ELECTRICAL OUTLETS PLACED ON BOTH SIDES OF THE WALL PARTITION TO BE LOCATED OFFSET OF EACH OTHER.

D. ELECTRICAL OUTLETS AND DEVICES LOCATED IN DEMISING WALLS SHALL BE CLOSED AS PER THE FIRE STOP DETAIL TO MAINTAIN PARTITION FIRE RATING.

E. ALL PENETRATIONS TO THE WALK-IN FREEZER AND COOLER NEED TO BE SEALED INSIDE AND OUT AND SEAL SHALL BE RATED FOR THAT TEMPERATURE.

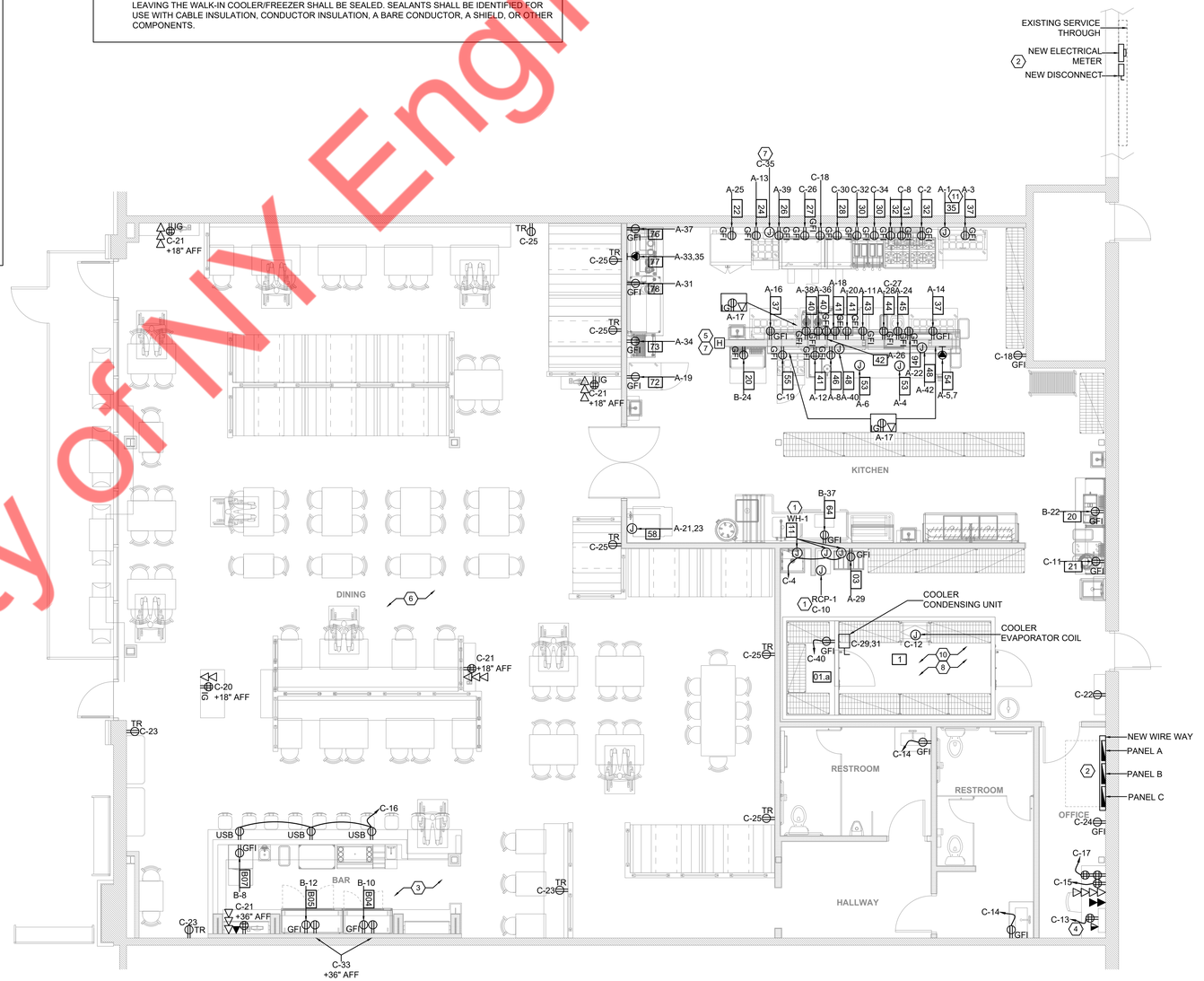
F. THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER TO BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.

G. 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.

H. 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.

I. COORDINATE THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENTS OF THE DUCT SMOKE DETECTOR, MOTORIZED DAMPERS, AND THERMOSTATS IN THE FIELD WITH THE MECHANICAL DRAWING. PROVIDE WIRING AS REQUIRED.

J. 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.



1 E-4 ELECTRICAL FLOOR POWER PLAN
3/16" = 1'-0"

PROJECT NO.: 13257
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Another Broken Egg Cafe
Electrical Floor Power Plan

E-4

ELECTRICAL ROOF POWER PLAN GENERAL NOTES

A. ALL THE ELECTRICAL ELEMENTS, VIZ., CONDUITS, WIRING, AND DISCONNECT SWITCHES, SHALL BE RATED FOR EXTERIOR USE.

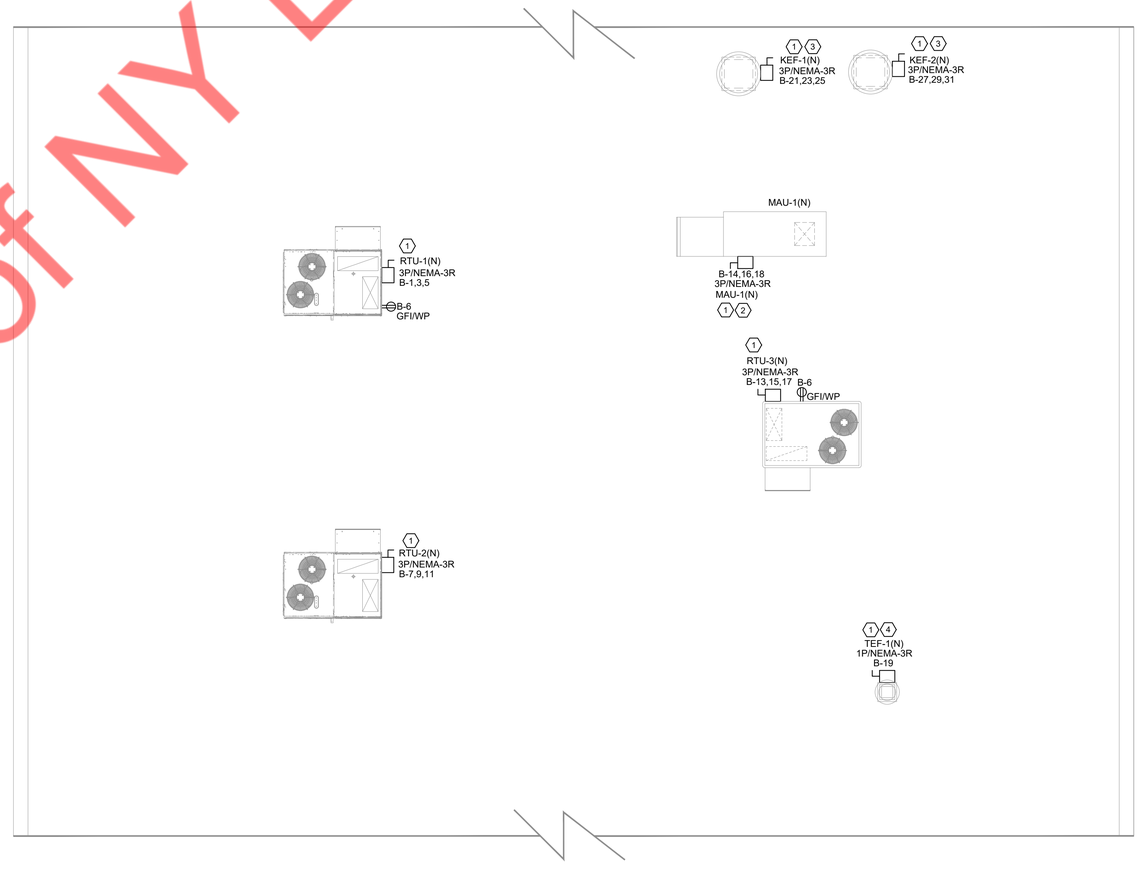
B. THE DISCONNECT SWITCHES FOR THE BRANCH CIRCUIT SHOWN ON THE PLAN SHALL BE RATED EQUAL TO OR HIGHER THAN THE BREAKER RATING. REFER TO BREAKER RATING IN THE PANEL SCHEDULE AND PROVIDE DISCONNECT AS NEEDED.

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

D. A 125-VOLT, SINGLE-PHASE, 15- OR 20-AMPERE-RATED RECEPTACLE OUTLET SHALL BE INSTALLED AT AN ACCESSIBLE LOCATION WITHIN 7.5 M (25 FT) OF THE EQUIPMENT AS SPECIFIED IN 210.63(A) AND (B) AS PER NEC 210.63

ELECTRICAL ROOF POWER PLAN KEY NOTES (#)

1. E.C. SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR THE EXACT LOCATION AND ELECTRICAL CONNECTION REQUIREMENT OF THE HVAC UNIT IN THE FIELD. PROVIDE CIRCUIT AND CONTROLS AS REQUIRED.
2. MAU-1(N) SHALL BE CONTROLLED BY HOOD CONTROLS.
3. KEF FAN SHALL BE CONTROLLED BY HOOD CONTROLS. INTERLOCK RTU-3(N) TO OPERATE IN OCCUPIED MODE WHILE KITCHEN EXHAUST FAN IS ENERGIZED.
4. INTERLOCK WITH RTU-1(N).



1 / E-5 ELECTRICAL ROOF POWER PLAN
3/16" = 1'-0"

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ISSUED DATE:	

ISSUED REVISIONS:

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Another Broken Egg Cafe

Electrical Roof Power Plan

E-5

PANEL:	A	(NEW)									MOUNTING:	SURFACE
208Y/120	VOLTS		3	PHASE	4	WIRE	DEMAND LOAD IN KVA	34.06		PANEL LOCATION:	OFFICE	
MCB	125A						DEMAND CURRENT IN AMP	94.65		FED FROM:	NEW DISC.	
NOTE:												

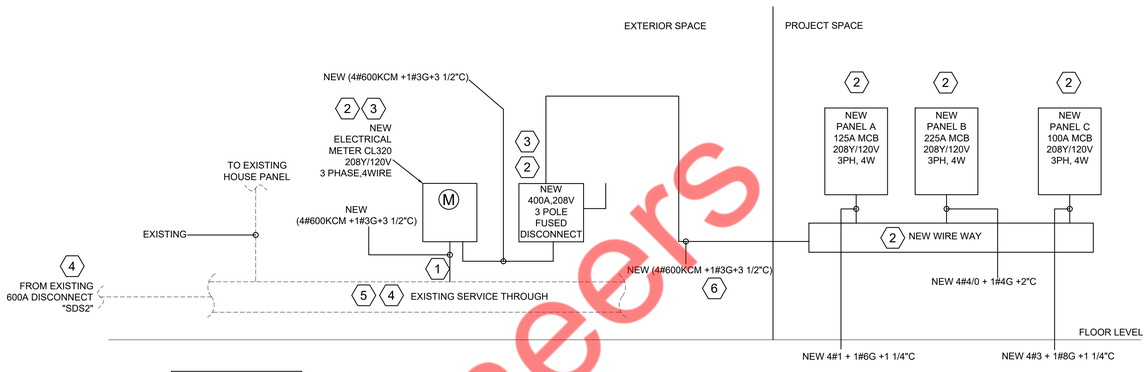
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA) A	B	C	NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	15	HOOD CONTROLS/LIGHTS	E	1.10	RWC	1.10						SPARE	20	2
3	20	37_SANDWICH/SALAD PREPARATION REFRIGERATOR	E	0.53	RWC		0.78		RWC	0.25	L	53_HEAT LAMP DEC	20	4
5	20/2P	54_CONVEYOR TOASTER	E	1.65	RWC			1.90	RWC	0.25	L	53_HEAT LAMP DEC	20	6
7			E	1.65		3.26			RWC	1.61	E	46_MICROWAVE OVEN	20	8
9	20	SPARE					0.00					SPARE	20	10
11	20	43_FRENCH FRY WARMER	E	0.50	RWC			1.20	RWC	0.70	E	41_FOOD PAN WARMER, COUNTERTOP	20	12
13	20	24_SANDWICH/SALAD PREPARATION REFRIGERATOR	E	0.36	RWC	0.89			RWC	0.53	E	37_SANDWICH/SALAD PREPARATION REFRIGERATOR	20	14
15		SHUNT TRIP					0.53		RWC	0.53	E	37_SANDWICH/SALAD PREPARATION REFRIGERATOR	20	16
17	20	KDS SYSTEM	E	0.54	RWC			1.24	RWC	0.70	E	41_FOOD PAN WARMER, COUNTERTOP	20	18
19	20	72_REFRIGERATED MERCHANDISER	E	0.61	RWC	1.31			RWC	0.70	E	41_FOOD PAN WARMER, COUNTERTOP	20	20
21	30/2P	58_ICE MAKER, CUBE STYLE	E	1.92	RWC		3.53		RWC	1.61	E	46_MICROWAVE OVEN	20	22
23			E	1.92				3.72	RWC	1.80	E	45_INDUCTION RANGE, COUNTERTOP	20	24
25	20	22_CONVECTION OVEN	E	0.71	RWC	0.92			RWC	0.21	E	42_UNDERCOUNTER REFRIGERATOR	20	26
27		SHUNT TRIP					0.50		RWC	0.50	E	44_FOOD PAN WARMER/RETHERMALIZER, COUNTERTOP	20	28
29	20	03_BAG IN BOX	E	1.00	RWC			2.80	RWC	1.80	E	20_SOUS VIDE COOKER	20	30
31	20	78_TEA BREWER + ADD URN	E	1.70	RWC	1.90				0.20	O	MECH. MISC. LOAD	20	32
33	30/2P	77_DUAL COFFEE BREWER	E	2.10	RWC		3.60		RWC	1.50	E	73_SODA DISPENSER & ICE CHEST	20	34
35			E	2.10				3.40	RWC	1.30	E	40- WAFFLE GRIDDLE	20	36
37	20	76_COFFEE GRINDER	E	1.10	RWC	2.40			RWC	1.30	E	40- WAFFLE GRIDDLE	20	38
39	20	26_72" CHEF BASE	E	0.75	RWC		4.17		RWC, GFI	3.42	E	48_HEAT LAMP	40	40
41		SHUNT TRIP						3.42	RWC, GFI	3.42	E	48_HEAT LAMP	40	42
						11.78	**13.11**	**17.68**						

PANEL:	B	(NEW)									MOUNTING:	SURFACE
208Y/120	VOLTS		3	PHASE	4	WIRE	DEMAND LOAD IN KVA	57.45		PANEL LOCATION:	OFFICE	
MCB	225A						DEMAND CURRENT IN AMP	159.65		FED FROM:	NEW DISC.	
NOTE:												

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA) A	B	C	NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1			H	4.44		6.04			RWC	1.60	L	SHOW WINDOW RECEPTACLE	20	2
3	45/3P	RTU-1(N)	H	4.44	RWC, HACR		6.04		RWC	1.60	L	SHOW WINDOW RECEPTACLE	20	4
5			H	4.44				4.80	RWC	0.36	R	ROOF RECEPTACLE	20	6
7			H	4.44		5.04			RWC	0.60	E	B07- U. BAR GLASS WASH	20	8
9	45/3P	RTU-2(N)	H	4.44	RWC, HACR		4.84		RWC	0.40	E	B04_BACK BAR CABINET, REFRIGERATED	20	10
11			H	4.44				4.84	RWC	0.40	E	B05_BACK BAR CABINET, REFRIGERATED	20	12
13			H	6.24		9.02				2.78	H			14
15	60/3P	RTU-3(N)	H	6.24	RWC, HACR		9.02		RWC, HACR	2.78	H	MAU-1(N)	30/3P	16
17			H	6.24				9.02		2.78	H			18
19	15	TEF-1(N)	M	0.35	RWC	1.95			RWC	1.60	L	SHOW WINDOW RECEPTACLE	20	20
21			M	0.55			2.35		RWC, VIF	1.80	E	E20_SOUS VIDE COOKER	20	22
23	15/3P	KEF-1(N)	M	0.55	RWC, HACR			2.35	RWC, VIF	1.80	E	E20_SOUS VIDE COOKER	20	24
25			M	0.55		0.55						SPARE	20	26
27			M	0.55			0.55					SPARE	20	28
29	15/3P	KEF-2(N)	M	0.55	RWC, HACR			0.55				SPARE	20	30
31			M	0.55		0.55						SPACE		32
33	20	SHOW WINDOW RECEPTACLE	L	0.80	RWC		0.80					SPACE		34
35	20	EXTERIOR SIGNAGE	L	1.20	RWC			1.20				SPACE		36
37	30	64_DISH MACHINE	E	2.30	RWC, VIF	2.30						SPACE		38
39	20	SPARE					0.00					SPACE		40
41	20	SPARE						0.00				SPACE		42
						25.45	**23.60**	**22.76**						

PANEL:	C	(NEW)									MOUNTING:	SURFACE
208Y/120	VOLTS		3	PHASE	4	WIRE	DEMAND LOAD IN KVA	15.18		PANEL LOCATION:	OFFICE	
MCB	100A						DEMAND CURRENT IN AMP	42.18		FED FROM:	NEW DISC.	
NOTE:												

CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	NOTES	PER PHASE (KVA) A	B	C	NOTES	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
1	20	KITCHEN, OFFICE & RESTROOM LIGHTS	L	1.25	RWC	1.43			RWC, VIF	0.18	E	32_COUNTERTOP RANGE	20	2
3	20	TRACK LIGHTS	L	0.88	RWC		1.36		RWC	0.48	O	11_WH-1	20	4
5	20	DINING AREA LIGHTS	L	0.80	RWC			1.17	RWC,VIF	0.37	L	WALK IN COOLER & FREEZER LIGHTS	20	6
7	20	DINING AREA FANS	M	0.63	RWC	0.81			RWC, VIF	0.18	E	31_SALAMANDER, GAS	20	8
9	20	TIME CLOCK	L	0.20	RWC		0.70		RWC	0.50	O	RCP-1	20	10
11	20	21_PLANETARY MIXER	E	0.55	RWC			0.76	RWC.VIF	0.21	E	1_COOLER EVAPORATOR	15	12
13	20	DATA RACK	R	0.36	RWC	0.72			RWC	0.36	R	RESTROOM RECEPTACLES	20	14
15	20	MANAGERS DESK	R	0.36	RWC		0.90		RWC	0.54	R	BAR SEATING RECEPTACLE	20	16
17	20	MANAGERS DESK	R	0.72	RWC			1.08	RWC	0.36	R	KITCHEN GENERAL RECEPTACL	20	18
19	20	55_MEGATOP SANDWICH/SALAD PREP REFRIGERATOR	E	0.25	RWC	0.61			RWC	0.36	R	HOST STATION	20	20
21	20	POS STATIONS	R	1.44	RWC		1.62		RWC	0.18	R	GENERAL RECEPTACLES	20	22
23	20	DINING AREA RECEPTACLES	R	0.54	RWC			0.72	RWC	0.18	R	SERVICE RECEPTACLE	20	24
25	20	DINING AREA RECEPTACLES	R	1.08	RWC	1.26			RWC, VIF	0.18	E	E27_ GRIDDLE, COUNTERTOP	20	26
27	20	32_COUNTERTOP RANGE	E	0.18	RWC, VIF		0.18					SHUNT	20	28
29	20/2P	01_COOLER CONENSING UNIT	E	1.56	RWC,VIF			1.74	RWC	0.18	E	E28_ GRIDDLE, COUNTERTOP	20	30
31			E	1.56		1.74			RWC, VIF	0.18	E	E30_FLOOR FRYER	20	32
33	20	BAR RECEPTACLE	R	0.36	RWC		0.54		RWC, VIF	0.18	E	E30_FLOOR FRYER	20	34
35	20	ANSUL SYSTEM	O	0.20	RWC			0.20				SPARE	20	36
37	20	SPARE				0.00						SPARE	20	38
39	20	SPARE					1.44		RWC	1.44	E	01.a_FREEZER	20	40
41	20	SPARE						0.00				SPARE	20	42
						6.57	**6.74**	**5.67**						



RISER ABBREVIATIONS:

M = METER

ELECTRICAL RISER SYMBOL

NEW

EXISTING & FUTURE ITEM/FEEDER TO REMAIN

EXISTING ITEM/FEEDER TO BE DISCONNECTED & REMOVED

BREAKER	BRANCH CIRCUIT SIZE
15/1P	2#12 + 1#12G, 3/4"C
20/1P	2#12 + 1#12G, 3/4"C
25/1P	2#10 + 1#10G, 3/4"C
30/1P	2#10 + 1#10G, 3/4"C
35/1P	2#8 + 1#10G, 3/4"C
40/1P	2#8 + 1#10G, 3/4"C
15/2P	2#12 + 1#12G, 3/4"C
20/2P	2#12 + 1#12G, 3/4"C
25/2P	2#10 + 1#10G, 3/4"C
30/2P	2#10 + 1#10G, 3/4"C
35/2P	2#8 + 1#10G, 3/4"C
40/2P	2#8 + 1#10G, 3/4"C
45/2P	2#8 + 1#10G, 3/4"C
50/2P	2#8 + 1#10G, 3/4"C
15/3P	3#12 + 1#12G, 3/4"C
20/3P	3#12 + 1#12G, 3/4"C
25/3P	3#10 + 1#10G, 3/4"C
30/3P	3#10 + 1#10G, 3/4"C
35/3P	3#8 + 1#10G, 3/4"C
40/3P	3#8 + 1#10G, 3/4"C
45/3P	3#8 + 1#10G, 3/4"C
50/3P	3#8 + 1#10G, 3/4"C
60/3P	3#6 + 1#10G, 3/4"C
70/3P	3#4 + 1#8G, 1"C
80/3P	3#4 + 1#8G, 1 "C
90/3P	3#3 + 1#8G, 1 1/4"C
100/3P	3#3 + 1#8G, 1 1/4"C
110/3P	3#1 + 1#6G, 1 1/4"C
125/3P	3#1 + 1#6G, 1 1/4"C
150/3P	3#1/0 + 1#6G, 1 1/2"C
175/3P	3#2/0 + 1#6G, 2"C
200/3P	3#3/0 + 1#6G, 2"C

PANEL SCHEDULE ABBREVIATIONS	
L	LIGHTING
R	RECEPTACLE
H	HVAC
E	KITCHEN EQUIPMENT
M	LARGEST MOTOR
O	OTHER
N	NON COINCIDENT
X	LINKED CELL
*	SPLIT BREAKER
RWC	REFER TO THE WIRING CHART FOR WIRE SIZE
GFI	GROUND FAULT CIRCUIT INTERRUPTER
AFI	ARC FAULT CIRCUIT INTERRUPTER
NBEP	NEW BREAKER IN THE EXISTING PANEL
HACR	HEAT AIR CONDITIONING AND REFRIGERATION
PAN	PROVIDE ADDITIONAL WIRE FOR NEUTRAL
LO	LOCKOUT BREAKER
STB	SHUNT TRIP BREAKER
ETR	EXISTING TO REMAIN
SAE	SAME AS EXISTING
LC	WIRE THROUGH LIGHTING CONTACTOR
VIF	VERIFY IN FIELD

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 BEFORE BID.

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

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

D. COORDINATE THE EXACT LOCATION OF ALL THE NEW ELECTRICAL DEVICES SHOWN ON THE RISER. AND ENSURE THE CLEAR WORKING AND DEDICATED SPACE HAS BEEN PROVIDED AS PER NEC 110.26.

E. THE VOLTAGE AND FREQUENCY FLUCTUATION IN THE ELECTRICAL UTILITY SERVICE AT THE SERVICE ENTRY SHALL NOT BE MORE THAN +/- 5% AND +/- 1%, RESPECTIVELY. PROVIDE THE REGULATORS IF SUCH CASE IS OBSERVED.

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

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

H. REFER TO THE POWER PLAN FOR THE PROPOSED LOCATION OF THE ELECTRICAL METER, SERVICE DISCONNECT, PANELS, AND . INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY.

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

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

RISER DIAGRAM KEY NOTES (#)

1. PROVIDE NEW 400A, 208Y/120V, 3PH, 4W ELECTRICAL FEEDERS FROM EXISTING WIREWAY TO NEW ELECTRICAL METER.
2. COORDINATE THE EXACT LOCATION OF THE NEW ELECTRICAL EQUIPMENT IN THE FIELD.
3. PROVIDE NEW ELECTRICAL METER CL320 AND 400A,208Y/120V,3 PHASE FUSED DISCONNECT SWITCH FOR THE PROJECT SPACE.
4. E.C. SHALL VERIFY THE EXACT LOCATION, RATING, AND OPERABLE CONDITION OF EVERY PIECE OF EQUIPMENT MARKED AS EXISTING IN THE FIELD. INFORM THE ENGINEER OF THE RECORD OF ANY DISCREPANCY BEFORE BIDDING.
5. VERIFY EXISTING WIREWAY HAS ADEQUATE CAPACITY TO ACCOMMODATE NEW TAP. COORDINATE IN FIELD PRIOR TO BIDDING.
6. E.C. TO FIELD VERIFY EXACT LENGTH OF THE CABLE AND CHECK THE VOLTAGE DROP IS UNDER LIMIT PER NEC BEFORE INSTALLATION. E.C. SHALL PROVIDE THE UPDATED WIRE/FEEDER SIZE AS NEEDED AS PER THE VOLTAGE DROP CALCULATION. BASE BID ACCORDINGLY

PANEL SCHEDULE GENERAL NOTES:

A. ELECTRICAL CONTRACTOR SHALL VERIFY THE BREAKER AND CABLE RATING WITH EQUIPMENT SUPPLIER/OWNER AND ACCORDINGLY UPDATE THE BREAKER RATING CABLE SIZE IN FIELD.

B. GFI MARKED ON THE POWER PLAN INDICATES THAT THE CIRCUIT SHALL BE GFCI PROTECTED. E.C. SHALL PROVIDE GFCI BREAKER FOR THE GFI MARKED RECEPTACLES, IF EITHER RECEPTACLE IS NOT ACCESSIBLE OR NOT AVAILABLE.

C. PROVIDE HACR BREAKER FOR HAVC UNITS. COORDINATE WITH HVAC DRAWINGS.

D. PROVIDE LOCKING DEVICES ON CIRCUIT BREAKER WHERE EVER REQUIRED.

E. E.C. TO VERIFY SCOPE OF WORK WITH OWNER/ARCHITECT. PRIOR TO BID.

F. VERIFY EXACT POWER DISTRIBUTION IN FIELD.

G. THE CONTRACTOR IS TO PROVIDE A CIRCUIT DIRECTORY FOR EACH PANEL BOARD.

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

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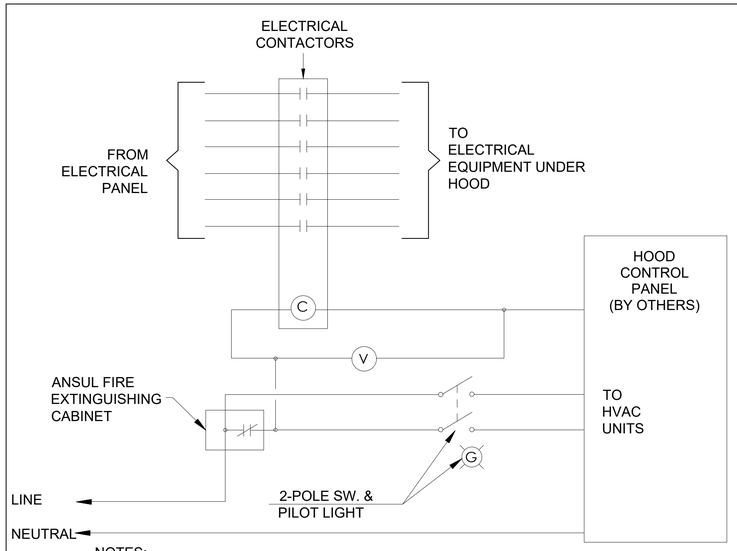
Another Broken Egg Cafe

Electrical Panel Schedule & Riser Diagram

E-6



NOTES:

1. ELECTRICAL CONTRACTOR SHALL PROVIDE CONTACTORS AND ALL HOOD CONTROL PANEL AND ANSUL CABINET WITH HOOD MANUFACTURER.
2. EXACT QUANTITY AND NUMBER OF POLES OF THE ELECTRICAL CONTACTORS TO BE COORDINATED WITH THE PANEL SCHEDULE.

1 E-7 FIRE SUPPRESSION SYSTEM DETAIL
NTS

MANUAL MODE OPERATION:

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

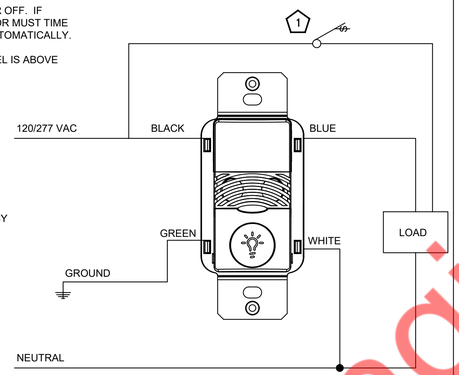
AUTOMATIC MODE OPERATION:

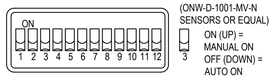
1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

SENSOR TYPES INCLUDE:

ONW-D-1001-MV-N OR EQUAL

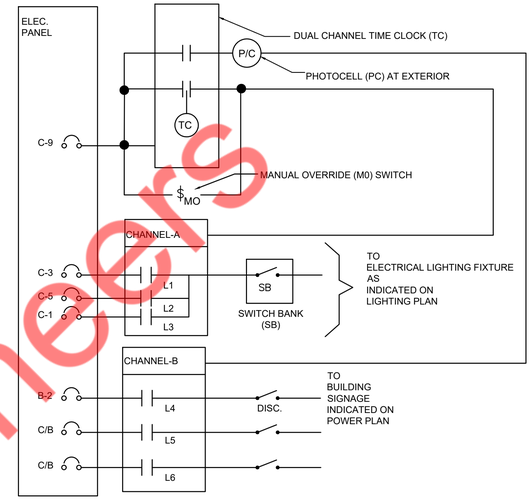
(1) PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.





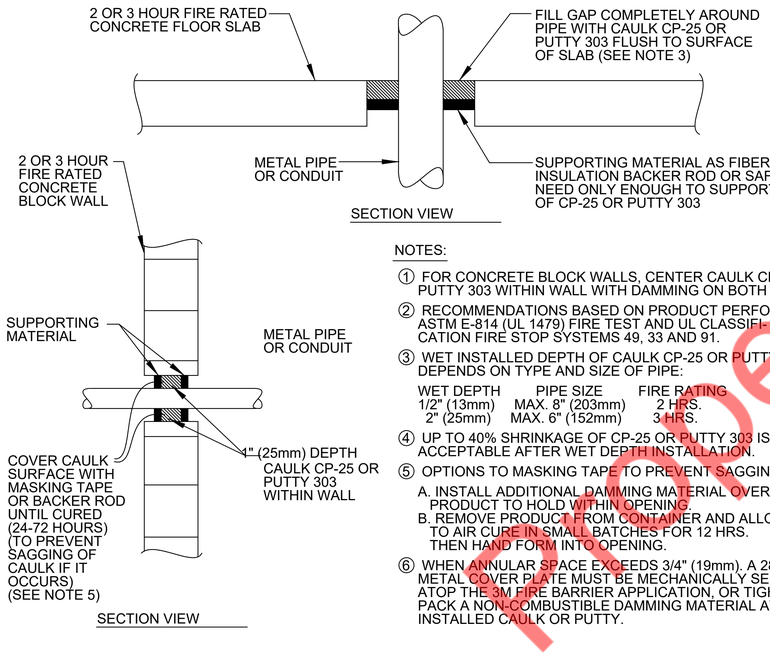
(ONW-D-1001-MV-N SENSORS OR EQUAL)
ON (UP) = MANUAL ON
OFF (DOWN) = AUTO ON

2 E-7 OCCUPANCY/VACANCY-SINGLE LEVEL, WIRING DIAGRAM-LOW VOLTAGE WALL SWITCH SENSOR (NEUTRAL CONNECTION)
NTS



- DIAGRAM INDICATES THE GENERAL ARRANGEMENT OF THE LIGHTING CONTACTORS.
- REFER ELECTRICAL LIGHTING PLAN & POWER PLAN FOR CIRCUIT AND CONTROL DETAILS.
- CONTRACTOR SHALL SELECT THE QUANTITY OF THE CONTACTORS AS REQUIRED.

3 E-7 LIGHTING CONTACTORS (LC) TYPICAL DETAIL
NTS



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 E-7 FIRE STOP DETAIL
NTS

OAC AND VAC MANUAL MODE OPERATION:

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

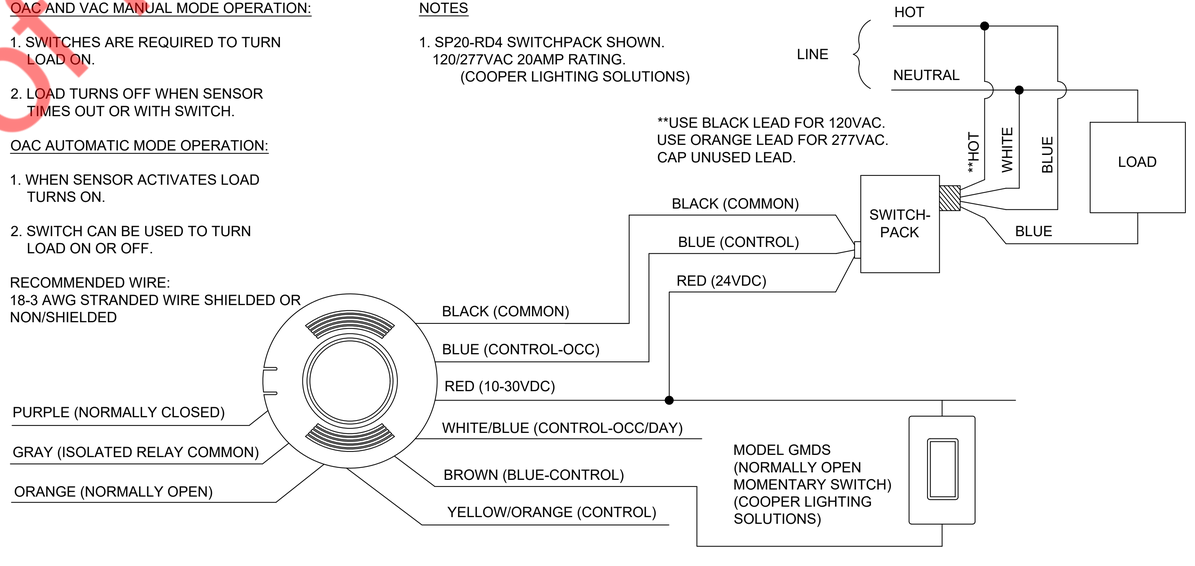
OAC AUTOMATIC MODE OPERATION:

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

NOTES

1. SP20-RD4 SWITCHPACK SHOWN. 120/277VAC 20AMP RATING. (COOPER LIGHTING SOLUTIONS)



5 E-7 LOW VOLTAGE CEILING MOUNTED OCCUPANCY CEILING SENSOR WIRING DIAGRAM
NTS

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

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8

Another Broken Egg Cafe

Electrical Details

E-7

PLUMBING SYMBOLS LIST

Symbol	Description
— GSAN —	GREASE SANITARY SEWER (UNDERFLOOR)
— SAN —	SANITARY SEWER (UNDERFLOOR)
— EX.GSAN —	EXISTING GREASE SANITARY SEWER (UNDERFLOOR)
— SAN —	EXISTING SANITARY SEWER (UNDERFLOOR)
— — — — —	VENT PIPING
—— - ——	COLD WATER PIPING
—— - ——	EXISTING COLD WATER PIPING
—— - - ——	HOT WATER PIPING
— - - - —	HOT WATER RETURN PIPING
—— G ——	GAS PIPING
	BALANCING VALVE
	FLOOR DRAIN
	P-TRAP
	PIPE UP
	PIPE DROP
	CLEANOUT
	POINT OF CONNECTION
	GAS SHUT-OFF VALVE

PLUMBING ABBREVIATIONS

FCO	FLOOR CLEANOUT
CW	COLD WATER
HW	HOT WATER
SAN	SANITARY
GSAN	GREASE SANITARY
V	VENT
LAV	LAVATORY
WC	WATER CLOSET
RCP	RE-CIRCULATION PUMP
FS	FLOOR SINK
TYP.	TYPICAL
DN	DOWN
FD	FLOOR DRAIN
BFP	BACK FLOW PREVENTER
WH	WATER HEATER
N.I.C.	NOT IN CONTRACT
ET	EXPANSION TANK

PLUMBING DRAWING LIST

P-1 PLUMBING SYMBOLS & SPECIFICATIONS

P-2 PLUMBING SANITARY FLOOR PLAN

P-3 PLUMBING WATER & GAS PIPING PLAN

P-4 GAS PIPING ROOF PLAN

P-5 PLUMBING DETAILS

P-6 PLUMBING SCHEDULES

P-7 PLUMBING WATER AND GAS RISERS

P-8 PLUMBING SANITARY RISER

BUILDING DEPARTMENT PLUMBING NOTES

1. ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER, GAS) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2024 OHIO PLUMBING CODE(IPC 2021).
2. INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 702.2
3. PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
4. TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC 306.
5. RODENT PROOFING AS PER PC 304
6. MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 303, PC 605, PC 702, PC 902,PC 1102.
7. EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
8. DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708
9. DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
10. VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308
11. WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610
12. THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 SECTION PC 701, 704, 705, 706, 707, 708, 711.
13. VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC 917
14. INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 312.
15. GAS PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH 2021 OHIO FUEL GAS CODE CHAPTER 4 (ADOPTS IFGC 2021).

PLUMBING SPECIFICATIONS:

1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS

1.01 SCOPE

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

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

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

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

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

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

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

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

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

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

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

1.02 SUBMITTALS

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

1. PIPE AND FITTINGS
2. VALVES
3. HANGERS AND SUPPORTS
4. PLUMBING PIPING LAYOUT
5. TESTS
6. PLUMBING FIXTURES
7. WATER HEATERS & ACCESSORIES
8. MIXING VALVES
9. ALL SCHEDULED PLUMBING EQUIPMENT

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

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

D. REVIEW OF SHOP DRAWINGS BY THE ENGINEER SHALL BE LIMITED TO THE INITIAL REVIEW, AND A SECOND REVIEW OF ANY REQUIRED RESUBMITTED DATA. IF THE ENGINEER IS REQUIRED TO REVIEW SHOP DRAWINGS FOR A THIRD (OR MORE) SUBMISSION OF THE SAME ITEM, THE CONTRACTOR SHALL BE LIABLE FOR COMPENSATING THE ENGINEER FOR THESE SUBSEQUENT REVIEWS AS PER THE ENGINEER'S CURRENT HOURLY RATE SCHEDULE.

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

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

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

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

1.03 SUBSTITUTIONS

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

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

1.04 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. SANITARY PIPING SHALL BE HUBLESS CAST IRON PIPE WITH STAINLESS STEEL COUPLINGS AND ELASTOMERIC GASKETS WITH A MINIMUM 4 BANDS PER COUPLING. PVC PIPING AS PER OHIO CODE 2024, TABLE 702.1 AND TABLE 702.2 MAY BE USED IF APPROVED BY LOCAL AUTHORITIES.
2. SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 2-1/2"" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
3. ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

B. DOMESTIC WATER PIPING:

1. ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
2. FITTINGS IN DOMESTIC WATER PIPING SHALL BE WROUGHT COPPER OR CAST BRASS.
3. JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
4. THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
5. COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.
6. AS PER 2024 OHIO ENERGY CONSERVATION CODE (2021 IECC) C403.12.3, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE (C403.12.3) OF MINIMUM PIPE INSULATION THICKNESS.

MINIMUM PIPE INSULATION THICKNESS

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY: CONDUCTIVITY BTU· IN./(H· FT2· °F)	INSULATION CONDUCTIVITY: MEAN RATING TEMPERATURE, °F	NOMINAL PIPE OR TUBE SIZE (INCHES): <1	1 to < 1½	1½ to < 4	4 to < 8	>8
141-200	0.25-0.29	125	1.5	1.5	2	2	2
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0	1.0

7. WATER DISTRIBUTION SYSTEM AS PER 2021 OHIO ENERGY CONSERVATION CODE (2021 IECC) , C404.6.1, HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM. PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
   a. THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
   b. THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
8. AS PER 2021 OHIO ENERGY CONSERVATION CODE (2021 IECC) C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.
9. HW SYSTEM PIPING IS DESIGNED AS PER 2024 OHIO PLUMBING CODE 607.2 THE DEVELOPED LENGTH OF HOT OR TEMPERED WATER PIPING, FROM THE SOURCE OF HOT WATER TO THE FIXTURES THAT REQUIRE HOT OR TEMPERED WATER, SHALL NOT EXCEED 50 FEET. RECIRCULATING SYSTEM PIPING AND HEAT-TRACED PIPING SHALL BE CONSIDERED TO BE SOURCES OF HOT OR TEMPERED WATER.

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

D. 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.

E. GAS PIPING:

1. GAS PIPING SHALL BE SIZED IN ACCORDANCE WITH PIPE SIZING TABLES OR SIZING EQUATIONS IN ACCORDANCE WITH 2021 OHIO FUEL GAS CODE SECTION 402.4.
2. METALLIC PIPE SHALL COMPLY WITH SECTIONS 403.4.1 THROUGH 403.4.4.
3. PIPING SYSTEM INSTALLATION SHALL COMPLY WITH REQUIREMENTS OF 2021 OHIO FUEL GAS CODE SECTION 404.
4. AS PER 2021 OHIO FUEL GAS CODE SECTION 404.4; UNDERGROUND PIPING, WHERE INSTALLED BELOW GRADE THROUGH THE OUTER FOUNDATION OR BASEMENT WALL OF A BUILDING, SHALL BE ENCASED IN A PROTECTIVE PIPE SLEEVE. THE ANNULAR SPACE BETWEEN THE GAS PIPING AND THE SLEEVE SHALL BE SEALED.
5. PIPING INSTALLED UNDERGROUND BENEATH BUILDINGS IS PROHIBITED EXCEPT WHERE THE PIPING IS ENCASED IN A CONDUIT OF WROUGHT IRON OR STEEL PIPE DESIGNED TO WITHSTAND THE SUPERIMPOSED LOADS. THE CONDUIT SHALL BE PROTECTED FROM CORROSION IN ACCORDANCE WITH SECTION 404.11 AND SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 404.11.1 OR 2021 OHIO FUEL GAS CODE 404.11.2 OF .
6. FUEL GAS CODE SECTION 404.12 AS PER 2021 OHIO ; UNDERGROUND PIPING SYSTEMS SHALL BE INSTALLED A MINIMUM DEPTH OF 12 INCHES BELOW GRADE.
7. THE GAS PIPING IS ENCASED IN A CONDUIT OF WROUGHT IRON OR STEEL PIPE TO WITH STAND THE SUPERIMPOSED LOADS.
8. SHUTOFF VALVES SHALL BE LOCATED IN PLACES SO AS TO PROVIDE ACCESS FOR OPERATION AND SHALL BE INSTALLED SO AS TO BE PROTECTED FROM DAMAGE.

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

G. 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.

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

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

J. VENT PENETRATIONS THROUGH THE ROOF SHALL BE FLASHED.

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

L. PROVIDE DIELECTRIC FITTINGS BETWEEN DISSIMILAR METALS.

M. 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.

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

O. 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.

P. 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.

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

R. 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.

2. INSTALLATION

2.01 GENERAL

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

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

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

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

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

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

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

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

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

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

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

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

2.02 ABOVE GRADE

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

B. ROUTE PIPING IN AN ORDERLY MANNER, PLUMB AND PARALLEL TO BUILDING STRUCTURE. MAINTAIN GRADIENT. SLOPE PIPING AND ARRANGE SYSTEMS TO DRAIN. IN 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.

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.

J. ALL EQUIPMENT WILL BE FACTORY TESTED.

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

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

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

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

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

4. WARRANTY

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.

APPLICABLE CODES

ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE OHIO 2024 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 CODES APPLICABLE TO THIS PROJECT:

2023 NATIONAL ELECTRICAL CODE (NEC)
2021 OHIO ENERGY CODE (IECC 2021)
2024 OHIO PLUMBING CODE
2024 OHIO MECHANICAL CODE
2021 OHIO FUEL GAS CODE
2021 INTERNATIONAL FIRE CODE
2009 ICC A117.1 ACCESSIBILITY CODE

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

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Another Broken Egg Cafe

Plumbing Symbols and Specifications

P-1

LANDLORD NOTES:

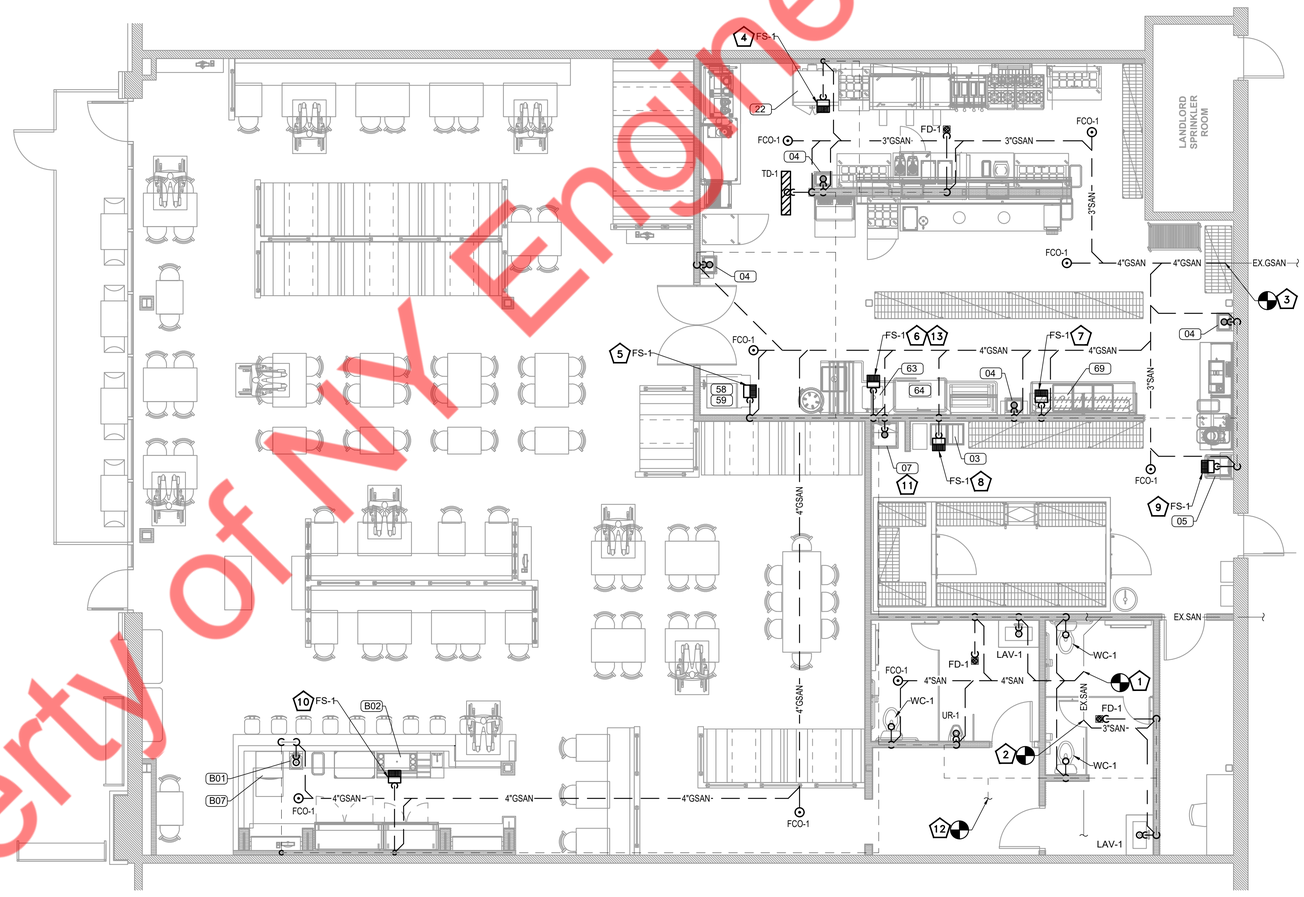
1. CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING EXISTING FIRE RATED DEMISE WALL.
2. CONTRACTOR SHALL USE LANDLORDS ROOFER HOLDING THE WARRANTY PRESENTLY IN PLACE. ALL COST FOR ALL ROOFER WORK SHALL BE BY TENANT.

GENERAL NOTES:

1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE (REFER SHEET P-1).
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
4. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, & SHUT-OFF VALVES AS REQUIRED.
5. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
6. ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION , A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
7. PROVIDE TRAP PRIMER/ SEAL ON FLOOR DRAIN AS PER LOCAL JURISDICTION.

SANITARY KEYED NOTES:

1. CONNECT NEW 4" SANITARY LINE TO EXISTING 4" SANITARY WASTE LINE IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY SIZE, ROUTING AND INVERT ON SITE.
2. CONNECT NEW 3" SANITARY LINE TO EXISTING 4" SANITARY WASTE LINE IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING SANITARY SIZE, ROUTING AND INVERT ON SITE.
3. CONNECT NEW 4" GREASE SANITARY LINE TO EXISTING GREASE SANITARY LINE IN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING GREASE SANITARY SIZE, LOCATION ROUTING AND INVERT ON SITE.
4. INDIRECT WASTE FROM CONVENTION OVEN TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
5. INDIRECT WASTE FROM ICE MACHINE & ICE BIN TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
6. INDIRECT WASTE FROM PRE-RINSE FAUCET ASSEMBLY & DISMACHINE TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
7. INDIRECT WASTE FROM 3-COMPARTMENT TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
8. INDIRECT WASTE FROM BANK N BOX SYRUP TANK RACK SYSTEM TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
9. INDIRECT WASTE FROM 1-COMPARTMENT SINK TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
10. INDIRECT WASTE FROM COCKTAIL STATION AND UNDER BAR GLASS WASHER TO ADJACENT FLOOR SINK WITH APPROVED AIR GAP.
11. ROUTE CONDENSATE DRAIN FROM WALK-IN COOLER TO MOP SINK WITH APPROVED AIR GAP.
12. CONNECT NEW 3" VENT LINE TO EXISTING VENT LINE AVAILABLE WITHIN THE SPACE. CONTRACTOR TO FIELD VERIFY EXISTING VENT LINE LOCATION AND SIZE. COORDINATE WITH OVERALL PLAN. REROUTE THE VENT LINE AS NEEDED. BASE BID ACCORDINGLY.
13. PROVIDE DRAIN TEMPERING VALVE (DTV) FOR DISH-MACHINE.



1 / P-2 PLUMBING SANITARY FLOOR PLAN
3/16" = 1'-0"

PROJECT NO.:	13257
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CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

Another Broken Egg Cafe

Plumbing Sanitary Floor Plans

P-2

LANDLORD NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING EXISTING FIRE RATED DEMISE WALL.
2. CONTRACTOR SHALL USE LANDLORDS ROOFER HOLDING THE WARRANTY PRESENTLY IN PLACE. ALL COST FOR ALL ROOFER WORK SHALL BE BY TENANT.

GAS PIPE SIZING PER
2021 INTERNATIONAL FUEL GAS CODE (IFGC 2021).
TABLE NO.402.4(2)

INLET PRESSURE- LESS THAN 2 PSI
SPECIFIC GRAVITY- 0.6
PRESSURE DROP 0.5" W.C.

EQUIVALENT LENGTH OF PIPE =
140 + FITTINGS (+40%) = 200 FEET

GAS NOTES:

1. PROVIDE SHUT-OFF VALVE AN ACCESSIBLE LOCATION. PROVIDE GAS PRESSURE REGULATOR FOR ALL GAS EQUIPMENT IF REQUIRED.
2. CONTRACTOR SHALL VERIFY ACTUAL GAS PRESSURE AND LONGEST LENGTH OF RUN TO FARTHEST APPLIANCE PRIOR TO INSTALLATION AND NOTIFY ENGINEER IF CONDITION DIFFER THAN SHOWN ON THIS PLAN.

LOW GAS PRESSURE SIZING TABLE	
SIZE	GAS LOAD(CFH)
1/2"	34
3/4"	71
1"	134
1-1/4"	275
1-1/2"	412
2"	794
2-1/2"	1270
3"	2240

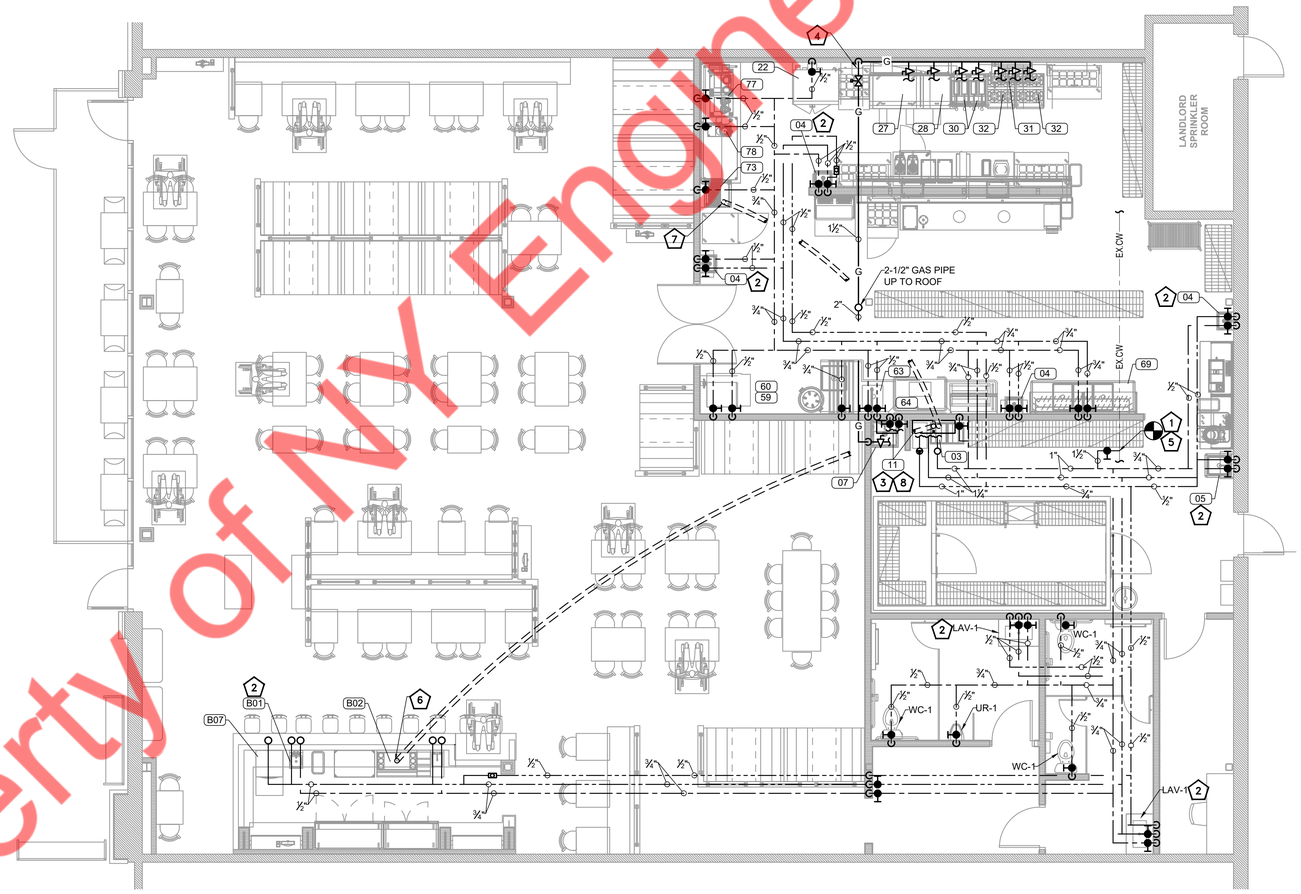
GENERAL NOTES:

1. CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER 2021 INTERNATIONAL ENERGY CONSERVATION CODE (REFER SHEET P-1).
2. PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
3. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
4. PROVIDE ACCESS PANELS FOR WATER HAMMER ARRESTOR, & SHUT-OFF VALVES AS REQUIRED.
5. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
6. ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION , A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
7. PROVIDE TRAP PRIMER/ SEAL ON FLOOR DRAIN AS PER LOCAL JURISDICTION.
8. PROVIDE BACKFLOW PREVENTION DEVICE TO EQUIPMENTS AS PER REQUIREMENT.

SANITARY KEYED NOTES:

1. CONNECT NEW 1½" CW LINE WITH SHUT OFF VALVE TO EXISTING CW IN THE SPACE . CONTRACTOR TO FIELD VERIFY EXISTING CW LINE SIZE, LOCATION AND PRESSURE.
2. PROVIDE ASSE 1070 OR SIMILAR APPROVED TEMPERING VALVE FOR LAVATORIES AND HAND SINK. SET AT TEMPERATURE TO A MAXIMUM 110 °F
3. ROUTE WATER HEATER DRAIN TO NEAREST MOP SINK WITH APPROVED AIR GAP.
4. PROVIDE MECHANICAL GAS VALVE BELOW CEILING FOR COOKING EQUIPMENT. INTERLOCK WITH G.C. PROVIDE ANSUL FIRE PROTECTION SYSTEM AT HOOD.
5. CONTRACTOR TO FIELD VERIFY THE AVAILABILITY OF EXISTING BACKFLOW PREVENTOR IN FIELD. PROVIDE NEW BACKFLOW PREVENTOR AS PER LOCAL CODE IF NOT AVAILABLE. BASE BID ACCORDINGLY.
6. 6" PVC ROUTED BELOW SLAB FROM BAG-N-BOX TO SODA DISPENSER AT BAR. VERIFY LOCATION IN FIELD WITH COORDINATE WITH COCA-COLA ON SYRUP LINE INSTALL.
7. GC TO COORDINATE WITH COCA-COLA ROUTING OF SODA LINES OVERHEAD TO DISPENSER.
8. CONTRACTOR TO MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR WATER HEATER.

GAS EQUIPMENT PIPE SIZING CALCULATION					
TAG	DECSRIPTION	MANUFACTURER	MODEL NO.	SIZE	MBH
27	48" GRIDDLE (THERMOSTATIC)	COOKING PERFORMANCE GROUP	351GTCPG48NL	1"	120
28	24" GRIDDLE (THERMOSTATIC)	COOKING PERFORMANCE GROUP	351GTCPG24NL	¾"	60
30	GAS FRYER	AVANTCO	177FFES50N	1"	170
31	SALAMANDER, GAS	COOKING PERFORMANCE GROUP	351S36SBN36K	¾"	36
32	COUNTERTOP RANGE	COOKING PERFORMANCE GROUP	351RCPG24NL	1"	176
MAU-1(N)	MAKE UP AIR UNIT	REFER MECHICAL DRAWINGS		1½"	386.222
RTU-1(N)	ROOF TOP UNIT	REFER MECHICAL DRAWINGS		1¼"	180
RTU-2(N)	ROOF TOP UNIT	REFER MECHICAL DRAWINGS		1¼"	180
RTU-3(N)	ROOF TOP UNIT	REFER MECHICAL DRAWINGS		1"	110
WH-1	(3)WATER HEATER	RINNAI	CX199I	2"	597
TOTA LOAD				3"	2015.222



1 P-3 PLUMBING WATER & GAS PIPING PLAN
3/16" = 1'-0"

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Another Broken Egg Cafe

Plumbing Water & Gas Piping Plan

P-3

LANDLORD NOTES:

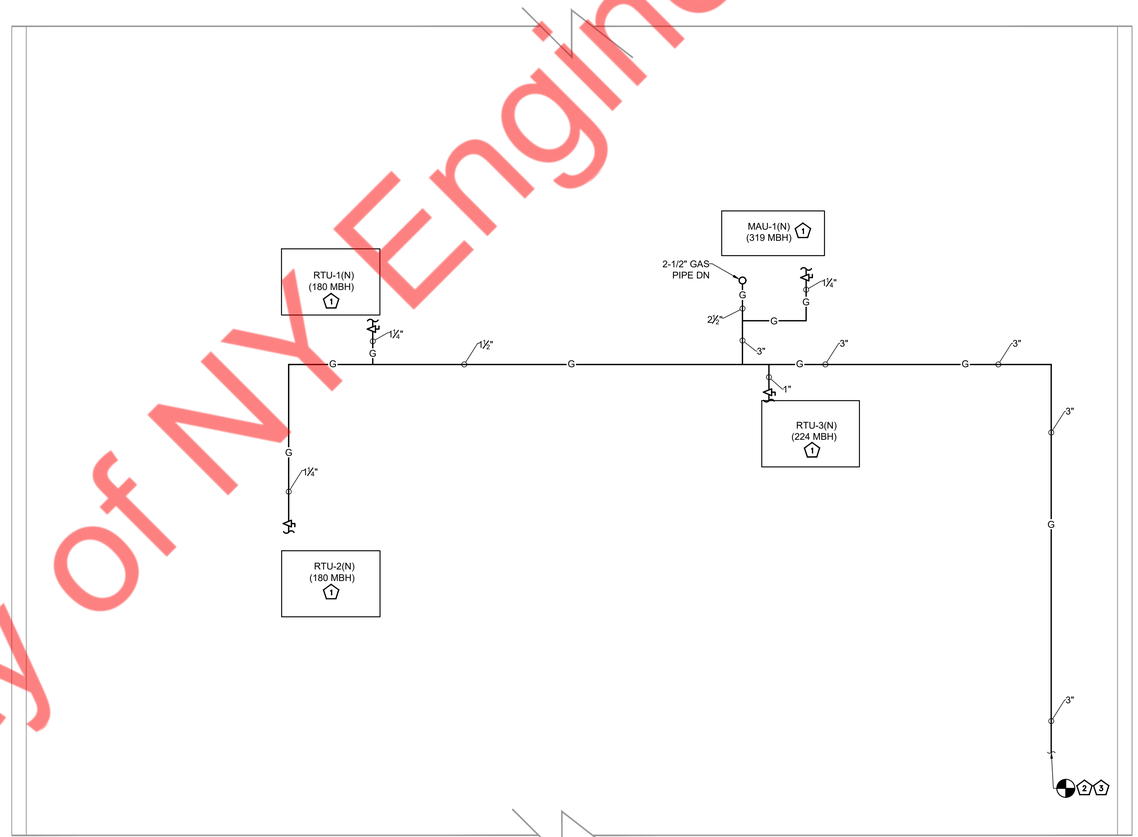
1. CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING AND REPAIRING EXISTING FIRE RATED DEMISE WALL.
2. CONTRACTOR SHALL USE LANDLORDS ROOFER HOLDING THE WARRANTY PRESENTLY IN PLACE. ALL COST FOR ALL ROOFER WORK SHALL BE BY TENANT.

GENERAL NOTES:

1. COORDINATE ROOF PENETRATIONS WITH THE TENANT GENERAL CONTRACTOR AND LANDLORD. PROVIDE AND PAY REQUIRED ROOFING BY LANDLORD'S ROOFING CONTRACTOR.
2. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO THE BUILDING STRUCTURE OR BUILDING UTILITIES CAUSED AS RESULT OF THE CONTRACTOR'S WORK UNDER THIS CONTRACT. IT IS RECOMMENDED THAT MASONRY/CONCRFETE FLOORS/WALLS BE X-RAYED PRIOR TO ANY PENETRATIONS.
3. REFER RISER DIAGRAMS FOR ALL PIPE SIZES.
4. ANY ROOF PENETRATION SHALL BE PERFORMED BY LANDLORD'S ROOFERS AT LANDLORD OPTION , A BONDED ROOFER APPROVED IN ADVANCE BY LANDLORD.
5. PROVIDE GAS PRESSURE REGULATOR ON EACH GAS FIRED EQUIPMENT IF REQUIRED.

GAS KEYED NOTES:

1. CONTRACTOR TO MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR MECHANICAL EQUIPMENTS.
2. CONTRACTOR TO FIELD VERIFY AND CONNECT NEW 3" GAS PIPE TO EXISTING GAS LINE.
3. CONTRACTOR TO FIELD VERIFY EXISTING GAS METER LOCATION AND CAPACITY IS EQUAL OR MORE THAN 2062 CFH. UPGRADE IF REQUIRED. PROVIDE NEW PRESSURE REGULATOR AND SET PRESSURE AT 14" OF W.C. IF REQUIRED. COORDINATE ALL WORK WITH LANDLORD/TENANT AND UTILITY COMPANY.



1 P-4 GAS PIPING ROOF PLAN
3/16" = 1'-0"

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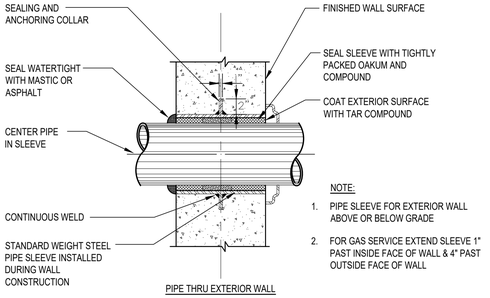
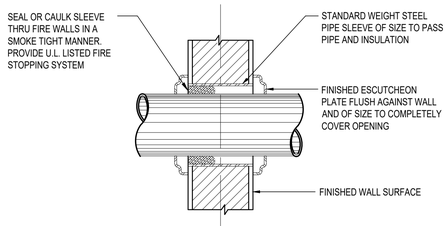
Another Broken Egg Cafe

Gas Piping Roof Plan

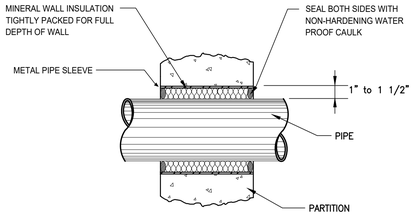
P-4



PIPE THRU EXTERIOR WALL



PIPE THRU FIRE RATED WALL OR FLOOR



PIPE PENETRATION THRU NON FIRE RATED WALL

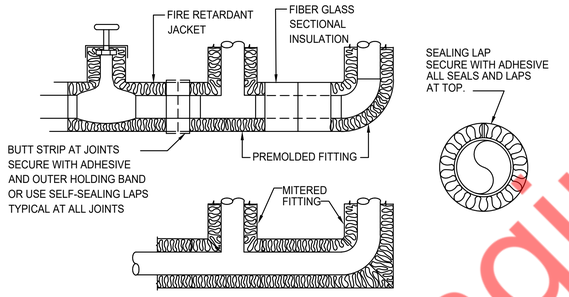
1 P-5 PIPE SLEEVE THRU WALL SECTION N.T.S

CONCEALED VALVES AND FITTINGS

* WRAP WITH 1-INCH THICK, 1-POUND DENSITY TO REQUIRED PIPE INSULATION THICKNESS
* SECURE WITH WIRE OR TAPE.
* VAPOR SEAL COLD WATER, CHILLED WATER AND STORM WATER PIPING.

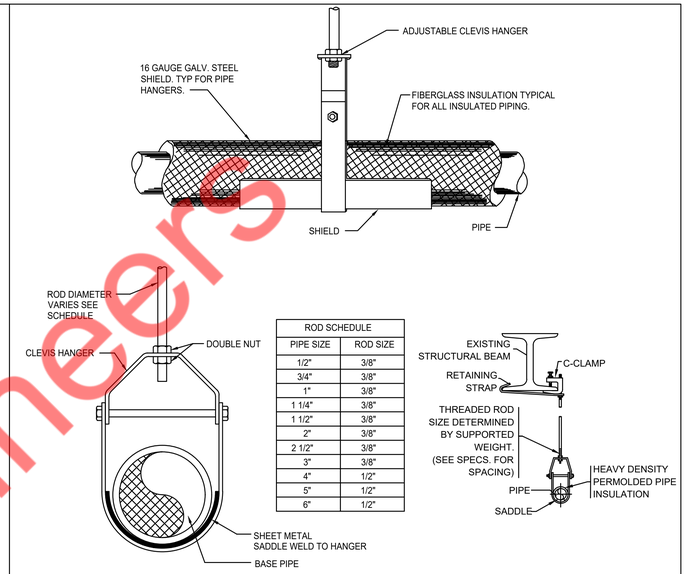
CONCEALED VALVES AND FITTINGS

* PREMOLDED FIBER GLASS OR RADIAL MITERED PIPE INSULATION
* SKIM COAT OF INSULATION CEMENT
* COAT OF MASTIC
* WRAP WITH FIBER GLASS REINFORCING CLOTH.
* FINISH COAT OF MASTIC
* OVERLAP 2-INCHES ON PIPE INSULATION.



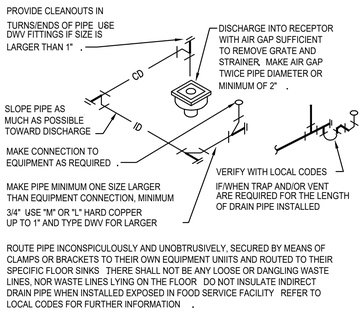
INSULATION OF PIPING, VALVES AND FITTINGS FOR EXPOSED AND CONCEALED LOCATIONS

2 P-5 N.T.S

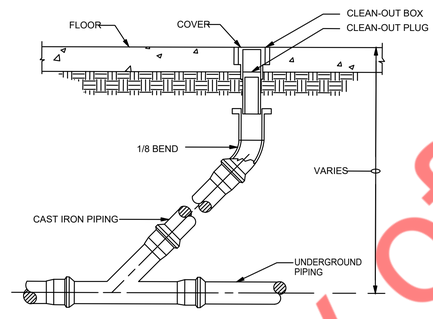


ROD SCHEDULE	
PIPE SIZE	ROD SIZE
1/2"	3/8"
3/4"	3/8"
1"	3/8"
1 1/4"	3/8"
1 1/2"	3/8"
2"	3/8"
2 1/2"	3/8"
3"	3/8"
4"	1/2"
5"	1/2"
6"	1/2"

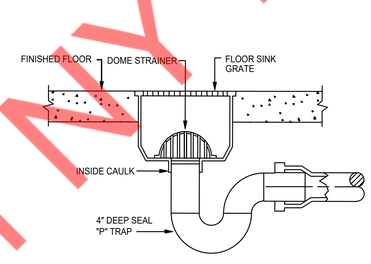
3 P-5 HANGER DETAIL N.T.S



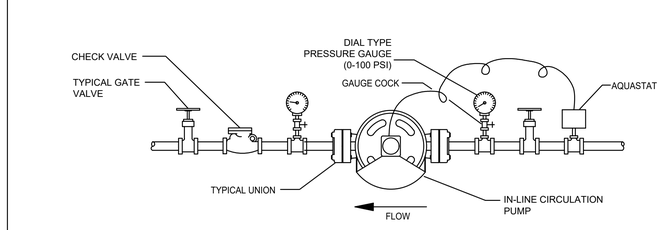
4 P-5 INDIRECT/CONDENSATE DRAIN N.T.S



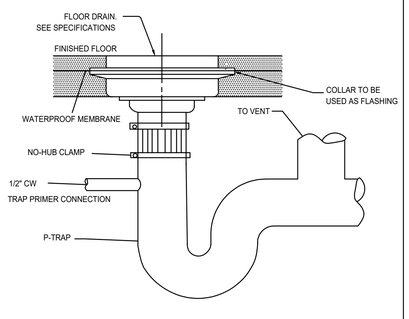
5 P-5 FLOOR CLEANOUT DETAIL N.T.S



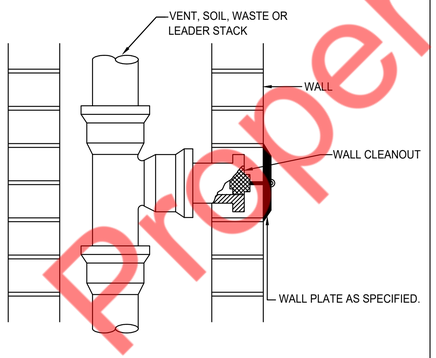
6 P-5 FLOOR SINK DETAILS N.T.S



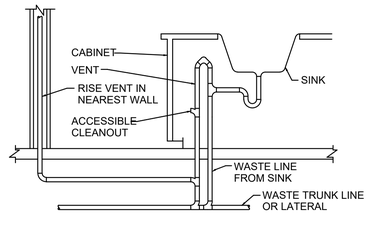
7 P-5 INLINE RECIRCULATING PUMP DETAIL N.T.S



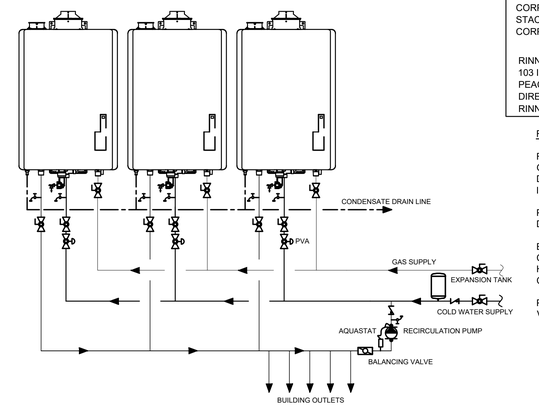
8 P-5 FLOOR DRAIN DETAILS N.T.S



9 P-5 WALL CLEANOUT DETAIL N.T.S



10 P-5 TYPICAL ISLAND SINK PLUMBING CONNECTIONS N.T.S



CONTACT DETAILS:
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STACY PETERSON
CORPORATE ACCOUNT MANAGER

RINNAI AMERICA CORPORATION
103 INTERNATIONAL DRIVE
PEACHTREE CITY,GA 30269
DIRECT DIAL: 909-631-8297
RINNAI.US

FOR THIS APPLICATION

REFERENCE RINNAI CIRC-LOGIC GUIDE FOR RINNAI CIRC-LOGIC DESCRIPTION, SIZING, AND INSTALLATION INSTRUCTIONS.

PVA TO REMAIN AT FACTORY DEFAULT SETTING.

ENSURE CIRCULATION UNIT IS CONNECTED AS PRIMARY WATER HEATER USING AN EZCONNECT CABLE.

PVA - PRESSURE ACTIVATION VAVLE

11 P-5 GAS FIRED TANKLESS WATER HEATER DETAIL N.T.S

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Another Broken Egg Cafe

Plumbing Details

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PLUMBING FIXTURE SCHEDULE

SYMBOL	DESCRIPTION	TRAP	SAN	VENT	C.W.	H.W.	REMARKS
WC-1	WATER CLOSET	-	4"	2"	1/2"	-	FLUSH TANK
LAV-1	LAVATORY	1-1/4"	1-1/2"	1-1/2"	1/2"	1/2"	PROVIDE MIXING VALVE
FD-1	FLOOR DRAIN	3"	3"	2"	-	-	-
FS-1	FLOOR SINK	3"	3"	2"	-	-	-
UR-1	URINAL	2"	3"	2"	3/4"	-	-
TD-1	TRENCH SINK	3"	3"	2"	-	-	-
TPV-1	TRAP PRIMER VALVE	-	-	-	1/2"	-	PROVIDE DISTRIBUTION UNIT FOR MULTIPLE DRAIN CONNECTIONS.
FCO-1	FLOOR CLEAN OUT	-	SEE PLANS	-	-	-	-
WCO-1	WALL CLEAN OUT	-	SEE PLANS	-	-	-	-

NOTES
1. REFER TO SPECIFICATIONS FOR APPROVED EQUAL MANUFACTURERS

PUMP SCHEDULE

TAG	MANUFACTURER	MODEL NUMBER	SIZE	TYPE	SERVICE	CAPACITY		RPM	ELECTRICAL DATA			OPERATING WEIGHT (LBS)	REMARKS/OPTIONS
						GPM	HEAD (ft.)		V	PH	HZ		
RCP-1	BELL & GOSSETT	NBF-25	3/4"	WET ROTOR	HWR	3.0	12	2950	120	1	60	12	NOTE 1,2

REMARKS:

1. ACCEPTABLE MANUFACTURERS: ARMSTRONG, BELL AND GOSSETT, GRUNDFOS, PACO, PATTERSON, TACO, OR WEINMAN.
2. PROVIDE WITH AQUASTAT.

EXPANSION TANKS

UNIT	NUMBER	MANUFACTURER & MODEL NUMBER	MODEL	SERVICE	TANK VOLUME (GAL)	ACCEPTANCE VOLUME (GAL)	PRESSURE RATING (PSI)	DIMENSIONS		OPERATING WEIGHT (LBS)	NOTES
								DIAMETER (INCH)	HEIGHT (INCH)		
ET-1	1	AMTROL	ST-12C-DD	34	6.4	3.2	150	12	18	25	1

GENERAL NOTES:
1. ACCEPTABLE MANUFACTURERS: AMTROL, BELL AND GOSSETT, TACO, OR THRUSH.

GREASE INTERCEPTOR CALCULATION

TAG	FIXTURE	QUANTITY	DFU PER FIXTURE	TOTAL DFU
69	3 COMP. SINK	1	2	2
05	1 COMP. SINK	1	2	2
63	PRE.RINSE SINK	1	2	2
07	MOP SINK	1	2	2
04	HAND SINK	4	1	4
B01	HAND SINK	2	1	2
FS-1	FLOOR SINK	4	5	20
FD-1	FLOOR DRAIN	1	6	6
TD-1	TRENCH DRAIN	1	5	5
TOTAL DRAINAGE FIXTURE UNITS (DFU) CONNECTED TO GREASE INTERCEPTOR				45

FIXTURE UNITS BASED ON AS PER 2024 OHIO PLUMBING CODE , CHAPTER 7, SECTION 709, TABLE 709.1 AND TABLE 709.2. CONVERSION OF GPM VALUE BASED ON SECTION 709.3, FOR 45 DFU IS 22.5 GPM.

AS PER 2024 OHIO PLUMBING CODE, CHAPTER 10, SECTION 1003.3.7 AND THE CAPACITY OF GREASE INTERCEPTOR IS PEAK DRAIN FLOW MULTIPLIED BY 30 MINUTES RETENTION TIME

22.5 (GPM) X 30 (MIN.) = 675 GALLONS.

MINIMUM REQUIRED CAPACITY OF GREASE INTERCEPTOR FOR ABE CAFE = 1000 GALLONS

KITCHEN EQUIPMENT SCHEDULE

TAG NO.	DESCRIPTION	WASTE		VENT	CW	HW	NOTES
		DIRECT	INDIRECT				
03	BAG IN BOX SYRUP TANK RACK SYSTEM	-	3/4"	-	1/2"	-	1 UNITS
04	HAND SINK AND FAUCET	1-1/2"	-	-	1/2"	1/2"	4 UNITS
05	ONE (1) COMPARTMENT SINK	1-1/2"	-	-	1/2"	1/2"	1 UNITS
07	MOP SINK (BY GENERAL CONTRACTOR)	3"	-	-	3/4"	3/4"	1 UNITS
22	CONVECTION OVEN	-	3"	-	1/2"	-	1 UNITS
58	ICE MACHINE	-	3/4"	-	1/2"	-	1 UNITS
59	ICE BIN	-	3/4"	-	-	-	1 UNITS
60	WATER FILTRATION SYSTEM	-	-	-	1/2"	-	1 UNITS
63	PRE-RINSE FAUCET ASSEMBLY	-	1-1/2"	-	1/2"	1/2"	1 UNITS
64	DISHMACHINE	-	2"	-	-	3/4"	1 UNITS
69	THREE (3) COMPARTMENT SINK	-	2"	-	1/2"	1/2"	1 UNITS
73	SODA DISPENSER AND ICE CHEST COMBO	-	-	-	1/2"	-	1 UNITS
77	COFFEE BREWER	-	-	-	1/2"	-	1 UNITS
WH-1	WATER HEATER	-	1-1/2"	-	1"	-	SEE WATER HEATER SCHEDULE
78	TEA BREWER	-	-	-	1/2"	-	1 UNITS
B01	HAND SINK AND FAUCET	2"	-	-	1/2"	1/2"	1 UNITS
B02	COCKTAIL STAION	-	1/2"	-	1/2"	1/2"	1 UNITS
B07	UNDER BAR GLASSWASHER	-	1/2"	-	-	1/2"	1 UNITS

GAS FIRED TANKLESS WATER HEATER

ID	DESCRIPTION	QUANTITY	LOCATION	MANUFACTURER	MODEL NO.	HEATING CAPACITY	FLOW RATE	GAS CONN.	WATER CONN.	MIN. GAS SUPPLY PRESSURE	MAX. GAS SUPPLY PRESSURE	REMARKS
WH-1	WATER HEATER	3	UTILITY AREA	RINNAI	CX199i	199900 Btu/h	4.2 GPM @90°F	1-1/2"	1-1/4"	3.5" WC	10.5" WC	- DIMENSION 18.50"(W)X25.75"(H)X11.41"(D) - PROVIDE CLEARANCES FOR HEATER AS PER MANUFACTURER'S RECOMMENDATION. - PROVIDE DRAIN PAN. - PROVIDE RECIRCULATION PUMP (RCP-1) AND EXPANSION TANK (ET-1) AS PER SCHEDULE. - PROVIDE CONDENSATE DRAIN NEUTRALIZATION KIT - CO-ORDINATE WITH MECHANICAL CONTRACTOR FOR COMBUSTION AIR INTAKE & EXHAUST CONNECTIONS.

NOTES:
WATER HEATER SIZED FOR 4.4 GPM @ 90°F RISE.
APPROVED ALTERNATE: RINNAI CU199iN

BACKFLOW DEVICE SCHEDULE

TAG	SERIES	SIZE	TYPE	USAGE	APPROVAL
BFP-1	909	4"	DOUBLE CHECK VALVE ASSEMBLY	FIRE RISERS	ASSE 1015, AWWA 1013
BFP-2	009QT	2"	REDUCED PRESSURE BACKFLOW PREVENTER	DOMESTIC WATER CONNECTION	ASSE 1015, AWWA 1013
BFP-3	SD-3	3/8"	DUAL CHECK VALVE W/ ATMOSPHERIC VENT	CARBONATED BEVERAGE	ASSE 1022
BFP-4	9D	1/2"	BACKFLOW PREVENTER W/ ATMOSPHERIC VENT	TEA MAKER, COFFEE MACHINE, JUICE DISPENSER, ETC	ASSE 1012
BFP-5	007QTS	1/2"	DUAL CHECK VALVE	NON-CABONATED BEVERAGE, SOFT SERVE ICE CREAM, WATER FILTER, HUMIDIFIER, EYE WASH, ETC	ASSE 1015
BFP-6	8	3/4"	VACUUM BREAKER	WALL HYDRANT CONNECT VACUUM BREAKER	ASSE 1011
BFP-7	N9-CD	3/4"	DUAL CHECK VACUUM BREAKER	HOSE BIBB	ASSE 1052
BFP-8	008PCQT	1/2"	SPILL RESISTANT VACUUM BREAKER	SOAP DISPENSER, SPECIALTY SINK, CLEANING EQUIPMENT, DISHWASHER	ASSE 1056

NOTES:
CONTRACTOR TO VERIFY EXACT REQUIREMENTS OF ALL REQUIRED BACKFLOW DEVICES AND FIXTURES WITH AUTHORITIES HAVING JURISDICTION PRIOR TO BID.

PROJECT NO.: 13257
DRAWN BY: NYE
CHECKED BY: NYE
ISSUED DATE:
ISSUED REVISIONS:
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Another Broken Egg Cafe
Plumbing Schedules

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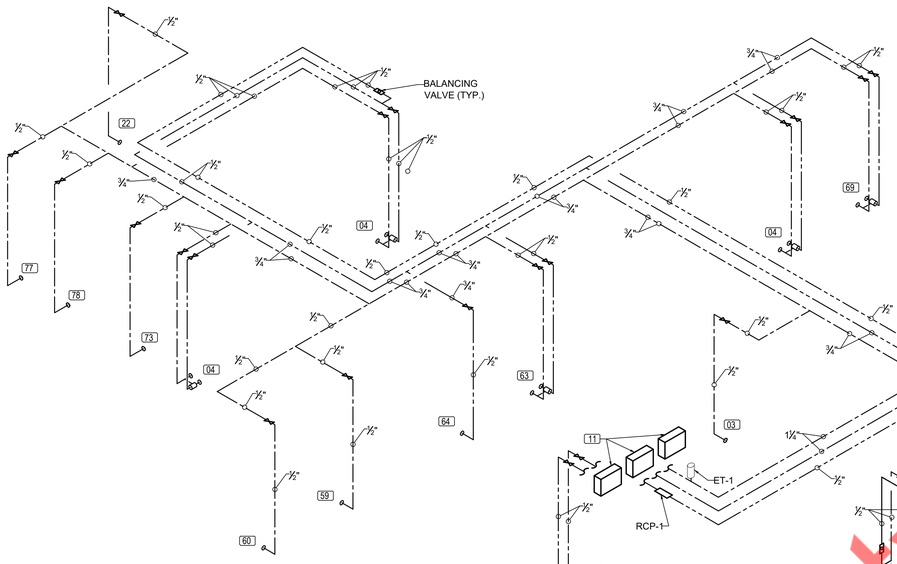
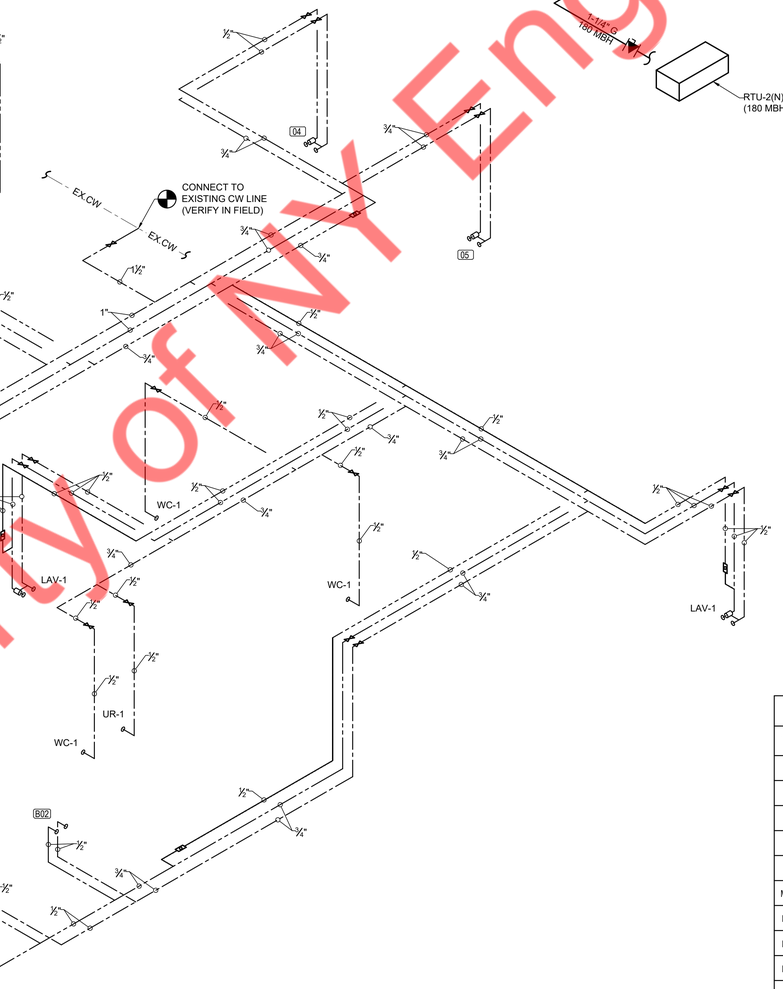
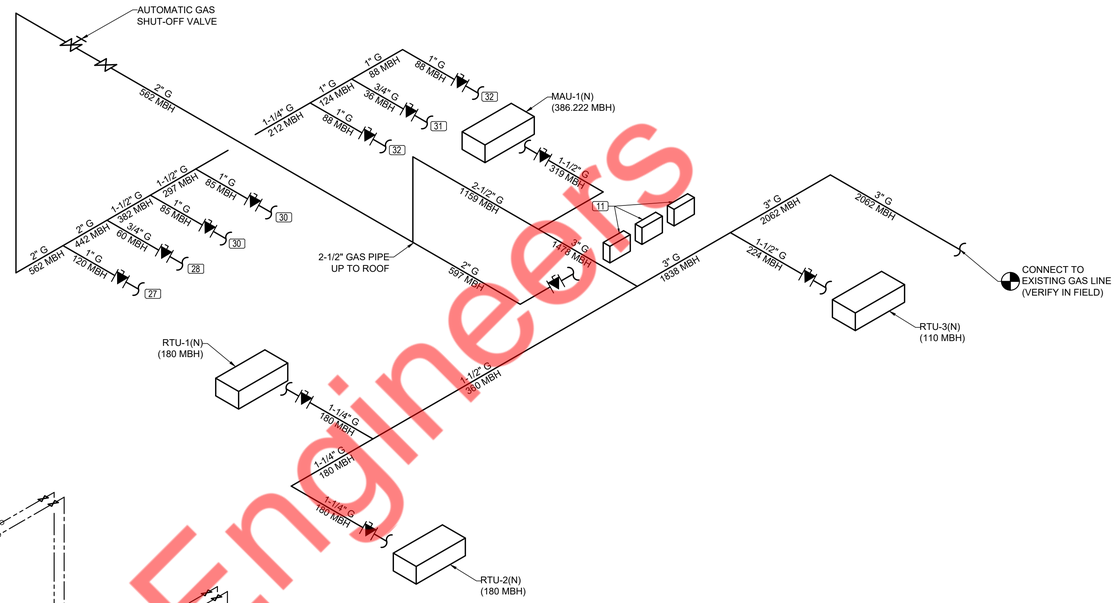




WATER RISER DIAGRAM
NOT TO SCALE



GAS RISER DIAGRAM
NOT TO SCALE

GAS PIPE SIZING PER
2021 INTERNATIONAL FUEL GAS CODE (IFGC 2021).
TABLE NO.402.4(2)

INLET PRESSURE- LESS THAN 2 PSI
SPECIFIC GRAVITY- 0.6
PRESSURE DROP 0.5" W.C.

EQUIVALENT LENGTH OF PIPE =
140 + FITTINGS (+40%) = 200 FEET

GAS NOTES:

1. PROVIDE SHUT-OFF VALVE AN ACCESSIBLE LOCATION. PROVIDE GAS PRESSURE REGULATOR FOR ALL GAS EQUIPMENT IF REQUIRED.
2. CONTRACTOR SHALL VERIFY ACTUAL GAS PRESSURE AND LONGEST LENGTH OF RUN TO FARTHEST APPLIANCE PRIOR TO INSTALLATION AND NOTIFY ENGINEER IF CONDITION DIFFER THAN SHOWN ON THIS PLAN.

LOW GAS PRESSURE SIZING TABLE	
SIZE	GAS LOAD(CFH)
1/2"	34
3/4"	71
1"	134
1-1/4"	275
1-1/2"	412
2"	794
2-1/2"	1270
3"	2240

GAS EQUIPMENT PIPE SIZING CALCULATION

TAG	DECSRIPTION	MANUFACTURER	MODEL NO.	SIZE	MBH
27	48" GRIDDLE (THERMOSTATIC)	COOKING PERFORMANCE GROUP	351GTCPG48NL	1"	120
28	24" GRIDDLE (THERMOSTATIC)	COOKING PERFORMANCE GROUP	351GTCPG24NL	¾"	60
30	GAS FRYER	AVANTCO	177FFES50N	1"	170
31	SALAMANDER, GAS	COOKING PERFORMANCE GROUP	351S36SBN36K	¾"	36
32	COUNTERTOP RANGE	COOKING PERFORMANCE GROUP	351RCPG24NL	1"	176
MAU-1(N)	MAKE UP AIR UNIT	REFER MECHICAL DRAWINGS		1½"	319
RTU-1(N)	ROOF TOP UNIT	REFER MECHICAL DRAWINGS		1¼"	180
RTU-2(N)	ROOF TOP UNIT	REFER MECHICAL DRAWINGS		1¼"	180
RTU-3(N)	ROOF TOP UNIT	REFER MECHICAL DRAWINGS		1"	224
WH-1	(3)WATER HEATER	RINNAI	CX199I	2"	597
TOTA LOAD				3"	2062

PROJECT NO.:	13257
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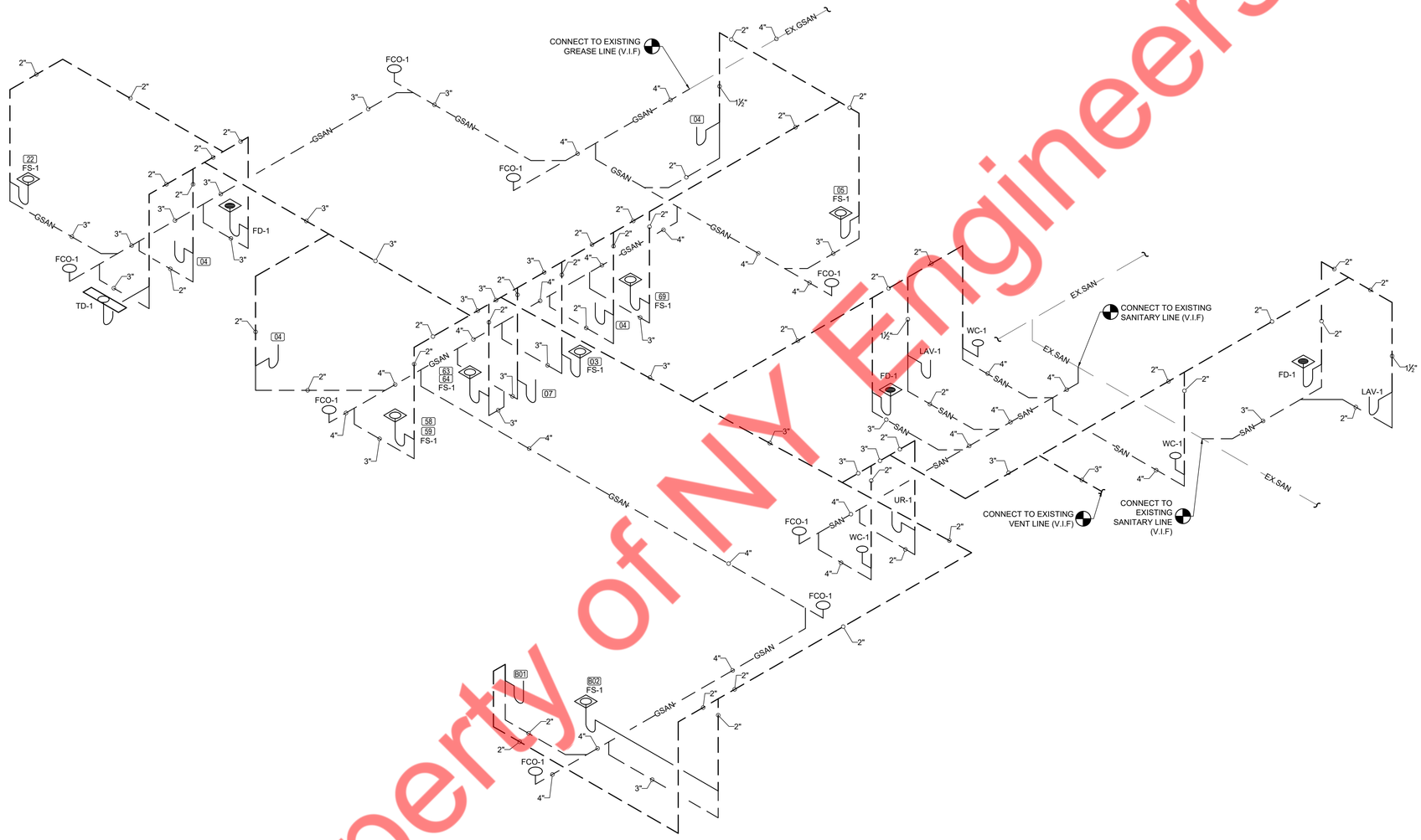
Another Broken Egg Cafe

Plumbing Water and Gas Risers



SANITARY RISER DIAGRAM
NOT TO SCALE

PROJECT NO.:	13257
DRAWN BY:	NYE
CHECKED BY:	NYE
ISSUED DATE:	

ISSUED REVISIONS:

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Another Broken Egg Cafe

Plumbing Sanitary Riser

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